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News consumption in the digital society

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Chapter 5

News consumption in the digital society

*The reciprocal effects between news consumption, political interest,
and news media trust*

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Abstract

During times of crisis or instability, citizens are more reliant on news media as a source of information. We need to better understand which news media people consume, how it changes over time, and whether two important predictors of news use—political interest and news media trust—affect news use. We seek to understand such dynamics in the early stages of the COVID-19 pandemic. Specifically, we investigate the reciprocal relationship between news media use, political interest, and news media trust. Analyzing survey data from two waves from the Netherlands (with a baseline just before the outbreak of the pandemic), we find that self-reports of both traditional and online news consumption increased in the first phase of the public health crisis. Our findings revealed general but mixed support for the reciprocal dynamics between news media use and political interest. Interestingly, the results indicate a reciprocal relationship both for use of and trust in non-mainstream news websites and use of and trust in social media.

Introduction

During the current COVID-19 pandemic, news media are of crucial importance to inform the public (Nielsen, Fletcher, Newman, Brennen, & Howard, 2020). Both traditional and online media play a central role in providing citizens with critical information from the government, health authorities, and expert sources. The media do not only help citizens to understand the COVID-19 crisis, but also motivate them to comply with severe measures (Nielsen et al., 2020). Yet, in our current high-choice media environment, increased news consumption may also have negative implications (see also González-Bailón, 2017). For instance, news consumption via social media (e.g., Facebook, Twitter) and instant messaging apps (e.g., WhatsApp) could facilitate the spread of mis- and disinformation (Brennen, Simon, Howard, & Nielsen, 2020), which have been regarded as key threats to deliberative democracy (van Aelst et al., 2017).

Within the framework of media dependency theory, which states that citizens are more reliant on the media during times of crisis (Ball-Rokeach & Defleur, 1976; Lowrey, 2004; Tai & Sun, 2007), it has been shown that people's perceived dependency is related to both their trust in media and to the sources they consume (Jakob, 2010). It therefore seems safe to assume that understanding the interplay between news media use, political interest and news media

trust (after all, two important predictors of news consumption), becomes especially important in times of crisis, in which the stakes are simply higher.

Both information and various kinds of mis- and disinformation will crucially shape how citizens understand and respond to the COVID-19 crisis, and how they evaluate which institutions are helping address it (Nielsen et al., 2020). Unfortunately, empirical studies exploring how the relationships between media use, trust, and interest differ in terms of crisis are difficult to conduct. After all, to obtain a full picture of how people's news consumption changed, an additional baseline measure just before a crisis is needed. In this study, we are, from a design perspective, in the fortunate position to have such data at our disposal.

The objective of the current study is two-fold: First, we investigate whether, and if so, how, self-reports of news consumption changed in the early stages of the COVID-19 pandemic. We use two-wave panel survey data, including a baseline just before the outbreak of COVID-19, which allows us to explore changes over time. To contextualize our findings, we additionally compare this data with similar measures investigating media use using longitudinal survey data from earlier periods (2015–2017). Second, as several studies suggest that political interest (Kruikemeier & Shehata, 2017; Strömbäck et al., 2018; Strömbäck & Shehata, 2019) and news media trust (Strömbäck et al., 2020) are crucial predictors of news media use, we examine the causal impact of these predictors on news media use by estimating cross-lagged panel models. To account for the fact that online media becomes more important in informing people (Newman et al., 2019), we particularly focus on news consumption via non-mainstream news outlets and social media. Hence, the key research question of this study is: *“To what extent do political interest and news media trust affect news consumption in the early stages of the COVID-19 pandemic?”*

By answering this question, we contribute to the literature in various ways. Even though the theory of media dependency highlights the relevance of changes in both traditional and online news consumption during times of a major public health crisis, there are only a few studies that indeed empirically examine such processes during times of crisis or instability, such as the September 11 terrorist attacks (Lowrey, 2004), and the 2003 SARS epidemic in China (Tai & Sun, 2007). However, since the publication of these studies, the news media landscape has evolved dramatically. With increased online and social media use for news (Newman et al., 2020), we aim to add new evidence that could contribute to further developing this theoretical approach. We need to emphasize here that we do not aim to offer a test of media dependency theory here. Instead, we use it as a starting point to substantiate our assumption that it is worth studying dynamic relationships in particular in times of crisis, and that this can offer

additional insights beyond such studies in routine periods. In particular, we explore the role of news media trust and political interest. We aim to understand what sources and platforms people trust during a crisis and, more importantly, how this affects their news consumption. It is expected that people who do not trust news media are less likely to consume news media during a crisis. This might have negative consequences, as people need to be informed during the crisis (e.g., to comply with measurements taken). Conversely, news consumption might also increase trust in the media, as it shows that it can provide valuable information. However, this effect might be stronger for traditional media compared to social media. We also need a better understanding in the role of political interest. Political interest can play a dual role; as citizens who are more interested in politics are more likely to consume news about public issues, whereas increased news exposure to public issues also advances interest (Lecheler & de Vreese, 2017). It is expected that during a major crisis, political interest might be increased due to more exposure to and experienced importance of politics during the crisis. We will examine the reciprocal dynamics using more fine-grained and detailed measures of news use across multiple platforms—as mentioned in previous work by Kruijkemeier and Shehata (2017).

Theory

Being informed about important and relevant public issues is essential for a functioning democracy. News media play a crucial role in providing people with information on political and public issues. The theory of media system dependency states that particularly for societies in states of crisis or instability (e.g., public crisis, social change, or conflict), citizens are more reliant on the mass media as a source of reassurance and information (Ball-Rokeach & Defleur, 1976). Ball-Rokeach and Defleur (1976) define dependency as “a relationship in which the satisfaction of needs or the attainment of goals by one party is contingent upon the resources of another party” (p. 7), which intensifies when individuals perceive their social environment to be threatening. For example, during a public health crisis—bringing instability and potentially negative changes to society—citizens are in need of trustworthy information to better understand their social environment (Ball-Rokeach & Defleur, 1976; Hu & Zhang, 2014; Lowrey, 2004). In this way, a crisis leads to heightened media use. In turn, the greater this media dependency becomes, the greater the likelihood a message will exert affective, behavioural, and/or cognition effects (Ball-Rokeach & Defleur, 1976).

Few studies have examined media dependency in times of crisis or instability. A number of scholars have indicated that mainstream mass media, such as television and/or radio,

became more important during a crisis (Ball-Rokeach, 1998). Y. C. Kim, Jung, Cohen, and Ball-Rokeach (2004) show that—after the September 11 terrorist attacks—even despite the growing importance of online news as an information resource, people’s reliance on traditional mass media increases in crisis situations. In a different context, Tai and Sun (2007) examined media dependency among Chinese individuals during the SARS epidemic of 2003—when crucial information was not readily available from the mainstream mass media. They indicate that online news and short message service (SMS) text messages played an important role in making citizens aware of the disease. In our current digital society, with more news media choices available (e.g., non-mainstream news, instant messaging, social media), it is increasingly important to obtain a better understanding of how news media choices vary during times of crisis.

In the current study, we focus on the COVID-19 pandemic. While we do not offer a *test* of media dependency theory, we take the findings of media dependency theory as a starting point for our expectations and reasoning about the role of the media in times of this pandemic. In December 2019, a new coronavirus causing COVID-19 first broke out in China’s Hubei province and then spread to other regions in Asia before it quickly grew into a global pandemic crisis. It resulted in travel restrictions and lockdowns in many countries. In the middle of such a health and economic crisis, media are of crucial importance to inform the public. Traditional and online media take a central role in providing citizens with reliable and trustworthy information and motivating them to comply with severe regulations. Besides news media organizations, online news outlets aim to support citizens in understanding the COVID-19 crisis. Recently, Nielsen et al. (2020) collected survey data in six countries (i.e., Argentina, the US, the UK, Germany, Spain, and South Korea) in March and early April 2020 to examine citizens’ news media use about COVID-19. The findings indicate that news use increased in all six countries. Most citizens are using either social media, search engines, video websites (e.g., YouTube), and instant messaging apps (e.g., WhatsApp) (or combinations of these) to get news and information about COVID-19. Citizens may use different types of news media for different reasons; traditional mass media outlets (e.g., television, radio) are better at providing information to help citizens understand the world around them, whereas interpersonal communication (e.g., social media, instant messaging) allows citizens to share and discuss the latest developments.

In our current high-choice media environment, with increased media choice (van Aelst et al., 2017), people’s preferences have become more important predictors of news outlets and content they expose themselves to (Prior, 2007): “The greater media choice there is, the more selective people have to be; and the more selective people have to be, the more important their

preferences become” (Strömbäck et al., 2018, p. 2). Citizens can much more easily opt out of news and only consume the non-political content they prefer. Several studies suggest that political interest (Kruikemeier & Shehata, 2017; Prior, 2007; Strömbäck & Shehata, 2019) and news media trust (Strömbäck et al., 2020) have become more important predictors of news media use than they used to be. Even a completely informative news media environment is barely useful for democracy if citizens are not interested in the news or if they do not trust the news (Strömbäck et al., 2020). Particularly in the early stages of a crisis, it is of crucial importance that citizens have access to reliable and trustworthy information and are interested in understanding the world around them. Nonetheless, there are not many studies focusing on the causal and/or reciprocal effects between news media use and such predictors. By building on the theory of media dependency, we aim to better understand these dynamics during times of crisis.

News media use and political interest

First, we turn our attention to political interest, which is crucial in shaping perceptions and ideas about the (political) world (Moeller & de Vreese, 2013). During a major crisis, political interest might be increased due to more exposure to and experienced importance of politics during the crisis. Conceptually, political interest has been defined as “the degree to which politics arouses a citizen’s curiosity” (van Deth, 2000, p. 278). According to Prior (2010) “political interest is typically the most powerful predictor of political behaviors that make democracy work. Politically interested people are more knowledgeable about politics, more likely to vote, and more likely to participate in politics in other ways” (p. 747). In our current high-choice media environment, political interest has become increasingly important as an individual-level factor behind news media use (Prior, 2007).

Theoretically, according to Strömbäck and Shehata (2019), there are three possible routes of influence between news media use and political interest: (1) Political interest influences the extent to which people follow the news—indicating *selection effects* (i.e., already politically interested seek out the news), (2) following the news media might influence political interest—indicating *media effects* (i.e., citizens who follow the news get more interested in politics), and (3) the effects run in both directions, with political interest influencing news media use which, in turn, influences political interest. Understanding whether correlations between political interest and news media use mirror selection effects, media effects, or reciprocal effects, demands access to panel data. To date, there is rather limited research using longitudinal data to investigate the reciprocal relationship between political interest and a wide variety of news outlets. Earlier work generally focused on

comparing traditional and online news media. All these find some reciprocal relationships between political interest and news media use, but also differences across media types. Strömbäck and Shehata (2010) used three-wave panel data to investigate the causal relationship between news media use and political interest in Sweden. The results indicate that there are indeed causal and reciprocal relationships between political interest and attention to political news, and between political interest and exposure to some, but not all, news media. Kruikemeier and Shehata (2017) conducted a three-wave panel study among adolescents in Sweden to explore reinforcing spirals between traditional news media and online news consumption and political engagement, with political interest as one of the indicators. They found the process appears to be driven primarily by selection effects.

Political interest might only be partly influenced by situational factors, such as elections, and is considered to be rather stable (Prior, 2010; Shehata & Amnå, 2019). News media use, on the other hand, may be more variable and subject to situational determinants. Hence, especially during a crisis, wherein people depend highly on the media to be informed about the crisis, news consumption might increase. While, we already argued that news media use increases during times of crisis, we do not have any specific knowledge about exactly what news content citizens are interested in. As the COVID-19 pandemic has had consequences beyond the spread of the disease itself, the crisis might have affected interest in national news, as well as political news and economic news. Political interest could also trigger citizens to become more engaged and seek out additional information. To examine the reciprocal relationship between interest in news content and political interest in the early stages of the COVID-19 pandemic, we pose the following research question:

RQ1: *To what extent do reciprocal influences exist between interest in news content and political interest during times of crisis?*

Besides, citizens combine different news outlets, such as social media, search engines, video websites, and instant messaging apps, to get news and information about COVID-19 in the early stages of the pandemic (Nielsen et al., 2020). According to Boulianne (2011) the characteristics of these news outlets, such as the effort and attention required to use these news outlets and the possibility to share information, determine the causal effects between political interest and news media use (see also Moeller, Shehata, & Kruikemeier, 2018). In the current study, we extend previous work focusing on traditional news media only (Strömbäck & Shehata, 2019), by examining the reciprocal influences between political interest and news use across a wide variety of platforms, including social media, instant messaging apps, and non-mainstream news websites. We explore the relationship between political interest and

various news media outlets to understand whether news media use could affect political interest due to more exposure to and experienced importance of politics during the crisis. It could, for example, be argued that during times of crisis, highly politically interested citizens might be more informed about the crisis compared to citizens that are less interested in politics. In turn, this could lead to information inequalities between citizens. We pose the following research question:

RQ2: *To what extent do reciprocal influences exist between news media use and political interest during times of crisis?*

News media use and news media trust

Because, as we outlined above, in a high-choice media environment, the issue of news media trust and its impact on citizen's news consumption has taken on new importance (Prior, 2007), traditional news media have to deal with various new and/or increased challenges. For example, alternative and partisan media outlets attack traditional media for being untrustworthy (Ladd, 2011). Besides, social media allow citizens to by-pass traditional media outlets, provide channels for attacks on the news media, and facilitate the spread of mis- and disinformation (Brennen et al., 2020).

News media trust is an important predictor of news media use (Kalogeropoulos, Suiter, Udriș, & Eisenegger, 2019). Recently, Strömbäck et al. (2020) proposed a framework for future research on news media trust and its impact on media use. Besides understanding news media trust at different levels of analysis (e.g., news media in general, media type, individual media brands), the framework allows researchers to explore to what extent news media trust—at varying levels of analysis—is linked to news media use. Surprisingly, there is only a limited number of studies that explore the relationship between news media trust and news media use. Tsfati and Cappella (2003) found that media skepticism is negatively related to mainstream news media use, but positively related to non-mainstream news media use. In a follow-up study, Tsfati (2010) again found that exposure to mainstream media sources is related to trust in media, whereas exposure to non-mainstream sources is related to media skepticism. The same pattern was found by Fletcher and Park (2017), using survey data from eleven countries: They found that citizens with low levels of media trust tend to prefer non-mainstream news sources, such as social media and blogs. Overall, previous work indicates that news media trust is related to increased news media use, whereas media distrust is related to increased use of non-mainstream news outlets (Strömbäck et al., 2020). Additionally, previous research suggests that there is an effect where use of different news media types results in increasing trust in these particular news media (Hopmann, Shehata, & Strömbäck, 2015). This suggests

that the correlation between media use and media trust is not only a selection effect but also a media effect.

In times of a major public health crisis, it becomes particularly important that citizens use, and that they trust, the news media (Strömbäck et al., 2020). Accurate, reliable, and trustworthy information will shape how people understand and respond to a public health crisis. In case of COVID-19, reliable and trustworthy information may prevent citizens to turn to inadequate (and potentially harmful) measures, as well as to either overreact (e.g., by hoarding groceries) or, more alarmingly, underreact (e.g., by engaging in unsafe behavior and unintentionally spreading the virus). Citizens feeling dependent on the media, for example in times of crisis, social change, or conflict, express significantly higher levels of trust in them, whereas citizens using more alternative information sources are—one may argue—probably feeling less dependent. In turn, it can be argued that trust in the news media is the reason for a feeling of media dependency and not the other way around. In a recent study, Nielsen et al. (2020) collected survey data in six countries to understand how citizens access news and information about COVID-19. They also explore the trustworthiness of different news sources and platforms. The results indicate that news media organizations play a crucial role in offering news and information about COVID-19; news media are trusted by a majority in all six countries. However, citizens with lower levels of formal education rate news organizations less trustworthy. Although citizens rely on various platforms, they regard the news and information from social media (e.g., Facebook, Twitter), video sites (e.g., YouTube), and instant messaging apps (e.g., WhatsApp) as much less trustworthy compared to news and information from news organizations. ‘Black-box’ algorithms of social media platforms could, for example, easily spread mis- and disinformation. All in all, news media trust, may serve as a possible link between media dependency and news media use during times of crisis (Jackob, 2010). Hence, we pose the following research question:

RQ3: *To what extent do reciprocal influences exist between news media use and news media trust during times of crisis?*

Method

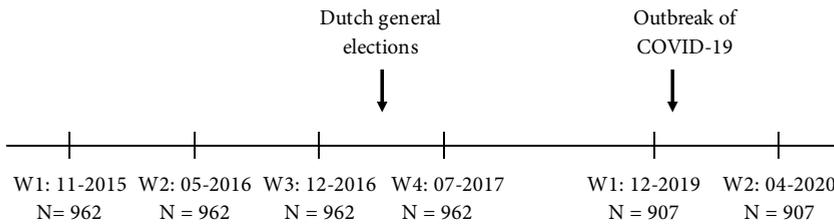
Data

Empirically, this study utilizes longitudinal survey data from the Netherlands (see Figure 18). As part of a larger project (‘Information, Communication, and the Data Society’

(ICDS) of the University of Amsterdam), we conducted a two-wave panel study (N = 907): A first wave in early December 2019, just before the outbreak of COVID-19 was identified in Wuhan, China (World Health Organization, 2020), and a second wave in April 2020, when COVID-19 has spread to the Netherlands where various measures were taken to prevent the spread of the virus. The data were representative of the Dutch population aged 18 years or older. Respondents were recruited by a panel company (Ipsos Netherlands). Among the respondents, 46.1 percent were female, mean age was 50.9 ($SD = 15.9$), and 25.7 percent had a low level of education, 50.4 percent had a medium level of education, and 23.9 percent had a high level of education

In addition, to put our findings in perspective and contrast our data, we use longitudinal survey data from previous work, namely a four-wave panel study conducted between 2015 and 2017 (N = 962; $M_{age} = 56.6$, $SD_{age} = 16.3$, 49 percent were female, 36.0 percent had a high level of education). Respondents were recruited through CentERdata’s LISS panel, which comprised of a representative sample of the Dutch population aged 18 years or older.

Figure 18: Data from six time points 2015–2020



Measures

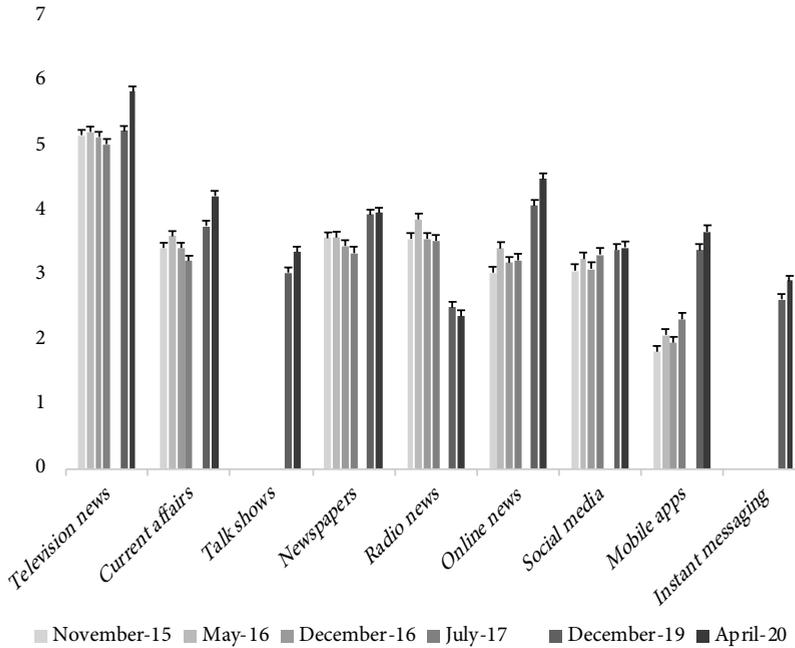
We use the following set of variables (descriptive statistics are presented in Table 6)¹³:

- News use: We categorize thirteen different types of traditional and online news media outlets. Using self-reports, respondents were asked how often they follow the news, (1) by watching television news, (2) by watching current affairs formats, (3) by watching talk shows, (4) by reading printed daily quality newspapers, (5) by reading printed daily tabloid newspapers, (6) by listening to radio news, (7) by visiting online-only news websites, (8) by visiting online news websites, (9) by visiting non-mainstream

¹³To improve the representativeness of the sample, we present our descriptive statistics using a weighting factor—based on a combination of the following variables: gender, age, education, and region.

news websites, (10) by visiting opinion websites, (11) by using social media, (12) by using mobile news apps, and (13) by receiving text messages from friends and family (e.g., *WhatsApp*)—with response categories ranging from 0 to 7 days per week.

Figure 19: Media use in the Netherlands at six time points 2015–2020 (*M and SEs*)



- News interest: We asked respondents to rate their interest in nine news topics by asking: “How interested are you reading about the following types of news?”, namely (1) national news, (2) international news, (3) political news, (4) business and economic news, (5) opinion, (6) sports news, (7) news about science, technology, and innovation, (8) news about art and culture, and (9) entertainment and lifestyle news—with response categories ranging from 1 (not at all interested) to 7 (very interested).
- Political interest: We measured political interest by asking: “How interested are you in politics?”, ranging from 1 (not at all interested) to 7 (very interested).
- Trust in media: We measured news media trust on the media type level (Strömbäck et al., 2020) by asking: “To what extent do you trust the following outlets?”, including newspapers, public broadcasting, commercial broadcasting, radio, online news

websites, and social media—with response categories ranging from 1 (not at all trustworthy) to 7 (very trustworthy).

Analytical strategy

Given the nature of our data and our interest in the reciprocal effects between news use, political interest and news media trust, we estimate cross-lagged panel models using structural equation modeling (see e.g., Strömbäck & Shehata, 2019). The cross-lagged effects not only indicate the presence of reciprocal effects between two variables over time (based on lagged values), but also provide estimates both of the stability of political interest, news media trust, and news media use between waves (Finkel, 2008). Including past levels of news use, political interest, and news media trust as predictor variables is one of the great benefits of panel data, and strongly advances our ability to make causal inferences.

Results

In the current study, we aim to understand to what extent news consumption has changed in the early stages of the COVID-19 pandemic, and particularly whether political interest and news media trust affect such changes. Before we turn our attention to the causal and reciprocal effects of our variables, we aim to contextualize our findings by using data from earlier periods. Table 6 and Figure 19 indicate that news consumption overall increased during the COVID-19 pandemic (in comparison to routine periods a few years ago). For example, watching television news decreased on average from 5.15 (November 2015) to 5.01 days per week (July 2017) (-.14). In April 2020, respondents watched television news, on average, 5.82 days per week (+.61). Visiting online news websites increased from 3.03 (November 2015) to 4.06 (December 2019) to 4.47 days per week (April 2020) (+1.04), and using mobile news apps from 1.81 (November 2015) to 3.37 (December 2019) to 3.66 days per week (April 2020) (+1.85)¹⁴.

¹⁴We also examined the correlation between news use measures across panel waves (see Figure 22). We find more changes in news use measures in the period between 2019 and 2020 in comparison to panel waves in 2015, 2016, and 2017. Put differently, the correlation coefficients indicate a strong relationship between news use measures between, for example, 2016 and 2017 (watching television news: $r = .81$, reading printed daily newspapers: $r = .72$, listening to radio news: $r = .78$, visiting online news websites: $r = .67$, using social media: $r = .71$, and using mobile news apps $r = .68$). We found somewhat less strong correlations between news use measures in the period from December 2019 to April 2020. The correlations between prior and latter values of visiting online news websites, using social media, and using instant messaging are .62, .58 and .46, respectively. Correlation coefficients are somewhat stronger for traditional news consumption between December 2019 and April 2020 (watching television news: $r = .78$, reading printed daily newspapers: $r = .72$, and listening to radio news: $r = .63$).

Table 6: Means and standard deviations for key variables

	W1: 11-2015	W2: 05-2016	W3: 12-2016	W4: 07-2017	W1: 12-2019	W2: 04-2020
	M (SD)					
News outlets						
Television news	5.15 (2.35)	5.20 (2.43)	5.12 (2.49)	5.01 (2.45)	5.21 (2.69)	5.82 (2.48)
Current affairs	3.41 (2.42)	3.59 (2.53)	3.41 (2.53)	3.21 (2.51)	3.75 (2.37)	4.21 (2.46)
Talk shows					3.03 (2.13)	3.35 (2.32)
Newspapers	3.56 (2.86)	3.57 (2.84)	3.44 (2.92)	3.33 (2.91)	3.92 (2.29)	3.95 (2.31)
Quality newspapers					2.05 (2.15)	2.02 (2.14)
Tabloid newspapers					2.66 (2.57)	2.67 (2.62)
Radio news	3.55 (2.70)	3.85 (2.83)	3.55 (2.83)	3.52 (2.83)	2.49 (2.64)	2.36 (2.64)
Online news	3.03 (2.79)	3.39 (2.93)	3.18 (2.93)	3.22 (2.93)	4.06 (2.71)	4.47 (2.83)
Social media	3.32 (3.02)	3.40 (3.13)	3.25 (3.11)	3.41 (3.10)	3.38 (2.67)	3.42 (2.70)
Mobile news apps					3.37 (2.86)	3.66 (2.93)
Instant messaging	1.81 (2.67)	2.07 (2.90)	1.95 (2.83)	2.31 (2.99)	2.62 (2.36)	2.90 (2.46)
News content						
National news					5.35 (1.12)	5.48 (1.08)
International news					4.89 (1.22)	4.98 (1.17)
Political news					4.27 (1.57)	4.39 (1.49)
Financial news					3.88 (1.64)	4.05 (1.59)
Opinion					3.75 (1.51)	3.77 (1.43)
Sports news					3.73 (1.99)	3.68 (1.97)
Science, technology, and innovation					4.50 (1.53)	4.57 (1.46)
Art and culture					3.74 (1.67)	3.83 (1.66)
Entertainment and lifestyle					3.80 (1.49)	3.91 (1.44)
Political interest		4.04 (1.70)			4.03 (1.64)	4.06 (1.60)
Trust						
Trust in public broadcasting					4.92 (1.26)	5.02 (1.22)
Trust in commercial broadcasting					4.34 (1.23)	4.46 (1.27)
Trust in newspapers					4.89 (1.21)	4.93 (1.19)
Trust in radio news					4.92 (1.20)	4.93 (1.17)
Trust in online news					4.76 (1.20)	4.85 (1.18)
Trust in non-mainstream websites					3.32 (1.32)	3.26 (1.31)
Trust in social media news					3.29 (1.23)	3.31 (1.20)
Trust in news received from others					4.20 (1.15)	4.06 (1.18)
N	962	962	962	962	907	907

The role of political interest

We now turn our attention to the role of political interest. We aim to examine whether reciprocal effects exist between interest in news content, news media use, and political interest. Cross-lagged panel models indicate that political interest is indeed an important predictor of changes in news consumption. First, Table 7 shows the results from six cross-lagged models estimating the reciprocal effects of interest in various forms of news content on the one hand, and political interest on the other hand. We particularly focus on news content related to the COVID-19 pandemic, namely (inter)national news, political news, business and economic news, opinion, and news about science, innovation and technology¹⁵. Reciprocal dynamics are evident for all six types of news content. Interest in political news has the strongest positive effect on subsequent levels of political interest ($b = .34, p < .001$), and there are also significant positive effects in the other direction ($b = .30, p < .001$), suggesting the presence of a reciprocal relationship between interest in various news topics and political interest.

Table 7: Cross-lagged effects between news interest and political interest (unstandardized coefficients)

	News interest _{W2}	Pol. interest _{W2}	N	R ²
1. National news _{W1}	.53***	.13***	907	.77
Political interest _{W1}	.11***	.77***		
2. International news _{W1}	.52***	.16***	907	.77
Political interest _{W1}	.15***	.75***		
3. Political news _{W1}	.48***	.34***	907	.76
Political interest _{W1}	.30***	.56***		
4. Business news _{W1}	.63***	.10***	907	.81
Political interest _{W1}	.17***	.75***		
5. Opinion _{W1}	.57***	.13***	907	.79
Political interest _{W1}	.16***	.75***		
6. Science and technology _{W1}	.65***	.07***	907	.83
Political interest _{W1}	.12***	.78***		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. RMSEA = .000. CFI = 1.00. Correlations between all exogenous variables as well as between error terms at each panel wave allowed, though not displayed in the table.

¹⁵In addition, we estimated a series of cross-lagged panel models with interest in sports news, arts and culture news, and entertainment and lifestyle news (see appendix: Figure 23). Surprisingly, the results indicate that sports news as well as arts and culture news have positive effects on subsequent levels of political interest—but there are no effects the other way around.

Second, Table 8 shows the results from thirteen cross-lagged models estimating the reciprocal effects of traditional as well as online news outlets on the one hand, and political interest on the other hand. Here the evidence for reciprocal effects is less striking. Reciprocal effects are evident predominantly with traditional news outlets. Watching current affairs shows as well as watching talk shows, and reading quality newspapers have positive effects on subsequent levels of political interest, and there are also significant positive effects in the other direction, suggesting the presence of a reciprocal relationship for each of these forms of news media use. Watching television news has a positive effect on political interest ($b = .03$, $p = .006$)—but there is no significant effect the other way around, indicating media effects rather than selection effects. We did not find any effects for reading tabloid news and listening to radio news. A second important finding from Table 8 relates to mixed results for online news use. We only found a reciprocal relationship for visiting non-mainstream news websites and using mobile news apps, indicating positive effects on subsequent levels of political interest as well as the other way around. We found media effects—from news media use to political interest—for visiting online-only news websites ($b = .04$, $p = .01$)—but no evidence of selection effects. A selection effect—from political interest to news media use—is found for visiting online news websites ($b = .09$, $p = .05$). We did not find any effects for visiting opinion news websites, using social media or instant messaging for news.

Taken together, the results suggest that there are some differences between traditional news use on the one hand, and online news use on the other hand, in terms of reciprocal relationships. It is worth noting that there is a certain degree of overlap in news use (e.g., in April 2020; see appendix: Table 19). Citizens frequently combine traditional news outlets—those who frequently listen to the radio are also watching television news (Pearson's $r = .21$), watching current affairs shows ($r = .23$), and watching talk shows ($r = .23$). A comparable pattern can be found for online news outlets—citizens who frequently use instant messaging apps for news are also more likely to visit non-mainstream news websites ($r = .24$), visit opinion news websites ($r = .22$), use social media ($r = .41$), and use mobile news apps ($r = .26$).

Finally, the results in Table 7 and Table 8 indicate that political interest remains rather robust over time, and is consistently higher than all forms of news media content and news media use (as reflected by the stability coefficients).

Table 8: Cross-lagged effects between news use and political interest (unstandardized coefficients)

	News use _{W2}	Pol. interest _{W2}	N	R ²
1. <u>Television news_{W1}</u>	.71^{***}	.03^{**}	907	.83
Political interest _{W1}	.05	.79^{***}		
2. <u>Current affairs shows_{W1}</u>	.73^{***}	.04^{**}	907	.83
Political interest _{W1}	.11^{**}	.79^{***}		
3. <u>Talk shows_{W1}</u>	.78^{***}	.06^{***}	907	.84
Political interest _{W1}	.07[*]	.78^{***}		
4. <u>Quality newspapers_{W1}</u>	.69^{***}	.05^{**}	907	.82
Political interest _{W1}	.12^{***}	.79^{***}		
5. <u>Tabloid newspapers_{W1}</u>	.69^{***}	.004	907	.82
Political interest _{W1}	.08	.81^{***}		
6. <u>Radio news_{W1}</u>	.63^{***}	.02	907	.83
Political interest _{W1}	.05	.80^{***}		
7. <u>Online-only news websites_{W1}</u>	.64^{***}	.04^{**}	907	.79
Political interest _{W1}	.04	.79^{***}		
8. <u>Online news websites_{W1}</u>	.67^{***}	.02	907	.81
Political interest _{W1}	.09[*]	.80^{***}		
9. <u>Non-mainstream news websites_{W1}</u>	.50^{***}	.05[*]	907	.76
Political interest _{W1}	.11^{***}	.80^{***}		
10. <u>Opinion news websites_{W1}</u>	.61^{***}	-.02	907	.78
Political interest _{W1}	.04	.81^{***}		
11. <u>Social media_{W1}</u>	.59^{***}	-.01	907	.79
Political interest _{W1}	-.03	.81^{***}		
12. <u>Mobile news apps_{W1}</u>	.65^{***}	.04^{***}	907	.81
Political interest _{W1}	.15^{***}	.79^{***}		
13. <u>Instant messaging_{W1}</u>	.48^{***}	.01	907	.74
Political interest _{W1}	.01	.81^{***}		

Note. ^{*}*p* < .05. ^{**}*p* < .01. ^{***}*p* < .001. RMSEA = .000. CFI = 1.00. Correlations between all exogenous variables as well as between error terms at each panel wave allowed, though not displayed in the table.

The role of news media trust

Next, we turn our attention to news media trust. As shown in Table 6, citizens rate news organizations (e.g., broadcasters, newspapers) as rather trustworthy sources of information, particularly during the COVID-19 pandemic. Trust in news received from others, however, decreased on average from 4.20 (December 2019) to 4.06 (April 2020). We estimate cross-lagged panel models using structural equation modeling to analyze the causal and reciprocal effects between news media use and news media trust. The results are presented in

Table 9. Interestingly, reciprocal effects are evident only with respect to social media and non-mainstream news websites. Each of these forms of news media use has a positive effect on subsequent levels of news media trust, and there are also significant positive effects in the other direction, suggesting the presence of a reciprocal relationship. Effects from news media use to news media trust are found for quality newspapers ($b = .04, p = .010$), tabloid newspapers ($b = .02, p = .050$), radio news ($b = .03, p = .010$), and online news ($b = .03, p = .003$). Not surprisingly, the results indicate significant differences between public and commercial broadcasting. Though we did not find any significant effects between television news, current affairs shows, or talk shows, and trust in commercial broadcasting, we found some effects for trust in public broadcasting. First, watching talk shows has a positive effect on subsequent levels of trust in public broadcasting ($b = .04, p = .008$), and there are also significant positive effects in the other direction ($b = .11, p = .013$), suggesting the presence of a reciprocal relationship between watching talk shows and trust in public broadcasting. We also found an effect of television news on trust in public broadcasting ($b = .03, p = .014$).

Interestingly, as shown in Table 9 there appears to be a significant degree of overlap in news media trust. Citizens who trust radio news are also more likely to trust public broadcasting (Pearson's $r = .74$), commercial broadcasting ($r = .59$), and newspapers ($r = .70$). We also found that citizens who trust social media, are also more likely to trust non-mainstream websites ($r = .49$), and news received from friends and/or family ($r = .37$). It is also worth noting that the stability coefficients of trust in traditional news outlets, such as television news, newspapers, and radio news, are higher compared to online news outlets (e.g., online news, social media, instant messaging).

Next, we aim to further examine using social media and visiting non-mainstream news websites. Not only because they indicate reciprocal effects with news media trust, but also because such platforms could play an important role in facilitating the spread of mis- and disinformation. We estimated a series of cross-lagged panel models to understand the reciprocal effects between news media trust and news use. Trust in non-mainstream news websites has a positive effect on subsequent levels of social media use for news ($b = .11, p < .01$), and there are also significant positive effects in the other direction ($b = .06, p < .01$). We also found that trust in social media has a positive effect on subsequent levels of visiting non-mainstream news websites ($b = .18, p < .01$), and there are also significant positive effects in the other direction ($b = .05, p < .01$).

Table 9: Cross-lagged effects between news use and political interest (unstandardized coefficients)

	News use _{W2}	Trust _{W2}	N	R ²
1. <u>Television news_{W1}</u>	.71^{***}	.02	907	.77
Trust in broadcasting _{W1}	.06	.65^{***}		
2. <u>Current affairs shows_{W1}</u>	.75^{***}	.01	907	.72
Trust in broadcasting _{W1}	.09	.65^{***}		
3. <u>Talk shows_{W1}</u>	.79^{***}	.02	907	.72
Trust in broadcasting _{W1}	.11[*]	.64^{***}		
4. <u>Quality newspapers_{W1}</u>	.71^{***}	.04[*]	907	.70
Trust in newspapers _{W1}	.05	.60^{***}		
5. <u>Tabloid newspapers_{W1}</u>	.69^{***}	.02[*]	907	.82
Trust in newspapers _{W1}	.10	.61^{***}		
6. <u>Radio news_{W1}</u>	.62^{***}	.03^{**}	907	.64
Trust in radio news _{W1}	.09	.62^{***}		
7. <u>Online news websites_{W1}</u>	.63^{***}	.03^{**}	907	.59
Trust in online news _{W1}	.07	.56^{***}		
8. <u>Non-mainstream news websites_{W1}</u>	.51^{***}	.10^{***}	907	.39
Trust in non-mainstream news _{W1}	.09^{**}	.42^{***}		
9. <u>Social media_{W1}</u>	.54^{***}	.03[*]	907	.51
Trust in social media news _{W1}	.29^{***}	.50^{***}		
10. <u>Instant messaging_{W1}</u>	.47^{***}	.02	907	.39
Trust in received news _{W1}	.08	.49^{***}		

Note. ^{*} $p < .05$. ^{**} $p < .01$. ^{***} $p < .001$. RMSEA = .000. CFI = 1.00. Correlations between all exogenous variables as well as between error terms at each panel wave allowed, though not displayed in the table.

Discussion

The present study has aimed at making a distinct contribution to the literature by exploring changes in news consumption during a major public health crisis. In particular, we examined which news media citizens consume, how this changes over time, and whether two important predictors of news use—political interest and news media trust—affect changes in news consumption in the early stages of the COVID-19 pandemic. We conducted a two-wave panel study in the Netherlands: A first wave in early December 2019, just before the outbreak of COVID-19 in China's Hubei province, and a second wave in April 2020, when COVID-19 had spread to the Netherlands where various measures were taken to prevent the spread of the virus. The results indicate that both traditional as well as online

news consumption increased in the early stages of the COVID-19 pandemic (in comparison to routine periods a few years ago). Our findings also revealed general but mixed support for the reciprocal dynamics between news media use, political interest, and news media trust. We will discuss our results and their implications for communication research in more detail in the next paragraphs.

While we did not explicitly test media dependency theory, our findings are in line with it (Ball-Rokeach & Defleur, 1976). During a crisis that brings instability and potentially negative changes to a society, citizens are in need of information to better understand the world around them. The higher the threat level, the more dependent people become on media, particularly mass media outlets. Our results indicate that news consumption increased in the early stages of the COVID-19 pandemic. This is in line with what media dependency theory would suggest for times of crisis. Usage of television news surpasses that of all other media forms. We used panel data collected between 2015 and 2017 to put our findings in perspective. We indeed find more changes in news use in the period between 2019 and 2020 in comparison to panel waves in 2015, 2016, and 2017. This is in line with prior research on public crisis situations, such as the September 11 terrorist attacks (Lowrey, 2004), the 2003 SARS epidemic in China (Tai & Sun, 2007), as well as the COVID-19 pandemic in particular (Nielsen et al., 2020). Citizens may use different types of news media for different reasons; traditional mass media outlets are better at providing information to help citizens understand the world around them, whereas social media and instant messaging apps offer the opportunity to share and discuss the latest developments. Yet, one can argue that news use increased in the early stages of the pandemic, not only because of a higher threat level (Ball-Rokeach & Defleur, 1976), but also because being forced to stay at home as well as feelings of boredom and loneliness may have led to increased news use (Léger et al., 2020).

We also aim to understand whether political interest and news media trust serve as a possible link between media dependency and news media use during times of crisis by examining their reciprocal dynamics. First, we extend previous knowledge by examining the relationship between political interest and interest in *news content*. The findings clearly suggest a reciprocal effect for various news topics. The effects are particularly strong with respect to interest in political news. Political interest has a positive causal impact on interest in political news, and interest in political news has a positive causal impact on political interest. Besides, for many years, scholars have raised their concerns as consuming entertainment news might lead to opposite effects by negatively influencing political interest (Prior, 2007). Although our regression analyses indicate that interest in entertainment and lifestyle news decreases political interest, we did not find any evidence for changes over time.

The effects were generally positive. In other words, we did not find any support for ‘media malaise’—suggesting media have negative democratic influences (Strömbäck & Shehata, 2010).

Second, we examine the relationship between political interest and news use across a wide variety of traditional as well as online news outlets—as called for by Kruikemeier and Shehata (2017). By distinguishing between *media effects* and *selection effects* we aim to understand whether there are reciprocal influences between political interest and news media use (Slater, 2007). We find some reciprocal relationships between political interest and news media use, but also differences across media types. The findings reveal several instances of reciprocal effects, particularly for traditional news media outlets (e.g., watching current affairs shows, reading quality newspapers). According to Strömbäck and Shehata (2010) the relationship between news media exposure and political interest depends on political content. Exposure to news outlets that report extensively on political and societal issues primes citizens’ political interest. Contrarily, Kruikemeier and Shehata (2017), found that political interest is primarily related to television and online news media use. Compared to research by Kruikemeier and Shehata (2017), this study was conducted in Netherlands, with different time lags between panel waves, and based on a sample of the general population. More importantly, we conducted our study in the early stages of the COVID-19 pandemic. More research is certainly needed to explore these relationships further. Furthermore, it is noteworthy that, in line with earlier work (Kruikemeier & Shehata, 2017), we found stronger selection effects than media effects when examining specific forms of news media use. In line with the work of Prior (2007), political interest turned out to be very stable. This indicates that citizens who are interested in politics are more likely to consume news, but this type of media use does little to further promote interest.

The story is somewhat different for news media trust. In line with Strömbäck and Shehata (2019), also comparing public service and commercial television, our findings suggest that public broadcasting makes a difference. More specifically, our results reveal that there is a reciprocal relationship between trust in public broadcasting and watching television, but not for trust in commercial broadcasting. Public broadcasting television tend to provide more hard news (Reinemann et al., 2016), leading those who are politically interested to watch public service television rather than commercial television. Public service television also has a strong reputation as a reliable source for political and public issues, which, in turn, can have a stronger impact on political interest than watching commercial television (Strömbäck & Shehata, 2019). It is also worth noting that this study was conducted in the Netherlands, a country with comparatively strong public service broadcasting institutions.

Our findings reveal instances of reciprocal effects for visiting non-mainstream news websites and using social media. The discussion about mis- and disinformation online is focused around non-mainstream outlets, and particularly social media news use. Since (mis)information about the COVID-19 pandemic can be overwhelming it is important to elaborate on these findings. It has been argued before that during a major public health crisis, citizens may increasingly rely on online and social media to share and discuss news. We found a reciprocal effect between trust in non-mainstream news and visiting non-mainstream news websites. We also found a reciprocal effect between trust in social media and using social media for news. On the one hand, it can be argued that those who *trust* such online platforms—because they offer an alternative view—prefer to *use* such platforms precisely because they provide quick access to a range of views and perspectives. On the other hand, their audiences might learn that the same event can be presented in many different ways. As a result, they might become more aware of the manipulative power of news and thus more skeptical toward journalism (Tsfati, 2010).

Besides, there is a reciprocal relationship between using social media for news and trust in social media. We also found a reciprocal effect between trust in non-mainstream news and using social media for news. According to Q. Chen et al. (2020), social media, due to their openness and participatory nature, offer important advantages in delivering interactive communication between, for example, governments and citizens during the COVID-19 pandemic. Citizens feel more concerned, valued, and recognized and feel a greater sense of belonging to governments as well as their social networks when public participation is embedded into political activities, such as public policy discussions. Yet, social media allow citizens to by-pass traditional media outlets, provide channels for attacks on the news media, and facilitate the spread of mis- and disinformation (Brennen et al., 2020). Although the relationship between use of and trust in these different types of communication channels may be more complicated than a negative (or positive) linear relationship, future research, possibly using mixed methods, needs to disentangle these relationships in greater detail.

Although this study has provided a set of findings to understand the relationship between political interest, news media trust, and news media use, a few shortcomings should be noted. First, despite being very common, measuring news consumption based on respondents' self-reported answers is not optimal, due to the fact that they over-report their news exposure (Prior, 2009). Although panel data with two waves significantly advances our ability to make causal claims by allowing analyses over time, they do not solve the problem of causality. Cross-lagged panel models are based on specific assumptions regarding the time lags between cause and effect (Finkel, 2008). Although panel studies are stronger in terms of external validity than

experiments, our panel surveys still have to deal with some biases. For instance, estimating cross-lagged panel models might lead to simultaneity bias. Establishing the chain of causality is difficult. Various scholars therefore argue that controlled randomized experiments should be used for causal inference (Leszczensky & Wolbring, 2019). Since many interesting variables are difficult to manipulate, we rely on two panel surveys to assess not only correlations but also the causal relationships between the use of different forms of news media use, political interest, and news media trust. Although panel data allows us to examine changes over time, there are reasons for being cautious against too strong conclusions in this regard.

We cannot be fully certain whether the different findings have methodological or theoretical explanations. Although we find differences across media types, and modest correlations, more research is certainly needed to comprehensively understand the reciprocal relationship between political interest and news media use, for example by including attention and exposure measures.

Second, we address the key assumptions using two waves of panel data covering a period of five months. Therefore, we can only examine changes in news use in the early stages of the COVID-19 pandemic. A crisis usually consists of four stages, with a particularly high threat level during the outbreak stage (Fink, 1984). Citizens are likely to have varying levels of information needs in different phases of a crisis; the use of traditional mass media, for example, is likely to decline after the outbreak of a crisis (Hu & Zhang, 2014). Future research could extend the initial findings by examining the reciprocal relationship between news media use, political interest, and news media trust over an extended period of time, to understand whether these dynamics differ at different stages of a crisis.

Nonetheless, this study has provided a strong set of findings to understand news consumption during the COVID-19 pandemic. By focusing on two important predictors of news use, namely political interest and news media use, these findings not only update and advance earlier research about the mutual influence of media selectivity and media effects, but also provide a further understanding of the role of context and content features in news consumption patterns.

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