

Article

**Issue Fatigue Over the Course of
the Covid-19 Pandemic**DOI: 10.47368/ejhc.2023.307
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CC BY 4.0**A Multi-Method Approach****Annemarie Wiedicke** 

Institute for Media Research, Technical University of Chemnitz, Germany

Paula Stehr , **Constanze Rossmann** 

Department of Media and Communication, LMU Munich, Germany

Abstract

During times of uncertainty, such as the Covid-19 pandemic, people tend to cope through active information seeking. However, information overexposure can also lead to issue fatigue, a state in which recipients are increasingly annoyed and may actively avoid further information on this specific issue. Against this backdrop, we were interested in (1) whether people in Germany have experienced Covid-19 related issue fatigue over the course of the pandemic, (2) and if so, how Covid-19 information behaviour may have contributed to it, and (3) to what extent TV news coverage exhibits characteristics that are considered to contribute to recipients' issue fatigue. To address these questions, we combined a two-wave panel survey (2020) and a cross-sectional survey (2021) of the German population with a quantitative content analysis of Covid-19 related TV news (2020 and 2021). The results show an increase in issue fatigue over time. However, there was no evidence indicating that people's Covid-19 information behaviour has contributed to this. Rather, both information seeking and the reception of public TV news were negatively related to issue fatigue. Notably, TV news coverage showed characteristics that are considered determinants of issue fatigue, including its extent and an overall ambivalent-to-negative tone.

Keywords

Issue fatigue, information behaviour, news coverage, news reception, Covid-19.

In recent years, infectious diseases have been traveling across international borders faster than ever before (Chon & Park, 2019), leading to major public health crises such as the Covid-19 pandemic. Although individuals depend on accurate and up-to-date information during such

Corresponding author:

Annemarie Wiedicke: annemarie.wiedicke@phil.tu-chemnitz.de

events in order to develop, for instance, adequate risk perceptions (Siebenhaar et al., 2020), the ongoing exposure to similar information, such as repetitive messages carrying reminders of hand washing and wearing masks (Koh et al., 2020) or news media constantly reporting on the same issues (Gurr, 2022), can result in unintended negative consequences (Link, 2021) – including message and issue fatigue.

During the Covid-19 pandemic, *message fatigue*, i.e., the state of feeling tired of being repeatedly exposed to similar persuasive messages (So et al., 2017; So & Popova, 2018), has been shown to lead to information avoidance, inattention and reactance (Ball & Wozniak, 2022; Guan et al., 2022; Hwang et al., 2022). Moreover, it has, mediated by reactance, negatively affected behavioural intentions for wearing masks, social distancing, and washing hands (Guan et al., 2022), thus posing additional challenges on managing the Covid-19 pandemic (Guan et al., 2022; Siebenhaar et al., 2020). In this context, the World Health Organization (WHO) has also warned of *pandemic fatigue* as a major public health threat that expresses itself in emerging demotivation to engage in protection behaviours and information (WHO, 2020). However, there is no consensus of its theoretical conceptualisation in scientific literature. While some equate pandemic fatigue with reduced adherence to protective behaviours against Covid-19 (e.g., Petherick et al., 2021), other studies relate it to psychological states such as burnout (e.g., Haktanir et al., 2022). Developing a scale for measuring pandemic fatigue, Lilleholt et al. (2023) include two subdimensions: information fatigue and behavioural fatigue. In this paper, we focus on the informational dimension of fatigue and discuss it from a communication science perspective, thus providing a more nuanced conceptualisation of fatigue and information behaviour in the context of a public health crisis. Specifically, we examine people's issue fatigue and its relation to their information behaviours over the course of the Covid-19 pandemic in Germany.

Contrary to message fatigue which draws on persuasive information promoting specific behaviours distributed via a variety of communication channels (Guan et al., 2022; Gurr et al., 2022), including, for instance, interpersonal communication and social media, the concept of *issue fatigue* explicitly focuses on unintended negative consequences of excessive and continuous news coverage on a particular topic (e.g., Gurr et al., 2022; Metag & Arlt, 2016). Specifically, issue fatigue describes a state in which recipients are not only increasingly annoyed with a certain issue, but may also actively avoid further information on this matter (Metag & Arlt, 2016; Schumann, 2018). Since information on Covid-19 has been widely distributed via news coverage (Dreisiebner et al., 2022; Guan et al., 2022), issue fatigue, similarly to message as well as pandemic fatigue, can pose severe public health challenges in dealing with this global health crisis (Koh et al., 2020). However, little is known about Covid-19 related issue fatigue or how different news sources may have led to it (Schumann et al., 2022). Therefore, this paper seeks to explore (1) whether people in Germany have experienced Covid-19 related issue fatigue over the course of the pandemic, (2) whether, and if so, how Covid-19 information behaviour may have contributed to it, and (3) to what extent TV news coverage, as people's most important information source (Dreisiebner et al., 2022), exhibits characteristics that are considered to contribute to recipients' issue fatigue. To address our research interest, we conducted a two-wave panel survey (2020), a cross-sectional survey (2021), and a content analysis (two timeframes: 2020 and 2021). Thus, we contribute to existing research by examining the role of information, information behaviours, and information sources during a public health crisis, beyond the widely analysed concept of message and the rather unspecific concept of pandemic fatigue.

The Multidimensional Concept of Issue Fatigue

Similarly to message fatigue, issue fatigue is a concept based on research on effects from overexposure (Gurr & Metag, 2021b; So et al., 2017). Rather than being a potential reaction to repeated persuasive public health messages, issue fatigue results from an ongoing and intense media coverage on specific topics (e.g., Gurr & Metag, 2021a; Gurr et al., 2022; Metag & Arlt, 2016), i.e., informative communication that, in contrast to persuasive health messages, does not (intentionally) promote specific health behaviours (Gurr et al., 2022). Recipients with issue fatigue experience an increasing cognitive and emotional resistance against a certain topic which often leads to actively avoiding further information on this particular issue (Gurr & Metag, 2021a, 2021b; Schumann, 2018). Thus, issue fatigue compromises both cognitive and emotional dimensions that can cause behavioural responses (Gurr et al., 2022). Specifically, Metag and Arlt (2016) have identified five subdimensions of issue fatigue. These include (1) recipients' negative attitude towards the topic, i.e., feelings of boredom, anger or fear associated with a certain issue; (2) perceived information overload, i.e., perceptions of exposure to too much and complex information; perception of (3) hostile, manipulative and (4) low quality reporting; i.e., perception of news coverage as contrary to recipients' own attitudes as well as one-sided and, finally, (5) recipients' low involvement with the topic, i.e., their low engagement with the issue and perception of low personal relevance.

Previous research has examined issue fatigue as a consequence of the ongoing news coverage on political issues, such as the refugee policy in Germany (Arlt et al., 2020; Metag & Arlt, 2016), the withdrawal of the UK from the EU, i.e., Brexit (Gurr & Metag, 2021a, 2021b) and other topics (Metag & Arlt, 2016). In addition, Schumann et al. (2022) have recently examined differences in Covid-19 related issue fatigue between Germany, Indonesia and Pakistan. These studies show that issue fatigue, similarly to message fatigue, can result in information avoidance (Gurr & Metag, 2021a, 2021b; Schumann et al., 2022) and is also associated with a higher policy malaise (Arlt et al., 2020).

Characteristics of News Coverage that May Evoke Issue Fatigue

However, little is known about the characteristics of news coverage that may contribute to issue fatigue – or not (Arlt et al., 2020; Kuhlmann et al., 2014). According to Gurr and Metag (2021b), recipients' perception of the news coverage as (1) being repetitive and redundant; (2) exaggerating certain aspects of an issue (particularly controversies) in a sensationalist and polarising way; (3) focusing too much on the main actors involved (e.g., politicians, scientists); (4) lacking significant information and facts or (5) carrying too many too complex information contributes to issue fatigue.

Moreover, based on the above subdimensions of issue fatigue, some additional conclusions can be drawn with regards to characteristics of media coverage evoking or preventing issue fatigue. On the one hand, similarly to the attributes mentioned by Gurr and Metag (2021b), a high quantity of (complex) media reports, a negative tone, an overly emotionalising language and a strong emphasis on controversies (or polarisation) as well as the total absence of controversies are attributes that are considered to enhance recipients' perception of information overload and hostile and manipulative reporting (Kelm et al., 2021) – and therefore may contribute to issue fatigue. On the other hand, the display of different opinions, source diversity and news factors (such as geographical proximity, timeliness, and impact) are considered to be aspects that positively influence recipients' perception of the quality of a news item as well as

their involvement with the topic (Eilders, 2002, 2006; Mach et al., 2021; Reineck & Hölig, 2013) – and thus may counteract issue fatigue. Nevertheless, a combined analysis of these specific characteristics of news coverage on a certain issue and recipients' related issue fatigue is still missing.

Information Behaviour and Issue Fatigue During the Covid-19 Pandemic

When people experience a high degree of uncertainty, they tend to cope through information seeking, i.e., “a deliberate, purposeful process in which individuals actively aim to change their state of knowledge by searching for information about a specific topic” (Lewis, 2017, p. 1). During public health crises such as the Covid-19 pandemic, which has been characterised by rapid changes, unknown risks, high mortality, and strict restrictions in everyday life (Link, 2021; Tang & Zou, 2021), information seeking has not only been shown to reduce uncertainties, but also to foster empowerment and adaption to the crisis on a cognitive, behavioural, and affective level. In addition, it is considered to support both individuals' sensemaking as and decision-making about preventive behaviours (Li et al., 2022; Link et al., 2022; Tandoc & Lee, 2022).

Contrary to other health contexts, traditional media sources, and television in particular, have been identified as preferred source of information regarding Covid-19 in the USA (Ali et al., 2020) as well as several European countries, including Germany (Dreisiebner et al., 2022). In Germany, information seeking through television news especially occurred in the first weeks of the pandemic in March 2020 (Dan & Brosius, 2021).

In consequence, whether through active information seeking or information retrieval during routine media use, i.e., information scanning (Hornik & Niederdeppe, 2008), people have been inundated with messages about Covid-19 from a variety of communication channels (Guan et al., 2022; Koh et al., 2020). This inundation has led to message fatigue which resulted in inattention and reactance towards repetitive messages promoting similar prevention measures (Ball & Wozniak, 2022; Guan et al., 2022; Hwang et al., 2022; Jia et al., 2022) and, in consequence, decreased behavioural intentions for wearing masks, social distancing, and washing hands (Guan et al., 2022). So, overall, previous research has pointed out a variety of unintended negative consequences of repeated persuasive messages (e.g., Guan et al., 2022; Koh et al., 2020). However, little is known about possible negative outcomes of the ongoing and continuous news coverage on Covid-19 – such as issue fatigue.

Characteristics of News Coverage About the Covid-19 Pandemic

Since its beginning in early 2020, there has been continuous and intense news coverage on the Covid-19 pandemic (e.g., Dreisiebner et al., 2022; Kenix & Bolanos Lopez, 2022; Mach et al., 2021). Previous content analyses have mostly examined the framing of the pandemic and related issues (e.g., Bolsen et al., 2020; Gui, 2021; Hubner, 2021; Mutua & Ong'ong'a, 2020; Thomas et al., 2020). Other studies have addressed the portrayal of racist or other stereotypes in the context of the pandemic (e.g., Radebe, 2022; Richter et al., 2021) or the relations between political communication and news media (e.g., Kenix & Bolanos Lopez, 2022; Mazzoni et al., 2022).

Regarding characteristics of news coverage that may contribute to issue fatigue, Krawczyk et al. (2021) have shown that between January and October 2020, news coverage worldwide has been greatly dominated by the issue of Covid-19 through automatically analysing 26

million articles from 172 different news sources in 11 different countries. A large extent of these articles was negative and polarising. Similarly, Wasserman et al. (2021) describe newspaper reporting on Covid-19 in South Africa as sensationalist, negative, and lacking the most significant information, e.g., about ways to limit the spread of the virus. According to Rodelo (2020), scientific information on Covid-19 was kept to a minimum by Mexican newspapers in the early stages of the pandemic as well. Moreover, they have been shown to mostly report on politicians and their actions, i.e., the main actors involved in crisis management. This is also true for Covid-19 newspaper and TV reporting in the USA during the early stages of the pandemic, which has been found to focus on politicians and representatives of interest groups (Hart et al., 2020; Hubner, 2021). In addition, the US news coverage on Covid-19 has been characterised as highly polarising (Hart et al., 2020).

Overall, these studies offer first insights into the question whether (and if so, how) different Covid-19 related news sources, such as different TV news sources, could have led to issue fatigue among their recipients. However, a systematic analysis of the attributes suspected to contribute to issue fatigue – namely a high quantity of (too complex) news reports, an overall negative tone, an overly emotionalising language and a strong emphasis on controversies and main actors, such as politicians and scientists (Gurr & Metag, 2021b; Kelm et al., 2021) – is still missing. Equally, little is known about the characteristics of news reporting on Covid-19 that can counteract issue fatigue, i.e., the display of different opinions, source diversity and news factors such as geographical proximity, timeliness and impact (Eilders, 2002, 2006; Mach et al., 2021; Reineck & Hölig, 2013).

Research Questions

In consequence, our study seeks to address several gaps in the literature. The Covid-19 pandemic, similar to prior public health crises, has been characterised by a vast media attention (e.g., Kenix & Bolanos Lopez, 2022; Krawczyk et al., 2021; Mach et al., 2021). According to previous studies, the exposure to ongoing and intense news coverage on a certain topic can result in issue fatigue (e.g., Gurr et al., 2022; Metag & Arlt, 2016; Schumann et al., 2022). So far, there is a lack of research when it comes to issue fatigue during public health crises, and how it develops over time. Thus, we ask:

RQ1a: To what extent did recipients of German news coverage experience Covid-19 related issue fatigue?

RQ1b: How did issue fatigue develop over the course of the pandemic?

At the same time, research indicates that in times of crisis and uncertainty, such as the Covid-19 pandemic, people tend to actively seek information on the issue – additionally to their routine information exposure (Link, 2021; Tandoc & Lee, 2022). So far, however, it remains unclear whether people's information behaviours have contributed to issue fatigue. In consequence, we ask:

RQ2a: Is there a relation between people's Covid-19 information behaviour (seeking and scanning) and their issue fatigue?

During the Covid-19 pandemic, public and private TV news have been identified as major information sources (Ali et al., 2020; Dreisiebner et al., 2022). Thus, we were interested in a potential channel-specific relation with issue fatigue:

RQ2b: Is there a relation between the reception of public and private German TV news and recipients' issue fatigue?

As stated above, there are several attributes of news coverage that are assumed to be determinants of recipients' issue fatigue (Gurr & Metag, 2021b; Kelm et al., 2021), while others may even counteract this specific cognitive and affective state (Eilders, 2002, 2006; Gurr & Metag, 2021b; Kelm et al., 2021; Metag & Arlt, 2016; Reineck & Hölig, 2013). This raises the question of how strongly these attributes were pronounced in German public and private TV news coverage on Covid-19, i.e., people's most frequently used information source. Moreover, we were interested in whether public and private TV news showed differences with regards to characteristics potentially evoking recipients' issue fatigue. Therefore, we ask:

RQ3a: To what extent do public and private TV news coverage exhibit characteristics that are considered determinants of issue fatigue?

In addition, we were interested in long-term developments, asking:

RQ3b: How does the TV news coverage on Covid-19 develop over the course of the pandemic?

Methods

To answer these questions, we combined survey data on information behaviour and issue fatigue with analyses of media content. The survey data comprises of a two-wave panel and a cross-sectional survey. The panel survey was conducted in an early phase of the pandemic. The first wave in March 2020 captured data on the information behaviour of the German population, while the second wave, about two weeks later in April 2020, captured issue fatigue to draw conclusions about causal relations. To look at long-term developments of information behaviour and issue fatigue, we collected additional data in a cross-sectional survey in February 2021. To link the survey data on information behaviour with the content analyses of TV news as the most important Covid-19 related information channel, the data collection periods were synced. Therefore, we examined the reporting of major German TV newscasts from March to April 2020 and January to February 2021. The data collection procedures of the different studies will be specified below.

Online Panel Survey and Cross-Sectional Survey

Sample. We conducted a two-wave panel survey in 2020. Field time was March 23 to March 31 for the first wave (t1; $N = 1,378$) and April 15 to April 21 for the second wave (t2; $N = 1,061$). The respondents (recruited via the online panel provider respondi) were quota-allocated regarding the distribution of age, gender, and education in the German population and randomly selected from the online panel. The final sample of participants that completed both questionnaires ($N = 1,061$) was nearly representative of the German population regarding age ($M = 49.0$, $SD = 15.16$), gender (female: 51.2%, male: 48.8%) and education (68.0% without and 32.0% with university entrance certificate). The study had received ethical approval by the ethics committee of the University of Erfurt (Application 20200312) before it began, and all participants gave their informed consent to use and share their anonymised data for scientific purposes.

We additionally conducted a cross-sectional survey during the second lockdown in Germany. Field time was 10-20 February 2021 ($N = 913$). The respondents were again recruited by respondi, randomly selected and quota-allocated, with our final sample being nearly representative for the German population regarding age ($M = 46.93$, $SD = 15.30$), gender (female: 50.7%, male: 49.1%) and education (66.5% without and 33.5% with university entrance certificate). Again, all participants gave their informed consent to use and share their anonymised data for scientific purposes.

Measures. Independent measures included participants' active and passive information behaviour (t1), i.e., their information seeking and information scanning behaviours during the first wave of the panel survey in 2020. Specifically, we first asked participants how often they actively used nine different Covid-19-related information channels, including medical experts, family and friends, television (in general), radio, newspapers, news magazines, internet, social media, and warning apps (1 = *never*, 5 = *daily*; $M_{t1} = 2.86$, $SD_{t1} = 0.81$; Cronbach's $\alpha = .73$, 95% CI [0.71, 0.76], $\lambda_4 = .77$). We then asked participants how often they encountered Covid-19 related information during their routine use of the same nine communication channels (1 = *never*, 5 = *daily*; $M_{t1} = 2.96$, $SD_{t1} = 0.82$; Cronbach's $\alpha = .73$, 95% CI [0.70, 0.75], $\lambda_4 = .75$).

Participants who indicated that they used television as a source of information were further asked how often they encountered Covid-19 related information on public (1 = *never*, 5 = *daily*, $M_{t1} = 3.95$, $SD_{t1} = 1.43$, single item measurement) and private (1 = *never*, 5 = *daily*, $M_{t1} = 3.32$, $SD_{t1} = 1.66$, single item measurement) TV channels.

Issue fatigue was assessed in the second wave of the panel study (t2) as well as in the cross-sectional survey in 2021 with 16 items referring to the five subdimensions (Metag & Arlt, 2016) of issue fatigue (see Table 1), i.e., (1) negative attitude towards the topic (3 items; Cronbach's $\alpha = .88$, 95% CI [0.87, 0.90], $\lambda_4 = .81$), (2) perceived information overload (3 items; Cronbach's $\alpha = .82$, 95% CI [0.80, 0.84], $\lambda_4 = .77$), perception of (3) hostile, manipulative and (4) low-quality reporting (4 items; Cronbach's $\alpha = .89$, 95% CI [0.88, 0.90], $\lambda_4 = .90$) and (5) involvement (6 items; Cronbach's $\alpha = .86$, 95% CI [0.85, 0.88]; $\lambda_4 = .86$). All items were measured on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*).

Socio-demographics (age, gender, education) were captured as control variables.

Quantitative Content Analysis

Samples. We analysed the Covid-19 related reporting of leading German television news (NDR, 2021; RND, 2020), including the Tagesschau (major public TV newscast) and RTL Aktuell (major private TV newscast) between March 1 and April 21 2020 (starting three weeks before the first wave of the two-wave panel survey) and again between January 20 and February 20 2021 (starting three weeks before the cross-sectional survey). To reduce the sampling material, every second newscast was selected for coding, leading to a sample of 54 newscasts in 2020 and 16 newscasts in 2021. Within each newscast, we further analysed only those news items that directly addressed the Covid-19 pandemic (i.e., the terms Corona, Coronavirus, Covid-19, or pandemic had to be mentioned in the introduction of a news item). This led to a sample of 321 Covid-19 related news items in 2020 and 119 Covid-19 related news items in 2021, i.e., a total sample of $N = 440$ news items.

Table 1. Operationalisation of Issue Fatigue and its Subdimensions

Subdimension of Issue Fatigue	Variables	<i>M</i>	<i>SD</i>
Negative attitude towards the topic	I'm getting tired of this issue	2.78	1.44
	The issue bores me	2.25	1.34
	I can't see or hear anything about it anymore	2.67	1.41
Perceived information overload	The media coverage of the corona virus... is too detailed for me	2.04	1.09
	The media coverage of the corona virus... is too complex for me	2.14	1.14
	The media coverage of the corona virus... is too extensive for me	2.37	1.28
Perception of hostile and manipulative reporting	The media coverage of the corona virus... has only the goal of influencing people	2.56	1.41
	The media coverage of the corona virus... does not reflect my opinion on the issue at all	2.43	1.26
	The media coverage of the corona virus... is one-sided	2.60	1.36
Perceived quality of reporting	The media coverage of the corona virus... contains many opinions I do not agree	2.89	1.32
Involvement	I have already dealt with the topic (e.g., through newspaper articles, television reports, interviews)	4.18	1.04
	I would like to get more information about this topic	3.24	1.27
	When I see an article on the subject, I read it	3.46	2.23
	For me, the topic is interesting	3.41	1.25
	The issue is important to me personally	3.87	1.16
	The issue affects me	3.39	1.47

Note. *N* = 1,061. Subdimensions of issue fatigue according to Metag and Arlt (2016). Values 1 = *strongly disagree* to 5 = *strongly agree*.

Coding and Reliability. Table 2 shows the coding scheme which specifies characteristics of the news coverage assumed to be associated with recipients' issue fatigue – or, in contrast, the lack of it (Eilders, 2002, 2006; Gurr & Metag, 2021b; Kelm et al., 2021; Metag & Arlt, 2016; Reineck & Hölig, 2013). These include the (1) overall number of news items per newscast to assess the percentage of news items directly addressing the pandemic, (2) complexity of the portrayed information, (3) tone, (4) emotionalisation and (5) controversy, (6) degree of popularity of the people portrayed in news items, (7) source diversity and, finally, news factors such as (8) geographical proximity, (9) timeliness and (10) impact. The news items were coded by two trained student coders. To assess the reliability of the coding scheme across both coders, we compared the codings for *n* = 8 randomly selected newscasts including *n* = 50 news items addressing Covid-19 (11.4% of all the total sample of *N* = 440 news items). Using the online reliability calculating tool by Freelon (2017), we computed Krippendorff's alpha (Krippendorff, 2011) for each category, resulting in reliability measures ranging between 0.76 and 1.0.

Table 2. Variables and Intercoder Reliabilities

Variable	Description and Relation to Issue Fatigue	Krippendorff's Alpha
Number of news items per newscast	Refers to the overall number of news items per newscast, regardless of the topic. Based on this number, it is possible to determine the proportion of news items on Covid-19 of the overall reporting during the investigation period. A high proportion may lead to issue fatigue.	0.96
Complexity	Refers to the extent in which a news item contains percentages, frequencies, or quotients such as the reproduction factor R. A high measure of complexity may contribute to issue fatigue.	0.94
Tone	Refers to the content of a news item and its tone (positive, pessimistic, neutral, ambivalent). According to Kuhlmann et al. (2014), especially a negative tone can contribute to issue fatigue.	0.76
Emotionalisation	Refers to the language employed in a news item (sober or emotionalising). A highly emotionalising language may lead to issue fatigue.	0.87
Controversy	Describes to what extent a news item depicts different opinions or even conflicts. A lack of representation of diverse opinions can lead to issue fatigue; however, too much focus on conflict contributes to perceptions of news coverage as negative.	0.96
Popularity	Refers to the degree to which a person depicted in a news item is known, regardless of the person's political power. According to Gurr and Metag (2021b), a strong emphasis on main actors, such as politicians and scientists, contribute to recipients' issue fatigue.	0.79
Source diversity	Refers to the number of Covid-19-related scientific sources are cited in the news item. Diversity of sources is associated with a higher quality of reporting and thus a lower level of issue fatigue.	0.85
News factors	The higher the score for the various news factors, the more likely the topic will be perceived as relevant, i.e., a higher level of involvement (and lower level of issue fatigue) can be assumed.	
Geographical proximity	Refers to the specific geographic region presented as affected by the Covid-19 pandemic in a news item.	1.00
Timeliness	Refers to immediacy of an event in relation to the date of the reporting.	1.00
Impact	Refers to the number of people who are/were/will/might be directly affected by an event.	0.77

Note. To ensure our coding scheme's reliability across the two student coders, we computed Krippendorff's alpha, a measure of inter-coder reliability (Krippendorff, 2011). Reliability measures were derived from coding $n = 8$ randomly selected newscasts ($n = 50$ news items).

Data Analysis Procedure

To address RQ1 regarding issue fatigue in the German population, we present descriptives and the results of two-sided t-tests of independent samples to compare issue fatigue at t2 and t3. To account for the fact that we did multiple comparisons, we report adjusted p values according to the Bonferroni-Holm correction (calculated with an online tool by Hemmerich, 2016).

To answer RQ2, we computed various hierarchical regressions with the subdimensions of issue fatigue as dependent variables (t2). We used hierarchical regressions to show if our variables of interest (t1) explain a statistically significant amount of variance after accounting for the other variables. Because age, gender and education have shown to be related to (message) fatigue (So & Alam, 2018; So & Popova, 2018), we controlled for them (t1) in step 1. Secondly, we integrated Covid-19 related information seeking and scanning (t1) and finally public and private TV news use (t1) to examine a potential channel-specific effect on issue fatigue (t2).

With relation to RQ3 regarding possible characteristics of news coverage that may evoke issue fatigue, we computed several t-tests and chi-square-tests to compare public and private TV news items and both time periods (2020 and 2021). Again, due to conducting multiple comparisons, we report adjusted p values according to the Bonferroni-Holm correction (calculated with an online tool by Hemmerich, 2016). Before conducting each analysis, we tested the assumptions. For the t-tests and chi-square tests all assumptions were met. For the different multiple linear regressions, assumptions were met as well, except for the lack of autocorrelation (see supplementary file). Specifically, the Durbin-Watson test indicates a slightly positive correlation between errors for all dependent measures. Since the values were not smaller than 1 respectively greater than 3, we chose to continue our analysis (Field, 2018). Still, this limitation should be considered in the interpretation of our results.

Results

Issue Fatigue (RQ1)

Firstly, we were interested in whether recipients of German news coverage showed signs of Covid-19 related issue fatigue. Importantly, results from the second wave of our panel survey (t2) indicate rather low levels of issue fatigue among participants. Specifically, they did neither report very negative attitudes towards the topic of Covid-19 ($M_{t2} = 2.57$, $SD_{t2} = 1.26$) nor an information overload ($M_{t2} = 2.20$, $SD_{t2} = 1.02$). Moreover, they did not perceive the Covid-19 related reporting as particularly hostile, manipulative or of low quality ($M_{t2} = 2.63$, $SD_{t2} = 1.16$). Notably, they were quite involved with the issue ($M_{t2} = 3.59$, $SD_{t2} = 0.96$).

However, in April 2021 (t3), compared to April 2020 (t2), negative attitudes towards the topic ($M_{t3} = 2.98$, $SD_{t3} = 1.25$; $t(1,962) = -7.199$, Bonferroni-Holm corrected $p = .004$, *Cohen's d* = 1.26), perceived information overload ($M_{t3} = 2.30$, $SD_{t3} = 1.03$; $t(1,939) = -2.133$, Bonferroni-Holm corrected $p = .033$, *Cohen's d* = 1.02) as well as the perception of the reporting as hostile, manipulative and of low quality had significantly increased ($M_{t3} = 2.79$, $SD_{t3} = 1.15$, $t(1,943) = -3.061$, Bonferroni-Holm corrected $p = .004$, *Cohen's d* = 1.16), whereas participants' involvement with the issue ($M_{t3} = 3.43$, $SD_{t3} = 0.97$, $t(1,966) = 3.792$, Bonferroni-Holm corrected $p = .004$, *Cohen's d* = 0.96) had decreased. Given not only the significance of the tests, but also the large effect sizes, it can be assumed that issue fatigue

increased over the course of the pandemic. Yet, it should be noted that this is a trend which can only be observed on an aggregated level because the data from 2021 are no panel data.

Relation between Information Behaviour and Issue Fatigue (RQ2)

After controlling for age, gender, and education (t1) in step 1, introducing Covid-19 related information behaviour in step 2 explained an additional 7.5% of variance in participants' negative attitude towards the topic of Covid-19 (Table 3, $R^2 = .116$). This change in R^2 was significant ($\Delta F(2, 1,038) = 44.170, p < .001$). Notably, there was a negative relation between both Covid-19 related information seeking ($b^* = -.326, p < .001$) and scanning ($b^* = .088, p = .026$) and participants' negative attitudes towards the issue of Covid-19. Moreover, adding the exposure to German TV news in step 3 explained an additional 1.1% of variance in negative attitudes ($R^2 = .128$). This change in R^2 was also significant ($\Delta F(2, 1,036) = 6.815, p < .001$), as was the final regression model for this subdimension of issue fatigue ($F(7, 1,036) = 21.685, p < .001$). While there was no relation between the use of private TV newscasts and negative attitudes ($b^* = .006, p = .851$), there was a negative relation with the use of public TV newscasts ($b^* = -.119, p < .001$). So, overall, a higher frequency of Covid-19 relation information seeking, scanning, and public TV newscast use (t1) led to less negative attitudes towards the topic of Covid-19 (t2).

Similarly, introducing Covid-19 related information behaviour explained an additional 1.8% of variance in participants' perception of the Covid-19 reporting as hostile, manipulative, and of low quality (Table 4, $R^2 = .031$). This change in R^2 was significant ($\Delta F(2, 1,026) = 9.643, p < .001$). Specifically, our data indicate a negative relation between Covid-19 related information seeking ($b^* = -.176, p < .001$) – but not scanning ($b^* = .081, p = .056$) – and participants' perception of the Covid-19 related reporting as hostile, manipulative, and of low quality.

Table 3. Hierarchical Multiple Regression for Predictors of Negative Attitudes Towards the Issue of Covid-19 ($N = 1,044$)

Step and Predictor Variable	<i>b</i>	<i>SE</i>	95% CI		<i>b</i> *	R^2	ΔR^2
			LB	UB			
Step 1:						.041***	.041***
Age	-.016	.003	-.021	-.011	-.197***		
Gender	-.188	.077	-.338	-.037	-.075*		
Education	-.114	.082	-.275	.047	-.043		
Step 2:						.116***	.075***
Covid-19 related information seeking	-.506	.062	-.627	-.385	-.326***		
Covid-19 related information scanning	.136	.061	.016	.256	.088*		
Step 3:						.128**	.011**
Use of public TV newscasts	-.104	.028	-.160	-.049	-.119***		
Use of private TV newscasts	.004	.024	-.042	.051	.006		

Note. Independent variables from t1; dependent variables from t2. Measurements specify as follows: gender (1 = male, 2 = female), education (1 = low, 2 = high), Covid-19 related information seeking respectively scanning behaviour and use of public and private TV news (1 = never, 5 = daily).

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

Table 4. Hierarchical Multiple Regression for Predictors of Perception of Hostile, Manipulative, and Low-Quality Reporting ($N = 1,032$)

Step and Predictor Variable	<i>b</i>	<i>SE</i>	95% CI		<i>b</i> *	<i>R</i> ²	ΔR^2
			LB	UB			
Step 1:						.012**	.012**
Age	-.001	.002	-.006	.004	-.012		
Gender	-.250	.072	-.391	-.109	-.108**		
Education	-.083	.077	-.234	.068	-.034		
Step 2:						.031***	.018***
Covid-19 related information seeking	-.252	.060	-.370	-.134	-.176***		
Covid-19 related information scanning	.114	.060	-.003	.232	.081		
Step 3:						.068***	.038***
Use of public TV newscasts	-.174	.027	-.227	-.121	-.215***		
Use of private TV newscasts	.009	.023	-.036	.053	.013		

Note. Independent variables from t1; dependent variables from t2. Measurements specify as follows: gender (1 = male, 2 = female), education (1 = low, 2 = high), Covid-19 related information seeking respectively scanning behaviour and use of public and private TV news (1 = never, 5 = daily).

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

Furthermore, the exposure to German TV news explained an additional 3.8% of variance ($R^2 = .068$). This change in R^2 was also significant ($\Delta F(2, 1,024) = 20.612, p < .001$), as was the final regression model for this subdimension of issue fatigue ($F(7, 1,024) = 10.685, p < .001$). Again, there was no relation between the use of private TV newscasts and participants' perception of the Covid-19 related reporting ($b^* = .013, p = .695$), but a negative relation with the use of public TV newscasts ($b^* = -.215, p < .001$). Thus, a higher frequency of Covid-19 related information seeking and public TV newscast use (t1) led to a lower perception of Covid-19 related reporting as problematic, i.e., hostile, manipulative, and of low quality (t2).

With regards to yet another subdimension of issue fatigue, introducing Covid-19 related information behaviour explained an additional 14.7% of variance in participants' involvement with the issue of Covid-19 (Table 5, $R^2 = .158$). In particular, there was a positive relation between Covid-19 related information seeking ($b^* = .363, p < .001$) but not scanning ($b^* = .030, p = .437$) and participants' involvement with the issue of Covid-19. Furthermore, the use of German TV news explained an additional 2.0% of variance ($R^2 = .177$). This change in R^2 was significant ($\Delta F(2, 1,036) = 12.344, p < .001$), too, as was the final regression model ($F(7, 1,036) = 23.959, p < .001$). While there was no relation between the use of private TV newscasts and involvement ($b^* = -.004, p = .907$), our results show a positive relation with the use of public TV newscasts ($b^* = .156, p < .001$). So, overall, a higher frequency of Covid-19 related information seeking as all well as public TV newscast use (t1) led to a higher involvement with the issue of Covid-19 (t2).

In contrast, there was neither a relation between Covid-19 related information behaviour and participants' information overload nor between the use of public TV newscasts and information overload.

Table 5. Hierarchical Multiple Regression for Predictors of Involvement with the Issue of Covid-19 ($N = 1,044$)

Step and Predictor Variable	<i>b</i>	<i>SE</i>	95% CI		<i>b</i> *	<i>R</i> ²	ΔR^2
			LB	UB			
Step 1:						.011*	.011*
Age	.005	.002	.001	.009	.078*		
Gender	.113	.059	-.003	.228	.059		
Education	.123	.063	.000	.247	.062		
Step 2:						.158***	.147***
Covid-19 related information seeking	.426	.045	0.337	.515	.363***		
Covid-19 related information scanning	.035	.045	-.054	.124	.030		
Step 3:						.177***	.020***
Use of public TV newscasts	.103	.021	.062	.144	.156***		
Use of private TV newscasts	-.002	.017	-.036	.032	-.004		

Note. Independent variables from t1; dependent variables from t2. Measurements specify as follows: gender (1 = male, 2 = female), education (1 = low, 2 = high), Covid-19 related information seeking respectively scanning behaviour and use of public and private TV news (1 = never, 5 = daily).

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

Characteristics in the News Coverage Possibly Related to Issue Fatigue (RQ3)

With an average of 78.7 % ($M = .79$, $SD = .23$) of all news items per newscast directly addressing the issue, the Covid-19 pandemic clearly dominated the TV news coverage in March and April of 2020. Notably, the public newscast Tagesschau reported significantly less often on Covid-19 compared to the private newscast RTL *Aktuell* ($M_{\text{Tagesschau}} = .63$, $SD_{\text{Tagesschau}} = .20$; $M_{\text{RTL Aktuell}} = .90$, $SD_{\text{RTL Aktuell}} = .17$; $t(275.45) = -12.92$, Bonferroni-Holm corrected $p = .002$, *Cohen's d* = 0.18). Still, the information presented in both newscasts were not particularly complex. Specifically, news items rarely ($n = 8$, 2.6 %) contained statistical measures such as the reproduction factor R . Thus, complexity was not a factor that could have led to issue fatigue. Regarding the other potentially issue fatigue increasing attributes, Tagesschau and RTL *Aktuell* showed further differences (see Table 6 and 7 for detailed information). While the tone of both newscasts was similar ambivalent to negative, the Tagesschau reported on Covid-19 less emotionally ($\chi^2(2) = 18.449$, Bonferroni-Holm corrected $p = .007$, $V = .246$). Controversies, however, were rarely addressed by both newscasts. Still, the Tagesschau mostly focused on nationally or internationally known (political) actors, whereas the RTL *Aktuell* often portrayed everyday people affected by the pandemic ($\chi^2(3) = 22.604$, Bonferroni-Holm corrected $p = .007$, $V = .297$).

Table 6. Comparison of TV News Coverage on Covid-19 Between Tagesschau and RTL *Aktuell* in 2020: *t*-Test of Mean Differences

<i>t</i> -Test of Mean Differences	Tagesschau		RTL Aktuell		<i>t</i>	Cohen's <i>d</i>	<i>p</i> (adjusted)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Proportion of news items reporting on Covid-19 per news broadcast	.63	.20	.90	.17	-12.92	0.18	.002
Source diversity – numbers of scientific references mentioned per news item	0.38	0.68	0.33	0.59	0.75	0.63	.456

Table 7. Comparison of TV News Coverage on Covid-19 Between *Tagesschau* and *RTL Aktuell* in 2020: Chi-square test

Chi-square test	Tagesschau		RTL Aktuell		Cramer's <i>V</i>	<i>p</i> (adj.)
	<i>n</i>	%	<i>n</i>	%		
Tone					.173	.108
Positive/optimistic	16	11.5	15	9.1		
Negative/pessimistic	34	24.5	25	15.2		
Ambivalent	76	54.7	117	70.1		
Neutral	13	9.4	8	4.8		
Emotionalisation					.246	.007
No emotionalisation	62	44.6	36	21.8		
Low to medium emotionalisation	54	38.8	84	50.9		
Strong emotionalisation	23	16.5	45	27.3		
Controversy					.128	.249
No controversy	86	61.9	119	72.1		
Low to medium controversy	52	37.4	43	26.1		
Strong controversy	1	0.7	3	1.8		
Popularity of Actors					.297	.007
No specific person mentioned	19	13.7	9	5.5		
Everyday people or people known on a regional level	24	17.3	67	40.6		
Known on a national level (in Germany)	46	33.1	38	23.0		
Internationally known	50	36.0	51	30.9		
Geographical proximity					.221	.025
Unclear or no specific location mentioned	1	0.7	5	3.0		
Focus on federal states, municipalities, or cities	8	5.8	15	9.1		
Focus on developments in Germany	64	46.0	100	60.6		
Focus on international developments	66	47.5	45	27.3		
Timeliness					.067	.505
Unclear	0	0.0	0	0.0		
Events and developments have happened in the past, at least over a year ago; or they might happen in a not yet defined time in the future	1	0.7	1	0.6		
Events and developments have happened less than a year ago or will happen in a defined future of more than a week	1	0.7	4	2.7		
Events or developments lie less than one week in the past or in a defined future of up to one week	137	98.5	160	97.0		
Impact					.136	.258
Unclear	2	1.4	0	0.0		
Individuals or smaller groups to larger groups, e.g., families, schools and companies are directly affected	9	6.6	17	10.3		
Affected are occupational or interest groups, such as students	44	31.7	63	38.2		
Affected are all citizens of a federal state, Germany or other nations, or a group of people who make up more than half of the population, e.g., women	84	60.4	85	51.5		

Note. Percentages refer to number of news items per news broadcast. $n_{\text{Tagesschau}} = 139$, $n_{\text{RTL Aktuell}} = 165^1$ in 2020. ¹ $n = 17$ particularly short news items by RTL Aktuell ("RTL Aktuell News Kompakt"), were excluded from further coding. Thus, the numbers in the table differ from the total number of news items analysed in 2020. To account for the fact that we did multiple comparisons, we report adjusted *p* values according to the Bonferroni-Holm correction.

As for characteristics possibly preventing issue fatigue, Tagesschau as well as RTL Aktuell seldomly cited scientific references, while news factors showed high measures throughout the sample and there were no differences between Tagesschau and RTL Aktuell in this regard, except for geographical proximity ($\chi^2(4) = 14.891$, Bonferroni-Holm corrected $p = .025$, $V = .221$). Specifically, the Tagesschau equally depicted national and international developments, whereas RTL Aktuell mostly focused on events in Germany.

In conclusion, the reporting of both public and private newscasts included characteristics potentially contributing to recipients' issue fatigue (i.e., the high share of news items addressing the issue of Covid-19, the overall ambivalent to negative tone, emotionalising language, minimal citing of scientific sources) as well as attributes possibly preventing issue fatigue (low complexity, rare reporting of controversies, emphasis on news factors).

In order to answer RQ3b, we compared the characteristics of the news broadcasted between March and April 2020 to those broadcasted between January to February 2021 (Table 8). In contrast to March and April 2020, TV news covered Covid-19 significantly less often in January and February 2021 ($M_{2020} = .79$, $SD_{2020} = .23$; $M_{2021} = .50$, $SD_{2021} = .19$; $t(438) = 12.24$, Bonferroni-Holm corrected $p = .002$, *Cohen's d* = 0.22). Interestingly, the information presented were more complex in 2021 than in 2020, since, for instance, significantly more news items referred to statistical measures such as the reproduction factor R ($\chi^2(1) = 73.27$, Bonferroni-Holm corrected $p = .008$, $V = .422$). With regards to the overall tone, emotionalisation, and portrayal of main actors there were no significant changes over time. However, compared to those in 2020, the newscasts in 2021 depicted significantly more controversies ($\chi^2(2) = 17.822$, Bonferroni-Holm corrected $p = .008$, $V = .208$). As for characteristics possibly preventing issue fatigue, there was a significant change from 2020 to 2021 as well: Although the average number of scientific references cited during news items remained small, it increased considerably ($M_{2020} = .35$, $SD_{2020} = .63$; $M_{2021} = .60$, $SD_{2021} = .76$; $t(157.60) = -2.96$, Bonferroni-Holm corrected $p = .004$, *Cohen's d* = 0.67). The extent to which articles depicted the impact of Covid-19, however, did not change.

Table 8. Comparison of TV News Coverage on Covid-19 between 2020 and 2021

t-Test of Mean Differences	2020		2021		t	Cohen's d	p (adjusted)
	M	SD	M	SD			
Proportion of news items reporting on Covid-19 per news broadcast	.79	.23	.50	.19	12.24	0.22	.002
Source diversity – numbers of scientific references mentioned per news item	0.35	0.63	0.60	0.78	-2.96	0.67	.004
Chi-square test					Cramer's V	p (adjusted)	
Mention of reproduction factor R and other statistical measures					.422	.008	
Tone					.087	> .999	
Emotionalisation					.020	> .999	
Controversy					.208	.008	
Popularity of Actors					.023	> .999	
Geographical proximity					.081	> .999	
Timeliness					.055	> .999	
Impact					.159	.096	

Note. $N = 440$ Covid-19 related news items, $n_{2020} = 321$ and $n_{2021} = 119$. To account for the fact that we did multiple comparisons, we report adjusted p values according to the Bonferroni-Holm correction.

So, while the amount of TV news coverage on Covid-19 decreased significantly over time, it became more complex and controversy-oriented. Still, the average number of scientific sources cited throughout the newscasts increased.

Discussion

Principal Findings

Importantly, the results of the survey data propose that in an early phase of the pandemic, the German population did not show issue fatigue on an aggregated level. However, over the course of the pandemic, negative attitudes towards the topic, information overload as well as the perception of the Covid-19 reporting as hostile, manipulative, and of low quality increased, whereas involvement with the issue decreased – indicating considerably increasing issue fatigue among participants.

Regarding a potential relation between information behaviour and (the lack of) issue fatigue, the panel data revealed a negative relation between both types of information behaviour, i.e., seeking and scanning, and negative attitudes towards the topic. Moreover, the data indicate a negative relation between information seeking and perceiving Covid-19 related reporting as problematic. In addition, information seeking was positively related to involvement with the issue of Covid-19. Interestingly, having a look at a potential channel-specific effect of TV news as the most important information source, the reception of public TV news even decreased issue fatigue. More specifically, a higher use of public TV news led to less negative attitudes towards the topic and a less negative perception of Covid-19 related reporting. Besides, it increased participants' involvement with the issue of Covid-19. However, there is evidence that neither information behaviours in general nor the use of TV news did predict participants' information overload which might be due to generally low levels of self-reported information overload in April 2020.

Hence, although Covid-19 dominated the TV news coverage in March and April 2020, this did not automatically lead to issue fatigue. Rather, our data stress that people still had a high need for orientation due to the uncertainty and potential threat of the coronavirus during the early phase of the pandemic and therefore information seeking remained high. With regards to specific channel-related characteristics, the relation between the reception of public TV news and four out of five subdimensions of issue fatigue may be explained by a generally less negative attitude of recipients of public newscasts towards the issue during the first wave of the pandemic. However, some attributes of the Covid-19 reporting in the major public TV newscast Tagesschau may also have contributed to the fact that recipients of public TV news experienced less issue fatigue – specifically, the lower proportion of news items on Covid-19 in the overall reporting of the Tagesschau (in comparison to RTL Aktuell) and its less emotionalising language. Both the moderate effect sizes (*Cramer's V*) and the relation between the use of public TV news and participants perceiving the reporting on Covid-19 as less problematic (i.e., hostile, manipulative, of low quality) reinforce this assumption.

Nevertheless, our results on news content are conflicting, since the Tagesschau also showed characteristics potentially contributing to recipients' issue fatigue (such as a strong emphasis on political actors), and both newscasts neither cited scientific references nor depicted diverse opinions very often.

Interpretation and Comparison with the State of Research

Our results regarding the dominance of Covid-19 in TV news coverage are in line with previous content analyses (e.g., Krawczyk et al., 2021; Mach et al., 2021). The same holds true for characteristics such as an overall ambivalent to negative tone and a strong emphasis on political actors, which has also been shown in prior research from Mexico (Rodelo, 2020) and South Africa (Wasserman et al., 2021). However, given our results regarding a negative relation between recipients' issue fatigue and not only information behaviour in general, but public TV news in particular, it remains vastly unclear which attributes of news coverage actually affect recipients' emotional and cognitive state in such a way that they are tired of a certain issue – or not. Thus, we cannot draw conclusions yet on how news media could prevent issue fatigue because of their reporting.

Regarding the long-term developments, our study shows that Covid-19 related issue fatigue has increased from 2020 to 2021 – similarly to growing evidence pointing out Covid-19 related message fatigue in the context of persuasive communication (Ball & Wozniak, 2022; Guan et al., 2022; Hwang et al., 2022; Jia et al., 2022). However, the news coverage on Covid-19 significantly decreased in the meantime and therefore should not, overall, have led to more issue fatigue. This raises several issues.

Firstly, despite a distinct decrease media attention towards Covid-19, people have been more fatigued with information on this matter, indicating that issue fatigue, once established, remains as a long-term problem. Thus, the question arises how issue fatigue could be prevented in the first place, since otherwise it may negatively affect information behaviours as well as people's news media evaluations and trust in news coverage (Gurr, 2022) over longer periods of time. Secondly, our results indicate that issue fatigue cannot be ascribed solely to news coverage, since the way in which TV news coverage and Covid-19 related issue fatigue have developed over time contradict each other, at least partly. This leads to the question whether the concepts of message fatigue, as an unintended effect of persuasive public health messages (So & Alam, 2018; So & Popova, 2018), and issue fatigue, as a consequence of ongoing news coverage and thus informative communication (Gurr et al., 2022; Metag & Arlt, 2016), can really be as clearly distinguished as indicated by Gurr et al. (2022). This question is particularly relevant in the context of a global crisis situation such as the Covid-19 pandemic, in which people have been inundated with information (persuasive and non-persuasive) through a variety of communication channels (Guan et al., 2022; Koh et al., 2020), including interpersonal communication as well as public health messages and news coverage (Link, 2021, 2022). Therefore, it seems difficult to decipher whether fatigue as consequence of ongoing information exposure (also previously discussed in the context of pandemic fatigue, e.g., Lilleholt et al., 2023) results from specific information sources, and if so, which, or rather the sum of all this different information combined. Thus, more research is needed on both concepts to draw conclusions on how communication during a pandemic affects recipients' cognitions, emotions, information behaviour, and prevention behaviour.

Limitations

Our study has several limitations. Firstly, our content analysis was limited to two specific TV newscasts, namely Tagesschau and RTL Aktuell, while we assessed participants' use of public respectively private TV newscasts in general in the survey. Since we selected the major newscasts of a public and a private TV station (NDR, 2021; RND, 2020), which have the

highest reach within their domains as well, we assume that the results from the content analysis and the surveys are well related. However, in order to both gather more insights into the news coverage on Covid-19 and draw conclusions regarding recipients' issue fatigue and information avoidance, a broader sample of newscasts should be analysed. With regards to our data analysis procedure, we already mentioned the issue of autocorrelation, i.e., the slightly positive correlation between errors in our multiple regression analyses. In consequence, our regression results should be assessed critically.

A further limitation refers to the observation that the theoretically selected variables, depending on the subdimension, only explained an additional 1.8 to 14.5% (general Covid-19 related information behaviour) respectively 1.1 to 3.8% (TV news reception) of the variance of participants' issue fatigue. This indicates that other factors have to be identified in order to fully explain recipients' issue fatigue, such as personal characteristics of recipients other than age, gender, and education. However, considering that our study lies within the wide spectrum of media effects studies assessing relationships with field survey data (and not a controlled experiment), the observed small relationships do in fact matter. Furthermore, effect sizes are often smaller in a longitudinal design as compared to cross-sectional data, since not only the constructs in question may have changed from t1 to t2, but also many other variables playing a role. Still, this design allowed us to better mirror the assumed causal relationship between information behaviour and issue fatigue. Nevertheless, future research should include other control variables to further explain the concept.

Finally, considering that we combined a two-wave panel in 2020 and a cross-sectional survey in 2021, we were not able to make specific suggestions on how issue fatigue has developed over time, but draw conclusions on an aggregated level. Thus, future research should consider conducting a panel study with several waves, in order to assess long-term developments of issue fatigue in more detail. Furthermore, in order to rule out the specific contribution of the various postulated issue-increasing attributes, experimental studies could be conducted varying the specific attributes and using prolonged-exposure designs in order to simulate the relevant frequency of exposure.

Conclusion

Despite the mentioned limitations, our study revealed interesting insights into issue fatigue during the COVID-19 pandemic, allowing for a more nuanced view on the informational aspect of pandemic fatigue as a public health threat. Interestingly, at least in the beginning of the pandemic, neither information seeking and scanning nor the use of TV newscasts as the most frequently used source of Covid-19 related information in German-speaking countries did lead to recipients' issue fatigue.

Nevertheless, given our conflicting results, this study raises several questions, including whether, and if so, by which attributes, news coverage contributes to recipients' issue fatigue – or not. Furthermore, more research is needed to determine to what extent issue fatigue depends on the recipients themselves. Moreover, it remains unclear if message and issue fatigue as unintended negative effects of information overexposure can really be conceptually distinguished from another. Future research should address these questions, given that recipients' fatigue from information not only poses severe additional challenges in dealing with a global health crisis such as the COVID-19 pandemic, but may also harm recipients' general attitudes towards news media.

Ethical Approval

This manuscript is based on several studies, including a content analysis, a two-wave panel survey and a cross-sectional survey. For the content analysis, no ethical approval was obtained, since we analysed information available in the public domain and intended for a mass audience. In order to protect our two student coders from potential harm, we closely supervised them throughout the coding process. The other two studies, however, were granted ethical approval by the University of Erfurt (Application 20200312).

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Conflict of Interest

We confirm that no known conflicts of interest exist for this publication. There has been no financial support that could have influenced the outcome.

Supplementary Material

The supplementary material can be found here: <https://doi.org/10.47368/ejhc.2023.307>.

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Author Contributions

Conceptualization (main idea, theory): Annemarie Wiedicke, Constanze Rossmann, & Paula Stehr

Funding acquisition: - (no funding)

Project administration: Annemarie Wiedicke

Methodology: Annemarie Wiedicke, Constanze Rossmann, & Paula Stehr

Data collection: Annemarie Wiedicke

Data analysis: Annemarie Wiedicke, Paula Stehr, & Constanze Rossmann

Writing – original draft: Annemarie Wiedicke

Writing – Review & editing: Annemarie Wiedicke, Paula Stehr, & Constanze Rossmann

Author Biographies

Annemarie Wiedicke is a communication researcher at the Institute for Media Research, Technical University of Chemnitz, Germany. Her research subjects include journalism studies and social media research, with a focus on health communication.

Paula Stehr is a postdoctoral researcher at the Department of Media and Communication, LMU Munich. Her research focuses on health communication and digital media, comprising topics such as evidence-based health campaigns, information behaviour, eHealth and mHealth, parasocial opinion leadership, and digital activism.

Constanze Rossmann is a full professor for communication science at the Department of Media and Communication, LMU Munich. Her research focuses on health communication, specifically evidence-based campaign development, digital media in health communication, and crisis communication. She is co-founder of the Health Communication Division within the German Communication Association (DGPK).