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I Knew It, the World is Falling Apart! Combatting a Confirmatory Negativity Bias in Audiences' News Selection Through News Media Literacy Interventions

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ABSTRACT

Do people with a more pessimistic worldview also select more like-minded news that confirms their negative—sometimes irrational—outlook on reality? This study theorizes that, based on the negativity and confirmation biases in audience digital news selection, a pessimistic outlook increases the likelihood of self-selection of more negative and episodic headlines over positive and thematic news. In a next step, news media literacy (NML) literature is consulted to explore how to counter this tendency to, via news selection, confirm an overly negative and distorted worldview. A selective-exposure experiment ($N = 612$) monitored participants' self-selection of crime news after exposure to NML interventions. Findings show that those participants who hold a more pessimistic outlook on crime in society tend to confirm this worldview by self-selecting into more negative crime news. Exposure to NML interventions concerning negativity bias or click-bait was found to mitigate this negativity bias in news selection, especially for those who already hold a pessimistic outlook. This study is the first to document that NML interventions can potentially have merits as a tool to combat negativity bias in online news selection.

Introduction

In their overly negative and event-driven reporting, news media are commonly found to portray a biased reality. Overall, good news is seen as synonymous with no news as negativity is believed to be more attention-grabbing and therewith garners the highest audience ratings and number of clicks (Lengauer, Esser, and Berganza 2012; Soroka, Fournier, and Nir 2019). In this predominant focus on negativity, sensational and exceptional events often gain disproportionate news attention (Entman 2007). The infrequency of incidents paradoxically explains the level of news coverage and

therewith isolated and negative events are mistakenly presented as daily reality (Jacobs et al. 2018; van der Meer et al. 2019). Media's tendency to present the negative and exceptional as reality can cultivate a distorted worldview among its audiences. For example, negatively biased coverage can induce irrational fear perceptions (Romer, Jamieson, and Aday 2003), lower general well-being (Boukes and Vliegenthart 2017), and increase support for radical right-wing political parties (Thesen 2018). Such worldviews are at odds with the principles of a well-functioning democracy: They may trap people in irrational spirals of cynicism and impede the rational exchange of arguments between citizens. The current study is specifically interested in the demand-side of negative and event-driven news as digital audiences are more and more in control of their news diets.

Not only news media are skewed toward the negative, but also audiences' news selection can often be characterized by several biases. In an online media environment with an abundance of news choices, audiences need to rely on certain cues to maneuver through the overload of information to decide what news to read. In this selection process, people are found to be drawn to negative news—i.e., negativity bias (Knobloch-Westerwick, Mothes, and Polavin 2020). Overall, compared to positive information, negative news is considered more appealing as it is seen as unambiguous, consensual, unexpected, dramatic, sensational, entertaining, eye-catching, interesting, and short-dated (Lengauer, Esser, and Berganza 2012). Psychologically, these preferences for negativity can be explained by people's built-in mechanisms to scan their environment for threats (Soroka and McAdams 2015). The same goes for the selection of sensational and event-driven news over more complete thematic background stories (Arpan 2009; Busselle and Shrum 2003). Accordingly, people are not just forcefully exposed to disproportionate negative worldviews, but also play an important role in creating their own biased and overly negative reality by selectively attending to negative and sensational news.

Another established news-selection bias, known as the confirmation bias, might be at play as a reinforcing factor of the persistence of audiences' negativity bias. Confirmation bias generally refers to audiences' desire to select news that is congruent with their beliefs and ideology (Knobloch-Westerwick, Mothes, and Polavin 2020; Taber and Lodge 2006). This selection bias has predominantly been applied to explain how audiences' prior attitudes determine the selection of political news that favors one position over the other (e.g., opposing or support welcoming refugees). Yet, in previous research, the notion of confirmation bias has insufficiently been applied to better understand the mechanism of news audiences' negativity bias. Those who already hold a more pessimistic or negative outlook on society might confirm this worldview by selecting relatively more news about negative incidents. Accordingly, audiences might end up in a negativity spiral where those who are more cynical about the world expose themselves to more negative news, which, in turn, further biases their worldview. Thus, negativity and confirmation biases may converge and trap people into a skewed media diet that reinforces their pessimistic outlook.

Since the persistent selection of negative news can be harmful, an essential next question is how to break the spiral of negative news selection. For this purpose, the current study is the first to consult news media literacy (NML) research (Vraga and

Tully 2019). NML interventions might be helpful to improve audiences' digital NML by stimulating people to avoid negative news on isolated incidents. Creating awareness of how such news-exposure patterns can potentially bias their world perceptions might inspire a healthier news diet. So far, the potential of NML interventions has predominately been shown in the context of political news selection and correcting misinformation (e.g., Tully, Vraga, and Bode 2020; Vraga, Bode, and Tully 2020; Vraga and Bode 2018; Vraga and Tully 2015). Extrapolating these techniques to the context of negative news selection, we aim to provide novel insights into how negativity bias in audiences' news selection can be combatted.

In a selective exposure experiment in the US ($N = 616$), we measured online self-selection into negative and event-driven news over positive thematic news. We rely on news items about violent crimes because this topic frequently makes headlines where news items are molded in attention-grabbing and episodic forms that focus on isolated incidents, neglecting real-world thematic statistics that show how crime rates are declining. Participants browsed a news website with (pilot-tested) headlines manipulated as being attention-grabbing, episodic, and negative versus thematic headlines that better represent actual crime statistics that paint a more positive picture. Before they browsed the news website, depending on the conditions they were in, some respondents were exposed to a NML intervention that stimulated (1) selecting less negative news or (2) avoid click-bait headlines. Together, our study reveals how negativity and confirmation biases converge in high-choice media settings, and which journalistic tools may be suited to correct disproportionate pessimistic news selection.

Theory

In a digital high-choice media environment, audiences have become more in control of what type of news they expose themselves to (Merten 2021). In this setting, selective exposure refers to individual processes of news selection where prior beliefs and preferences play a guiding role (Knobloch-Westerwick, Mothes, and Polavin 2020; Stroud 2008). These (un)conscious filtering processes can be understood as guiding heuristics that news consumers rely on to navigate information environments. The reliance on such selection cues relates to diverse profiles of news audiences and can result in different media diets on the individual level.

Although all digital news consumption may be driven by preexisting perceptions and preferences to some extent, such selection patterns may become harmful when the self-selected news stories portray a distorted media reality that does not align with what actually happens within society. Selective exposure literature argues that an individual's attitude and desire for certain news can outweigh the need for correctness or a complete understanding (Taber and Lodge 2006). Several of such biases in individuals' media diet might create a distorted worldview that conflicts with all the progress being made in global development in recent decades. Moving forward within the field of selective exposure, this study aims to better understand the selection of *negative news* on *isolated incidents*, what drives such distorted news selection that

conflicts with the observable factual reality, and what are effective remedies that can impede this biased selectivity that could lead to a misinformed citizenry.

Negativity Bias and Episodic Frames as Attention-Grabbing Aspects of Digital News

In this article, we forward the argument that two attention-grabbing news values of today's digital news environment may oftentimes co-occur in a highly competitive market: The focus on negativity and the centrality of isolated cases (episodic framing) instead of the wider socio-political embedding of issues and their implications. Negativity in the news resonates with important news values and is, for example, used by under-resourced media outlets as an instrument to compete for audiences' attention (Harcup and O'neill 2017). Likewise, this negativity bias prevails in citizens' digital self-selection of news. Overall, the negativity bias in news selection highlights how audiences prefer negative news over positive news since negativity is generally considered unambiguous, consensual, unexpected, dramatic, sensational, entertaining, eye-catching, interesting, and short-dated (Lengauer, Esser, and Berganza 2012; Trussler and Soroka 2014). Extant selective-exposure research has empirically confirmed this negativity bias in news selection. In simulated news environments, when given the option, respondents are more likely to select negative than positive news (Knobloch-Westerwick, Mothes, and Polavin 2020; van der Meer, Hameleers, and Kroon 2020), even when they explicitly indicate to have no preference for negative news (Trussler and Soroka 2014).

Audiences' attraction to negative news stems from certain psychological mechanisms. Individuals are, from an evolutionary point of view, wired to constantly scan their environment for risks and threats. The negativity in the news taps into this type of build-in scanning mechanism (Lengauer, Esser, and Berganza 2012). Alarming threats, coming from one's digital news environment in the form of negative information, need to be carefully processed to understand how to avert personal risks (Soroka, Fournier, and Nir 2019). Therefore, negative news has more value with regard to "vigilance" (Irwin, Tripodi, and Bieri 1967) and "diagnosticity" (Skowronski and Carlston 1989) compared to positive news. In the end, individuals' (physiological) perceptions and attention are more impacted by negativity since such events are more dominant, contagious, salient, and efficacious (Rozin and Royzman 2001). In terms of its democratic implications, this negativity bias can be both harmful and conductive. It can be conductive as citizens—with limited capacity to systematically process all information they come across—are made aware of threats in their environment that require attention (de Vreese and Tobiasen 2007). Then again, negativity may be harmful as citizens may feel more threatened than they need to be (Bennett 2003). In this article, we take a middle ground: Negativity can be conductive under some conditions, but it is harmful when negativity biases in the (selection of) news become disproportionate and persistent.

The negativity bias in news selection often goes hand in hand with audiences' strong preferences for episodic news about isolated incidents over thematic news. Frames—here conceptualized as emphasis frames that offer an organizing storyline

regarding problem definitions, causal interpretations, moral evaluations, and/or treatment recommendations (Entman 1993)—can guide citizens' interpretation of events or situations. Episodic news framing primarily concentrates on individual cases and more discrete events (Gilliam and Iyengar 2000; Iyengar 1994). The use of (personalized) exemplars and incidental events play an important role when news is molded in the form of episodic frames. On the contrary, thematic framing puts emphasis on the broader and general context in which news events are embedded (Gross 2008; Iyengar 1994). Here, collective outcomes, base-rate information, and statistics of over time trends play a more central role than individual cases. It is argued that news is more commonly primed and framed as episodic instead of thematic to draw more attention to a story (Arpan 2009; Iyengar 1994). Accordingly, the need for negative news aligns with preferences for coverage on isolated incidents and rare events that hint toward potential threatening circumstances. Such news coverage depicts an image of society that is more dangerous and negative than it actually is, and thus deviates from an accurate thematic depiction of risk.

This study explicitly looks at the selection of negative and episodic news in parallel. We integrate both aspects of news coverage because we aim to study the self-selection of biased and attention-grabbing news that portrays an inaccurate media reality discrepant with the actual, often more positive, reality. News media, in their focus on the sensational, are more likely to report on negative incidents (i.e., negativity bias) that happen very rarely to capture attention and function as clickbait. The exceptionality of these negative incidents relates to the episodic framing of information where news primarily concentrates on individual cases and more discrete or isolated events. On the contrary, more *constructive* forms of journalism (Hermans and Gyldensted 2019) are less salient on news websites since news on objective long-term global trends (i.e., thematic news), that often show how the world is steadily progressing (i.e., positive news), do not sell as well. Given the world's progression, factual trends and its thematic news coverage are commonly more positive. Accordingly, the rare incidents picked for sensational news coverage are often about negative events that can be seen as exceptions to base-rate information. Thus, news stories that are attention-grabbing, event-driven, and often do not reflect the underlying complex realities of day-to-day events and long-term socioeconomic trends (Gibson and Zillmann 1994; Kollmeyer 2004). Rather, such news focuses on negative and isolated cases in order to draw the audience to news stories in a competitive market where different outlets compete for attention, even if it comes at the cost of depicting an accurate worldview. Literature has indeed argued that episodic news is often more drama oriented or negatively valanced (Iyengar 1994). Accordingly, episodic frames often report on rare incidents that are negative in nature, such as aviation accidents (van der Meer et al. 2019) or the linkage between immigration and terrorism (Jacobs et al. 2018). Therefore, it is difficult to conceptually distinguish between negativity and episodic framing when studying how biased news selection can distort one's worldview. Both aspects reflect a bias in the news that is geared at drawing attention rather than offering an accurate worldview.

Since news consumers are often tempted to click on and read news that combines negativity and episodic exemplars, they are easily exposed to an overly negative

media reality where rare and isolated incidents are portrayed as the common world image. Due to such media diets, a distorted worldview can be created among audiences that simply does not mirror reality (Lawrence and Mueller 2003). This attraction to news on isolated events and negative incidents can be problematic since, unlike most negative headlines, objective long-term global trends actually show progress on many key facets like health, safety, crime rates, poverty, and war fatalities (Rosling 2018). Especially since the world's continual improvement mainly relates to base rate statistics, which are difficult to present in attractive exemplar news formats, the lack of attention to thematic news can hide the fact that things are going better in the world with time. This study focuses specifically on the case of crime rates: Audiences might be more drawn to a news story on a rare violent crime committed somewhere in the world—i.e., negative and episodic news—rather than read about how crime rates have been going down over the last decades—i.e., positive and thematic news that accurately reflects the current state of affairs regarding this issue. Yet, crime might not be the only issue that lends itself for studying negativity and episodic framing in parallel. For example, negative and episodic coverage of relative rare incidents of war, terrorist attacks, child mortality, deaths from disaster, plane crashes, or hunger might paint an inaccurate picture of the world given that long-term trends show clear progression on all these issues (Rosling 2018).

Confirming Negativity Bias

The first question that this study aims to answer is why people repeatedly expose themselves to negative and episodic news since such a persistent negativity bias can be harmful. We argue that audiences have the tendency to confirm their negative and pessimistic outlook by self-selecting into more negative news. This type of news selection is in line with another selective-exposure bias, known as confirmation bias, which implies that people primarily select news in line with their existing worldviews (Garrett 2009; Kappes et al. 2020; Westerwick, Johnson, and Knobloch-Westerwick 2017). Within the context of selective exposure research, confirmation bias is a widely studied filter mechanism to explain the persistent selection of ideology congruent news over incongruent information (Garrett 2009; Stroud 2008). In the context of political-communication research, confirmation bias is understood as a process by which prior attitude and identities function as a perceptual screen (e.g., Winter, Metzger, and Flanagin 2016). Motivated by the need to avoid cognitive dissonance and discomfort, information that challenges (partisan) ideologies is systematically dodged, especially in digital media settings (Knobloch-Westerwick, Mothes, and Polavin 2020; Taber and Lodge 2006). Hence, to maintain a positive and consistent self-image, people show a tendency to select news that confirms the worldviews that they already hold. Even though empirical evidence for the active avoidance of inconsistent or incongruent information is mixed at best (Garrett 2009), numerous studies at least show that people are more likely to select news that confirms their beliefs than news that challenges or attacks their prior worldviews (see, e.g., Knobloch-Westerwick, Mothes, and Polavin 2020; Stroud 2008).

When applied to the context of disproportionate preferences for negative news, the confirmation bias might reinforce audiences' persistence need for negativity in news selection. An already pessimistic or negative outlook on society might create the need to confirm this worldview by self-selecting into more negative and episodic news on isolated incidents. In doing so, audiences might end up in a downward spiral of negativity where those who are more cynical about the world expose themselves to more negative news, which, in turn, further biases their worldview and worsens their need for negative news. In the case of our study, when people already inaccurately assume that crime rates are going up and violent crime is a growing issue in society, they might be more likely to select news headlines on isolated crime incidents that confirm their existing pessimistic perception on the current status of crime in society. Against this backdrop we hypothesize:

> **H1**. The more pessimistic people's beliefs (on crimes) are, the more likely they are to self-select into negative and episodic news rather than positive and thematic news.

Countering the Negativity Bias: News Media Literacy

Since repeated exposure to disproportionate negative and episodically framed news can distort audiences' worldview, this study aims to provide new insights into how the tendency of selecting negative news can potentially be mitigated. For this purpose, the current study relies on literature concerning news media literacy (NML). Media literacy can be defined as news users' skills and knowledge that help them to understand how information is produced, what (political) considerations are driving its production, and how to navigate, access and analyze information in a thoughtful manner (e.g., Ashley, Maksl, and Craft 2017; Jones-Jang, Mortensen, and Liu 2021). When people are more literate, they know more about biases in both the production and consumption of news, which may also help them to distinguish false information from authentic news (Flynn, Nyhan, and Reifler 2017; Jones-Jang, Mortensen, and Liu 2021). Likewise, Tully and colleagues (2021) argue that news literacy requires an understanding of both the content and contexts of news production and consumption and that NML knowledge and skills therefore should be conceptualized across five domains: context, creation, content, circulation, and consumption.

This understanding of NML corresponds to the aims of our study: When news consumers are better informed about the biases underlying news production (i.e., negativity, clickbait coverage, and the focus on isolated cases) and its potential negative consequences (a distorted worldview), they are better equipped to select more diverse information and resist a disproportionate bias towards a mediated negative reality of events. After all, when news users are applying NML skills, they understand that the media's depiction of reality can be biased and driven by various (political or financial) motivations—which may lead them to disproportionally depict news events in more negative terms and grab attention by using clickbait headlines with vivid exemplars. But how can such NML skills be stimulated among news audiences?

NML interventions or messages can be used as a communicative instrument to stimulate NML-related skills and control in a digital setting (Vraga et al. 2021). NML interventions correspond to the promotion of media literacy skills as they help news

consumers to critically assess the biases underlying the mediated construction of reality, whilst also helping them to reflect on their own biases when making sense of information. For example, NML interventions are found to stimulate cross-cutting news exposure, reduce the selection of only attitudinal-congruent news (van der Meer and Hameleers 2021; Vraga and Tully 2019), lower hostile media perceptions (Vraga and Tully 2015), and alter misinformation perceptions (Guess et al. 2020; Hameleers 2020; Tully, Vraga, and Bode 2020; Vraga, Bode, and Tully 2020). NML interventions typically provide news users with short, easy to comprehend and low-effort suggestions on how to (1) be skeptical toward news coverage, (2) reflect on their personal biases, and (3) recognize biases in the production of information, such as political motivations or biases in the tone of coverage (e.g., Guess et al. 2020; Hameleers 2020). Such recommendations should work as they do not require substantial verification efforts whilst offering news users confidence that the application of these practical tips is both feasible and effective in reaching the desired outcome (i.e., recognizing misinformation, reducing biased news exposure patterns) (e.g., Hameleers 2020; Vraga et al. 2021).

It should be noted that being more literate on its own does not help news users to overcome biases or detect misinformation. Rather, it is the *application* of news literacy skills that predicts how people behave in a given situation (Vraga et al. 2021). Related to this, Jones-Jang and colleagues (2021) show that only information literacy—people's actual ability to locate and navigate verified and reliable information—helps people to identify disinformation. Other literacies, measured mostly with self-reported or perceptual measures, did not help people to detect falsehoods. This shows that successful NML interventions should not improve people's knowledge about how to be more literate, but rather offer specific suggestions and easy-to-apply tips on how critical skills should be used when navigating the (digital) information setting.

Applying these theoretical notions, this study tests the performance of two types of NML interventions in stimulating the selection of more positive and thematic news whilst motivating the avoidance of disproportionately negative and episodically framed news. Here we make a distinction between NML interventions that highlight either more the *creation* domain or the *content* domain of NML knowledge and skills (Tully et al. 2021; Vraga et al. 2021) where we expect both interventions to be comparably successful in minimizing negativity bias in news selection. First, one intervention warns about negative and sensational headlines by addressing the phenomenon of *clickbait*—a specific type of digital information that aims to capture the audience's attention by focusing on dramatized individual and negative cases. Thus, this intervention is primarily embedded in our theoretical focus on episodic news, where exceptional cases are covered for their news value and sensational character. Highlighting that news media intentionally write eye-catching and sensational headlines to gain more clicks, stimulate audiences' understanding of the news creation domain of NML. In doing so, this intervention aims to increase audiences' literacy regarding journalistic processes of conceiving, reporting, and creating news (Vraga et al. 2021). For a healthy news diet, it is essential that news consumers understand how news routines influence not only what information is chosen as news but also how news is presented, where drama and sensation are used to capture and keep their attention (Tully et al. 2021).

Second, the other NML intervention focuses on how news can be overly negative and is therewith more embedded in the theoretical focus on negativity bias. By emphasizing how media coverage is disproportionally negative, NML skills regarding identifying how news values are evident in news are targeted (Vraga et al. 2021). Therefore, the aim of the second intervention is to stimulate audiences' knowledge of the news content domain of NML by helping them recognize key features of news and identify dominant frames in which news is commonly presented (Tully et al. 2021). Moreover, both interventions highlight that the economic imperative to turn a profit is a strong organizational influence that results in media's focus on the negative and exceptional to gain the largest audience—i.e., context domain of NML (Tully et al. 2021)—and how consumption skills should involve minimizing selective exposure to certain (negative) news that forefronts their biases and worldviews—i.e., consumption domain of NML (Tully et al. 2021). In addition, specific guidelines are suggested that remind people to not automatically click on the most appealing negative and dramatic headlines. Based on extant research indicating that NML interventions can be effective in countering the negative impact of information pollution and selection biases in the digital age, we hypothesize:

> **H2**. Exposure to a NML intervention stimulating the avoidance of selecting (H2a) only negative news or (H2b) clickbait news reduces the self-selection of negative and thematic news compared to the absence of such an intervention.

NML research has documented the conditional effectiveness of interventions. For example, the success of certain interventions was found to significantly differ among conservatives and liberals (van der Meer and Hameleers 2021; Vraga and Tully 2015). This conditionality showcases that the process of correcting attitudes and behavior with communicative efforts is complex at best. In addition, we predicted that prior pessimistic worldviews determine the selection of negative news—i.e., hypothesis 1. In line with this reasoning, we expect that the effectiveness of NML interventions in reducing negativity bias is also partially contingent upon individuals' existing worldview. If people already hold a less pessimistic and more accurate perspective, the NML intervention reassures their perception of the negativity bias in the news they encounter and potentially confirms their healthier selection behavior. Hence, among these news consumers with a more accurate worldview, the intervention does not offer much new information, and simply confirms their existing outlook. For more pessimistic people, however, the NML intervention might be more applicable and successful in weakening a negativity bias as it provides a new perspective for them on how to select news and gain a more accurate worldview. In other words, we expect the NML intervention to be most effective in reducing selection biases when it confronts news consumers with novel information on the biases prevalent in their information environment and (unfamiliar) selection preferences. Hypothesis three therefore reads as follows:

> **H3**. The effectivity of a NML intervention stimulating the avoidance of selecting (H3a) only negative news or (H3b) clickbait news in reducing the selection of negative and thematic news is dependent on people's prior pessimistic outlook.

Method

This study applies a selective-exposure experiment to assess participants' negativity bias in news selection and their response to NML interventions. We relied on a three-factor between-subjects design. Participants either saw (i) a NML intervention regarding negativity bias, (ii) a NML intervention regarding clickbait, or (iii) no intervention at all. Prior to monitoring participants' selection behavior in a simulated online news setting, they either were exposed to one of the two NML interventions that stimulated to not merely select negative headlines or did not see any intervention (the control condition). Crime news was chosen as the overall topic of the headlines and articles presented to participants. Over the years, crime rates have gone down, yet, isolated incidents of violent crimes frequently make it into the news. Accordingly, this topic lends itself to study the selection of negative news that can relate to a distorted media reality where crime is inaccurately portrayed as a more pressing societal issue than it actually is. Crime news is also commonly presented in an episodic way where isolated incidents are portrayed as a common world image in a sensationalized way (Grundlingh 2017), therewith presented with clickbait headlines. On the contrary, the topic of crime can also be covered thematically when factually reporting on decreasing trends in crime rates.

Sample

US participants were recruited online in October 2020 via sampling company Dynata. A total of 612 participants fully completed the online experiment and questionnaire. Quotas were set on age, gender, and party affiliation. On average, respondents were 50.15 years old ($SD = 16.86$) and 49.37% was female. Of all respondents, 14.73% was lower educated, 54.39% had a moderate education level, and 30.88% was higher educated. 278 of them identified as Democrats, 260 as Republicans, and the remaining 74 as Independents.

Procedure and Stimuli

Via an online link distributed among the panel of the sampling company, participants could enter the experiment. The experiment started with an introduction and consent form to sign. Afterwards, several questions were shown in the pre-treatment survey about demographics and the moderator. On the following page, depending on the condition participants were in, one of the two NML messages was introduced (or participants did not see a NML intervention at all when assigned to the control condition). For those in the intervention conditions, an introduction for the NML interventions was given indicating that on the next page they would see a public service announcement (PSA) from the Media Literacy Coalition that was issued in that given week (Vraga and Tully 2019). On the next page, they were exposed to the PSA. They had to spend at least 30 s on this page. In both PSAs, the importance of not only selecting negative news was highlighted. The PSAs indicated that due to the focus of news on dramatic incidents and the negative side of issues, people can become misinformed and get an inaccurate perception of the world around them. The

negativity bias PSA mainly contextualized media effects. It further explained how negativity sells, which explains media's disproportionate attention for the negative which can conflict with statistical trends that show that we live in the safest and securest period in human history. The *clickbait PSA* primarily tapped into the more familiar digital phenomenon of how news outlets write eye-catchy and sensational headlines to make readers curious about the linked content. Both type of interventions ended with the same five practical recommendations for selecting and reading news—e.g., "try not to only look at news with eye-catching and dramatic headlines"; "also read news that is more positive and provides a more complete view of an issue"; "remember that reading negative and incidental news can result in an inaccurate worldview". On the next page they were again shown these recommendations in a PSA introduced as the brief version of the more detailed PSA that the coalition would spread more regularly as a reminder (see Appendix A (supplementary materials) for all stimuli). Using an Amazon Mechanical Turk sample, both interventions were pilot-tested among 50 US citizens. Participants were randomly exposed to one of the two PSA. Overall, the PSAs were both assessed as understandable on a 7-point Likert-type scale (negativity bias PSA: $M = 6.52$, $SD = .83$; clickbait PSA: $M = 6.10$, $SD = .89$). A t-test showed how both PSAs did not differ significantly in their level of understandability ($t = 1.15$, df $= 45.07$, n.s.).

The subsequent page informed participants that they would now browse an online news website with different news stories related to crime. They were asked to browse the online news site to gain an impression of the headlines of the articles, which were all about crime in the US. To minimize potential demand effects of the experimental set-up, we did not explicitly connect the survey block with the PSA to the news selection survey block: We measured news selection as observed behavior that did not refer to the NML interventions shown before. On this news platform a total of six different news headlines appeared. These headlines were inspired by real news articles on the topic of crime. Three headlines reflected negative and episodic news items. These headlines were selected for being more attention-grabbing and sensational, corresponding with the principles of clickbait headlines. These news stories covered isolated incidents of violent crimes. The other three headlines reflected positive and thematic news items that better represent true crime statistics and therewith mirrored a more positive view on societal progress. In the pilot test ($N = 50$), we tested a total of twelve headlines about crime to select those that best conveyed the respective angle to the issue of crime based on the mean scores of three items—i.e., on a seven point Likert scale the level of negative versus positive angle regarding the issue of crime, impression of how common violent crimes are in the US, and if the headline was an example of a clickbait headline. In selecting the final six headlines, we also ensured that they did not substantially differ on other elements that could make these headlines more attractive, namely level of ambiguousness and similarity to other coverage on crime. Table 1 details all six headlines and Appendix B (supplementary materials) provides the mean scores of all headlines that were pilot tested.

Participants were asked to select and read a total of two articles. After selecting the first news headline, the corresponding article would appear. When finished with reading the first article, the next page would bring them back to the same news website

Table 1. Headlines reflection negative/episodic or positive/thematic crime news.

Condition	Headlines
Negative and episodic	1. Man left seriously injured after vicious bowling ball attack
	2. Man accused of punching man's eye out of socket
	3. Masked man seen attacking gas station worker with hammer during robbery
Positive and thematic	4. US announce reductions of violent crime year to year
	5. Crime rates in largest US cities continue to drop
	6. Fewer people are in prison in the US—and crime rates are going down too, study shows

to select the second news headline and read another article. Existing news articles were used and adjusted to be comparable in length. The selection of two headlines, monitored by software, allowed us to document whether respondents selected only negative or positive news items or engaged in more balanced new selection. This measure of negativity bias in news selection within an experimental design is comparable to measures used in prior work (Bachleda et al. 2020; Knobloch-Westerwick et al. 2005; van der Meer, Hameleers, and Kroon 2020).

Measures

Negativity bias in news selection. To measure participants' negativity bias in their news selection, a single measure was constructed that documented the selection of negative and episodic headlines over positive and thematic headlines. This procedure resulted in a variable with three possible scores: 0 = two positive headlines selected, 1 = one positive and one negative headline selected, 2 = two negative headlines selected.

Prior pessimistic outlook. To capture whether participants already had a pessimistic outlook on how society is progressing regarding violent crimes, they were requested to respond to several items prior to potential exposure to the stimuli. On a 7-point Likert scale, participants were asked to indicate to what extend they agree with the following statements: "crime rates are increasing rapidly", "a lot of citizens are vulnerable to crime", and "the government needs to do more to protect its citizens against violent crimes" ($M = 4.95$, $SD = 1.23$, Cronbach's alpha = .84).

Analysis

To test the effect of prior pessimistic outlook (H1), exposure to NML interventions (H2), and the interaction of both factors (H3), three ordered probit regression models were run with negativity bias in news selection as dependent variable. Ordered probit models are applicable for analyses where the dependent variable has (three to seven) ordered categories, in this case an order of three: (i) selection of only positive headlines, (ii) selection of a positive and a negative headline, and (iii) the selection of only negative headlines. The same analyses were run with ordered logit regression models. The results were identical.

Table 2. Ordered probit regression models predicting negativity bias in news selection.

	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)
Pessimistic outlook	.16*** (.04)	.16*** (.04)	.30*** (.07)
PSA clickbait[a]		−.26* (.11)	−.25* (.11)
PSA negativity bias[a]		−.24* (.11)	−.23* (.11)
PSA clickbait * pessimistic outlook[b]			−.23* (.10)
PSA negativity bias * pessimistic outlook[b]			−.23* (.09)
Party affiliation	.05* (.02)	.06** (.02)	.06** (.02)
Age	−.00 (.00)	−.00 (.00)	−.00 (.00)
Education	−.06* (.02)	−.06* (.02)	−.06* (.02)
Gender	−.14 (.10)	−.12 (.10)	−.11 (.10)
Cut 1	.29 (.32)	.15 (.33)	−.57* (.25)
Cut 2	1.27*** (.32)	1.13*** (.33)	.42† (.25)
N	612	612	612

Cells contain unstandardized regression coefficients with standard errors.
[a]Reference category is the condition where no intervention was shown to participants.
[b]These rows depict the interaction between the different intervention types and prior pessimistic outlook.
†$p < 0.10$.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

Results

The first hypothesis assumed that those participants who already held a more pessimistic outlook on society are more likely to show a negativity bias in their news selection. An ordered probit regression model with prior pessimistic outlook as independent variable and negativity bias in news selection as dependent variable was run. Model 1 in Table 2 shows a significant positive effect of pessimistic outlook on negativity bias. Figure 1 depicts how the predictive margins for negativity bias in news selection go up for those with a higher prior pessimistic outlook. When we run the same ordered probit model with only those respondents who did not see a NML intervention ($N = 216$), the effect of prior pessimistic outlook was even stronger ($b = .29, .07, p < .001$). These findings suggest that participants, who already believe that crime is a more serious societal problem, were more likely to confirm this world perception by self-selecting into negative and episodic news on isolated crime incidents rather than positive and thematic crime news. These findings confirm hypothesis 1: We clearly see that existing pessimistic worldviews drive the selection of more negative news on violent crimes.

Hypothesis two postulated that NML interventions can impede negativity bias in participants' news selection. To test this hypothesis, exposure to either the PSA concerning negativity bias (H2a) and clickbait (H2b), with as reference category the absence of a PSA, was added to the ordered probit model predicting negativity bias (see Model 2 in Table 2). The table details a significant negative effect of both exposure to the clickbait PSA and negativity bias PSA, indicating that exposure to these interventions lowered participants' selection of mainly negative and episodic crime news compared to positive and thematic news. These findings support both H2a and H2b.

Next, with the assumed role of prior pessimistic outlook formulated in hypothesis 1, hypothesis three tests the conditionality of the NML's effectivity based on participants' prior pessimistic outlook. Model 3 in Table 1 included the interaction terms between
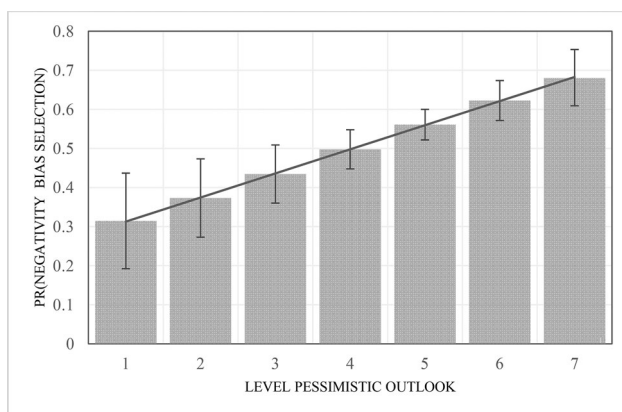
Figure 1. Predictive margins plots of negativity bias in news selection by level of prior pessimistic outlook.

both interventions and prior pessimistic outlook. Significant interaction effects were found for exposure to both the negativity bias PSA (H3a) and the clickbait PSA (H3b) with pessimistic outlook on negative news selection. These findings suggest that these NML interventions are especially effective in correcting negativity bias for those individuals who score higher on prior pessimistic outlook, and thus already more inclined to hold a negative view on crime. For those with lower levels of pessimism, however, negativity bias in news selection was already on a lower level as can be seen in Figure 1. In addition, the interaction between the condition of the NML interventions and prior pessimism on the continuous prediction of negativity bias in news selection is visualized in Figure 2. The visualization indicates how exposure to both the negativity bias and clickbait interventions, compared to the absence of an intervention, was especially successful among those high on pre-existing pessimism. These findings confirm H3a and H3b.

Conclusion and Discussion

The current digital high-choice news environment puts a premium on negativity and attention-grabbing coverage. Competing for fragmented audiences' attention, media outlets may cultivate a biased worldview that is disproportionally negative and threatening. Although negative news may have positive ramifications for democracy by warning citizens about threats that require immediate action (de Vreese and Tobiasen 2007), disproportionate attention for negative aspects of issues, and repetitive exposure to it, may create unrealistic pessimistic worldviews and an overestimation of individual risk. Applied to violent crimes, for example, a skewed attention to individual cases and negative consequences may instill unfounded fear perceptions among citizens, reinforce pessimistic worldviews, and justify the exclusion of allegedly 'dangerous' segments of society. Against this backdrop, we aimed to experimentally assess which citizens are most likely to select into biased negative news coverage on crime—i.e., whether these selection patterns followed a confirmation bias pattern—and how different NML interventions can mitigate overly negative news diets.
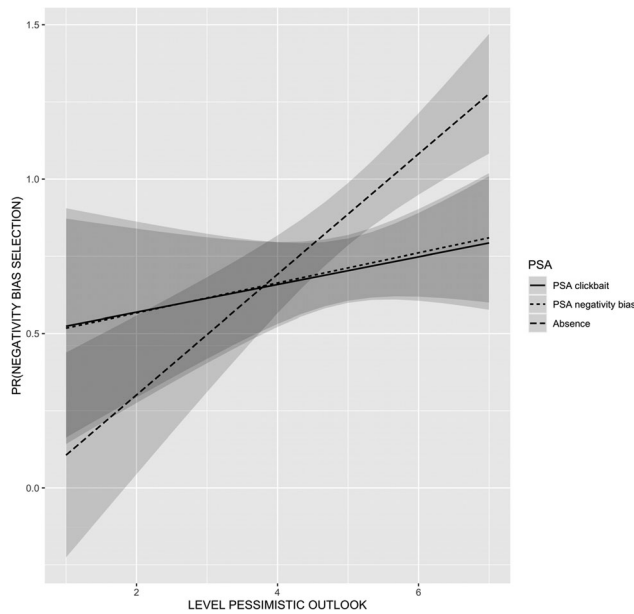
Figure 2. Plot of interaction effect of prior pessimistic outlook and exposure to intervention on negativity bias in news selection.

The key findings of our experimental study offer support for a confirmation-biased selection pattern into negative crime news: The more people hold a negative outlook on crime, the more likely they reassure this pessimism by selecting negative rather than positive news. This finding is in line with research on a confirmation bias in selective exposure literature (Knobloch-Westerwick, Mothes, and Polavin 2020; Stroud 2008). Yet, we expand selective exposure literature by looking at the convergence between a negativity and confirmation bias on the demand-side of the news: Just like people are intrinsically motivated to select information that reassures prior identities and beliefs, people are motivated to reassure their pessimistic outlook by approaching negatively framed news. Even though not all audiences may selectively avoid positive news—similar to the position that uncongenial news is not always actively avoided (Garrett 2009)—our findings seem to indicate that some people may be 'trapped' in a reinforcing spiral of negativity that confirms, and subsequently further reinforces, their pessimistic outlook.

To make matters worse, the current digitized news environment incentivizes and reinforces negativity biases. Negative news is more attention-grabbing and its resonance with core news values (i.e., clickbait coverage) motivates the production of news focused on negative cases of violent crimes and episodically framed storylines of victims and perpetrators (Harcup and O'neill 2017). When given the choice, people have a tendency to select negative over positive news (Knobloch-Westerwick, Mothes, and Polavin 2020; van der Meer, Hameleers, and Kroon 2020). Some algorithms and news recommendation systems, in turn, may feed this bias by offering more skewed selection of overly negative stories based on previous selection of comparable news items.

These findings paint a relative pessimistic picture of the ramifications of negative news coverage. Yet, our findings do indicate that NML interventions can promote a

more diverse and less negative media diet. The finding that such warnings can motivate the selection of more positive news is in line with research on the effectiveness of (news) media literacy interventions (e.g., Tully, Vraga, and Bode 2020; Vraga, Bode, and Tully 2020; Vraga and Bode 2018; Vraga and Tully 2015). Both the NML intervention that warned for the selection of clickbait and negativity bias in news selection were found to be successful. The clickbait PSA, which assigned a more active role to the media in misinforming the public by focusing on dramatic, attention-grabbing coverage, as well as the negativity bias PSA, that emphasized how media coverage can end up being overly negative, were found to be helpful in alerting audiences of their potential unhealthy media diets. As a practical implication, our findings thus indicate that different explicit foci on domains of media literacy (i.e., both the creation and content domain) of NML messages can be effective to counter biases in people's media diets if it comes to disproportionate attention to the negative and the exceptional, which might give them an inaccurate reflection of real world trends.

Here, we should note that we tested the effects of NML interventions in an experimental set-up with participants recruited by a research agency, similar to previous work in this area (e.g., Hameleers 2020). It could be the case that participants in survey research are more willing to comply with suggested behavioral changes than news consumers outside of this artificial setting. That being said, we separated the intervention from a direct measure of news selection in which we did not suggest which behaviors were (in)correct or in line with the intervention—which adds to the ecological and external validity of the conclusions. Still, we recommend future research to rely on more externally valid approaches, such as field experiments, or add a delay between exposure to the treatment and the media selection to rule out the influence of demand effects.

Our findings further indicate that NML interventions are especially effective in correcting a negativity bias for individuals who hold more pessimistic worldviews. The PSAs were most efficient among segments of the audiences that need them most. The exposure to both the negativity bias and clickbait NML interventions resulted in less negativity bias in the (crime) news selection of respondents who scored higher on prior pessimistic outlook (regarding crime rates). Consequently, the interventions designed for this study were less of a necessity for less pessimistic news consumers—who are already less inclined to select only negative news. NML interventions can thus have a de-polarizing impact and bridge the 'negativity gap' between less and more pessimistic citizens. As an important implication for democracy, when appropriately targeted, NML campaigns can potentially help to break through spirals of pessimism and motivate healthier media diets.

In conclusion, our study has important implications for the causes and treatments of negatively biased news diets in fragmented digital media environments. Our findings document how the selection of negative articles can be explained by people's overall evaluation of the extent to which violent crime is a substantial societal problem. Next, the NML interventions were found to be helpful in countering negativity bias and motivating selection into positive news that reflects a more accurate worldview. Especially for those who perceive crime to be a substantial societal issue, exposure to interventions lowered their selection of negative and episodic news items on crime.

Our study is not without limitations. First, our experiment was designed so that all negative stories are episodic, and all positive stories are thematic. This approach was taken as we argue that news media, in their sensational coverage, predominantly focus on episodic news of negative incidents rather than accurately reflecting societal reality through positive and thematic coverage. In this information setting, we used NML interventions that stimulated audiences to circumvent biased sensational stories and approach more accurate news coverage. Yet, because of these design decisions, the experiment cannot capture the impact of framing and valance separately. For reasons of ecological validity, we decided to parallel framing and negativity as it best reflects most of the news on crime that can be found online. Moreover, if both positive and negative thematic headlines are presented simultaneously in a simulated news website, this would introduce an additional confounding variable. The headlines would become conflicting as one article would argue that, for example, crime rates are dropping whereas another article would argue that they are rising. One of these versions would not offer a factual representation of reality, and could even be seen as misinformation on crime rates (this could be accounted for by referring to different countries or state for the crime rates, but this would additionally bring in the factor of geographical closeness, another important news value). In addition, episodic news about positive crime incidents might not be realistic. Even if a headline would report on an attempted crime that was stopped, for example, it can still be perceived negative since someone attempted to commit a crime in the first place. Future research could experimentally test the impact of framing and valance separately. Moreover, since the combination of valence and framing in our experimental design was a decision for improving external validity that was primarily based on theoretical reasoning rather than pervious empirical evidence, future studies could further explore, with the use of content analysis, the extent to which episodic framing and negativity are correlated in news reportage in general. Second, we focused our experiment on one single topic (violent crimes) in one single country (the US), which begs the question of transferability to other contexts. Although our findings mirror research on confirmation bias and the correction of misperceptions related to other issues, future research needs to assess whether our findings also relate to negativity bias concerning other topics across different national settings. In addition, just like most selective-exposure experiments, the amount of news choices offered to participants was limited: We did not offer entertainment options, news on other issues, or visual cues—factors that could 'distract' selective exposure into certain news (e.g., Powell, Hameleers, and van der Meer 2021). Even though some US news website (e.g., Fox News, CNN) have separate sections for only crime-related news, future research may offer a richer news environment that more closely reflects the fragmented nature of high-choice information settings. Finally, it could be argued that the design of our PSAs is rather normative, and sensitive to demand effects (i.e., people are recommended how to select news). Although the design of our interventions was motivated by real-life examples of normative NML messages, future research may experiment with different designs whilst also taking the longer-term impact of corrective messages into account.

Despite these limitations, our study offers important new insights into the intersections between confirmation and negativity biases in news selection: People seek out

negative news to confirm pessimistic worldviews, but media literacy messages can be an effective tool in correcting biases in news selection, especially among news consumers who may well be trapped into a spiral of negativity.

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References

Arpan, L. M. 2009. "The Effects of Exemplification on Perceptions of News Credibility." *Mass Communication and Society* 12 (3): 249–270.

Ashley, S., A. Maksl, and S. Craft. 2017. "News Media Literacy and Political Engagement: What's the Connection?" *Journal of Media Literacy Education* 9 (1): 79–98.

Bachleda, S., F. G. Neuner, S. Soroka, L. Guggenheim, P. Fournier, and E. Naurin. 2020. "Individual-Level Differences in Negativity Biases in News Selection." *Personality and Individual Differences* 155: 109675.

Bennett, W. L. 2003. "The Burglar Alarm That Just Keeps Ringing: A Response to Zaller." *Political Communication* 20 (2): 131–138.

Boukes, M., and R. Vliegenthart. 2017. "News Consumption and Its Unpleasant Side Effect." *Journal of Media Psychology* 29 (3): 137–147.

Busselle, R. W., and L. J. Shrum. 2003. "Media Exposure and Exemplar Accessibility." *Media Psychology* 5 (3): 255–282.

de Vreese, C., and M. Tobiasen. 2007. "Conflict and Identity: Explaining Turnout and anti-Integrationist Voting in the Danish 2004 Elections for the European Parliament." *Scandinavian Political Studies* 30 (1): 87–114.

Entman, R. M. 1993. "Framing: Toward Clarification of a Fractured Paradigm." *Journal of Communication* 43 (4): 51–58.

Entman, R. M. 2007. "Framing Bias: Media in the Distribution of Power." *Journal of Communication* 57 (1): 163–173.

Flynn, D. J., B. Nyhan, and J. Reifler. 2017. "The Nature and Origins of Misperceptions: Understanding False and Unsupported Beliefs about Politics: Nature and Origins of Misperceptions." *Political Psychology* 38: 127–150.

Garrett, R. K. 2009. "Echo Chambers Online?: Politically Motivated Selective Exposure among Internet News Users." *Journal of Computer-Mediated Communication* 14 (2): 265–285.

Gibson, R., and D. Zillmann. 1994. "Exaggerated versus Representative Exemplification in News Reports: Perception of Issues and Personal Consequences." *Communication Research* 21 (5): 603–624.

Gilliam, F. D., and S. Iyengar. 2000. "Prime Suspects: The Influence of Local Television News on the Viewing Public." *American Journal of Political Science* 44 (3): 560.

Gross, K. 2008. "Framing Persuasive Appeals: Episodic and Thematic Framing, Emotional Response, and Policy Opinion." *Political Psychology* 29 (2): 169–192.

Grundlingh, L. 2017. "Identifying Markers of Sensationalism in Online News Reports on Crime." *Language Matters* 48 (2): 117–136.

Guess, A. M., M. Lerner, B. Lyons, J. M. Montgomery, B. Nyhan, J. Reifler, and N. Sircar. 2020. "A Digital Media Literacy Intervention Increases Discernment Between Mainstream and False News in the United States and India." *Proceedings of the National Academy of Sciences* 117 (27): 15536–15545.

Hameleers, M. 2020. "Separating Truth From Lies: Comparing the Effects of News Media Literacy Interventions and Fact-Checkers in Response to Political Misinformation in the US and Netherlands." *Information, Communication & Society* : 1–17. doi:10.1080/1369118X.2020.1764603.

Harcup, T., and D. O'neill. 2017. "What is News? News Values Revisited (Again)." *Journalism Studies* 18 (12): 1470–1488.

Hermans, L., and C. Gyldensted. 2019. "Elements of Constructive Journalism: Characteristics, Practical Application and Audience Valuation." *Journalism* 20 (4): 535–551.

Irwin, M., T. Tripodi, and J. Bieri. 1967. "Affective Stimulus Value and Cognitive Complexity." *Journal of Personality and Social Psychology* 5 (4): 444–448.

Iyengar, S. 1994. *Is Anyone Responsible?: How Television Frames Political Issues*. Chicago: University of Chicago Press.

Jacobs, L., A. Damstra, M. Boukes, and K. De Swert. 2018. "Back to Reality: The Complex Relationship between Patterns in Immigration News Coverage and Real-World Developments in Dutch and Flemish Newspapers (1999–2015)." *Mass Communication and Society* 21 (4): 473–497.

Jones-Jang, S. M., T. Mortensen, and J. Liu. 2021. "Does Media Literacy Help Identification of Fake News? Information Literacy Helps, but Other Literacies Don't." *American Behavioral Scientist* 65 (2): 371–388.

Kappes, A., A. H. Harvey, T. Lohrenz, P. R. Montague, and T. Sharot. 2020. "Confirmation Bias in the Utilization of Others' Opinion Strength." *Nature Neuroscience* 23 (1): 130–137.

Knobloch-Westerwick, S., C. Mothes, and N. Polavin. 2020. "Confirmation Bias, Ingroup Bias, and Negativity Bias in Selective Exposure to Political Information." *Communication Research* 47 (1): 104–124.

Knobloch-Westerwick, S., F. D. Carpentier, A. Blumhoff, and N. Nickel. 2005. "Selective Exposure Effects for Positive and Negative News: Testing the Robustness of the Informational Utility Model." *Journalism & Mass Communication Quarterly* 82 (1): 181–195.

Kollmeyer, C. J. 2004. "Corporate Interests: How the News Media Portray the Economy." *Social Problems* 51 (3): 432–452.

Lawrence, R., and D. Mueller. 2003. "School Shootings and the Man-Bites-Dog Criterion of Newsworthiness." *Youth Violence and Juvenile Justice* 1 (4): 330–345.

Lengauer, G., F. Esser, and R. Berganza. 2012. "Negativity in Political News: A Review of Concepts, Operationalizations and Key Findings." *Journalism* 13 (2): 179–202.

Merten, L. 2021. "Block, Hide or Follow—Personal News Curation Practices on Social Media." *Digital Journalism* 9 (8): 1018–1022.

Powell, T. E., M. Hameleers, and T. G. van der Meer. 2021. "Selection in a Snapshot? The Contribution of Visuals to the Selection and Avoidance of Political News in Information-Rich Media Settings." *The International Journal of Press/Politics* 26 (1): 46–68.

Romer, D., K. H. Jamieson, and S. Aday. 2003. "Television News and the Cultivation of Fear of Crime." *Journal of Communication* 53 (1): 88–104.

Rosling, H. 2018. *Factfulness: Ten Reasons We're Wrong about the World–and Why Things Are Better than You Think, Sceptre*. New York: Sceptre.

Rozin, P., and E. B. Royzman. 2001. "Negativity Bias, Negativity Dominance, and Contagion." *Personality and Social Psychology Review* 5 (4): 296–320.

Skowronski, J. J., and D. E. Carlston. 1989. "Negativity and Extremity Biases in Impression Formation: A Review of Explanations." *Psychological Bulletin* 105 (1): 131–142.

Soroka, S., and S. McAdams. 2015. "News, Politics, and Negativity." *Political Communication* 32 (1): 1–22.

Soroka, S., P. Fournier, and L. Nir. 2019. "Cross-National Evidence of a Negativity Bias in Psychophysiological Reactions to News." *Proceedings of the National Academy of Sciences of the United States of America* 116 (38): 18888–18892.

Stroud, N. J. 2008. "Media Use and Political Predispositions: Revisiting the Concept of Selective Exposure." *Political Behavior* 30 (3): 341–366.

Taber, C. S., and M. Lodge. 2006. "Motivated Skepticism in the Evaluation of Political Beliefs." *American Journal of Political Science* 50 (3): 755–769.

Thesen, G. 2018. "News Content and Populist Radical Right Party Support. The Case of Denmark." *Electoral Studies* 56: 80–89.

Trussler, M., and S. Soroka. 2014. "Consumer Demand for Cynical and Negative News Frames." *The International Journal of Press/Politics* 19 (3): 360–379.

Tully, M., A. Maksl, S. Ashley, E. K. Vraga, and S. Craft. 2021. "Defining and Conceptualizing News Literacy." *Journalism*. doi:10.1177/14648849211005888.

Tully, M., E. K. Vraga, and L. Bode. 2020. "Designing and Testing News Literacy Messages for Social Media." *Mass Communication and Society* 23 (1): 22–46.

van der Meer, T. G. L. A., A. C. Kroon, P. Verhoeven, and J. Jonkman. 2019. "Mediatization and the Disproportionate Attention to Negative News: The Case of Airplane Crashes." *Journalism Studies* 20 (6): 783–803.

van der Meer, T. G. L. A., and M. Hameleers. 2021. "Fighting Biased News Diets: Using News Media Literacy Interventions to Stimulate Online Cross-Cutting Media Exposure Patterns." *New Media & Society* 23 (11): 3156–3178.

van der Meer, T. G. L. A., M. Hameleers, and A. C. Kroon. 2020. "Crafting Our Own Biased Media Diets: The Effects of Confirmation, Source, and Negativity Bias on Selective Attendance to Online News." *Mass Communication and Society* 23 (6): 937–967.

Vraga, E. K., and L. Bode. 2018. "I Do Not Believe You: How Providing a Source Corrects Health Misperceptions across Social Media Platforms." *Information, Communication & Society* 21 (10): 1337–1353.

Vraga, E. K., and M. Tully. 2015. "Media Literacy Messages and Hostile Media Perceptions: Processing of Nonpartisan versus Partisan Political Information." *Mass Communication and Society* 18 (4): 422–448.

Vraga, E. K., and M. Tully. 2019. "Engaging with the Other Side: Using News Media Literacy Messages to Reduce Selective Exposure and Avoidance." *Journal of Information Technology & Politics* 16 (1): 77–86.

Vraga, E. K., L. Bode, and M. Tully. 2020. "Creating News Literacy Messages to Enhance Expert Corrections of Misinformation on Twitter." *Communication Research*. doi:10.1177/0093650219898094.

Vraga, E. K., M. Tully, A. Maksl, S. Craft, and S. Ashley. 2021. "Theorizing News Literacy Behaviors." *Communication Theory* 31 (1): 1–21.

Westerwick, A., B. K. Johnson, and S. Knobloch-Westerwick. 2017. "Confirmation Biases in Selective Exposure to Political Online Information: Source Bias vs. content Bias." *Communication Monographs* 84 (3): 343–364.

Winter, S., M. J. Metzger, and A. J. Flanagin. 2016. "Selective Use of News Cues: A Multiple-Motive Perspective on Information Selection in Social Media Environments: Selective Use of News Cues." *Journal of Communication* 66 (4): 669–693.