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Do News Media Kill? How a Biased News Reality can Overshadow Real Societal Risks, The Case of Aviation and Road Traffic Accidents

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Is irrational risk-avoiding behavior related to news media’s heightened attention for the negative and exceptional? Based on the theoretical approaches of mediatization and cultivation, it is hypothesized how news media can present an overly negative and biased reality that can have a severe impact on society. Focusing on the case of travel accidents, we argue that a disproportional increase in news attention for low-probability high-consequence aviation accidents can distort audiences’ risk perceptions such that driving is inaccurately perceived as a safer transportation alternative to flying, with potentially harmful consequences. This study accordingly documents results from time-series analyses (1996–2017) on US media attention for aviation and road accidents related to real-world data on travel behavior and fatal accidents. The over-time patterns expose how news media follow their own mediatized logic and reality: Negative incidents—i.e., both aviation and road accidents—become more prominent in the news over time, rather than accurately reflecting real-world trends. Next, since air travel is statistically the safest transportation mode, disproportionate attention for aviation accidents is argued to especially create a problematic distorted worldview among audiences. Accordingly, findings show how more media attention for aviation accidents is related to relatively more road traffic and more fatal road accidents in the subsequent months. We conclude that the media’s systematic overrepresentation of rare aviation accidents can overshadow the more substantial risk of (long-distance) driving. This paper illustrates how a distorted media reality can potentially result in severe consequences in light of audiences’ ill-informed fear perceptions and irrational risk-avoiding behavior.

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This paper is concerned with people’s irrational fear perceptions in our contemporary world. Despite that objective long-term global trends on many facets show that we live in the safest period in human history, we simultaneously seem to live in an age driven by fear (Rosling 2018). News media, as the main antecedent of our perceptions of what happens in the world, may play a central role in this discrepancy between how the world progresses and how people perceive it (Romer, Jamieson, and Aday 2003; van der Meer et al. 2019). Since negativity and fear dominate most news reports, citizens might inaccurately perceive their lives as very dangerous (Altheide 2003). Especially the high frequency with which mass media report on isolated, negative events might amplify audiences’ risk perceptions to irrational levels. Overemphasizing the rare and negative can potentially create a distorted media reality for audiences were real risks and problems are overshadowed.

To further zoom in on the consequences of biased risk perceptions as a result of news exposure, this study questions whether such risk perceptions can complicate people’s rational decision making. So far, previous studies lack in their examination of how media’s disproportional attention for rare, negative events can overshadow other, bigger risks. Empirical research has indeed suggested how biased media coverage relates to higher fear perceptions despite that real-world trends show that there is no need to feel at risk (Romer, Jamieson, and Aday 2003; Li et al. 2015; van der Meer et al. 2019). Yet, we know little about whether such media-induced fear perceptions lead to irrational decisions with potentially harmful consequences. Therefore, this study is set out to explore if more media attention for incidents in one risk domain causes an increase in the number of fatalities in another risk domain due to irrational risk-avoiding behavior.

Inspired by the findings that the tragic events of 9/11 temporarily led to fewer passengers boarding planes and an increase in road traffic (Gigerenzer 2006), people’s irrational risk-avoiding travel behavior is considered a suitable case to study the consequences of irrational fear perceptions. This particular case allows us to study whether exemplars news coverage of rare aviation accidents leads to irrational risk-avoiding behavior. As a result of disproportionate attention for exceptional, yet vivid, aviation accidents, audiences might choose (long-distance) driving as an alternative to flying. In doing so, individuals engage in more risk-taking behavior as the fatality risk associated with car travel is substantially higher than that of air travel (Li et al. 2015). Therefore, this study asks whether increases in fatal road-traffic accidents can be related to news attention for aviation accidents.

Gigerenzer (2006) already documented that in the months after the terrorist attacks on September 11, 2001, road travel and accidents increased. Here, news attention might have worked as a catalyst for a substantial decline in air travel in the wake of such a high-profile accident. As a key contribution, the current study connects key theories from the field of communication science and psychology (i.e., cultivation theory, mediatization, negativity and distortion bias, and risk assessment) to understand the role of news media in inducing such irrational risk-avoiding behavior. In addition, we rely on a longer time period to understand if this phenomenon, where real risks are overshadowed, is strictly related to
extraordinary crisis times, like terrorist attacks, or whether it also occurs under normal circumstances where the news might actually play a substantial role. In other words, this study explores whether such irrational risk-avoiding behavior is simply associated with the occurrence of high-profile accidents or whether media’s disproportionate attention for accidents in general can bias audiences’ risk-related decisions. Accordingly, this study significantly adds to media-bias literature by offering robust evidence for the over-time distortion of media portrayals and its effects on actual behavior.

This paper is built up as follows. It is first argued how a biased reflection of reality, shown by the news media, can have severe cultivating consequences for public perception. Next, we propose that media’s attention for negative incidents—i.e., aviation and road accidents—grows over time as a result of mediatization processes caused by decreasing resources for media and increasing commercialization of journalistic processes. Based on US media coverage from 1996 to 2017 related to data on actual accidents ($N = 80,685$), we aim to show how the number of articles per accident fluctuates over time and relates to the frequency of occurrence of actual crashes. Next, as air travel is the safest among all transportation modes, it is argued that disproportionate attention for aviation accidents is especially problematic. With the use of rigid time-series analyses, we test whether more media attention for such incidents can result in irrational risk-avoiding behavior—i.e., does more attention for aviation accidents result in more relative road traffic and more fatal road accidents in the subsequent months? In doing so, this paper contributes by providing insights into whether media systematically overrepresent low-frequency high-consequence incidents and if this can stimulate irrational and dangerous fear-avoiding behavior within society.

Theory

Cultivation theory (Gerbner 1969), as a widely used theory in mass communication research, provides insights into how people’s social reality can be shaped by news exposure. Increased media consumption can cause audiences’ worldview to mirror patterns depicted in the media rather than what happens in the real world. In general, cultivation theory is concerned with the long-term effect of television viewing and the main proposition holds that more exposure to television (but also, for example, newspapers; Arendt 2010) increases the likelihood that people believe their social reality aligns with the reality portrayed on television. The theory has mainly been applied to understand how news cultivates audiences’ perception of reality in terms of crime and violence. A connection is posited between worries and fear about a world filled with violence and exposure to (local) television news on crime. Gerbner, as the founder of the cultivation theory, already showed how violence was portrayed more frequently in prime-time television compared with actual statistics on crime. This cultivation can cause audiences, especially “heavy viewers,” to judge their world to be more violent than it is in reality (Romer, Jamieson, and Aday 2003).
Overall, based on cultivation literature, it can be argued that structures of the news cultivate unrealistic expectations and risk perceptions among the public that are in fact independent of what happens in the real world. Since news sources presume to give their audience factual stories, the heavy sensational coverage of different negative incidents (Hamilton 2000) could well increase expectations that victimization of certain (uncommon) threats is likely.

Several scholars have, however, critiqued the claims related to cultivation theory and empirical studies found mixed results. Yet, and in line with the premise of cultivation theory, scholars overall agree that media act as a kind of filter that translates information from the world into news (Seguin 2016). Here, it is essential to note that the current study does not empirically test the central thesis of cultivation theory as we do not analyze audience data. Cultivation theory is rather consulted to provide a theoretical starting point for understanding how media reality can shape people’s social reality and therewith explain collective behavior change that can be considered irrational. Thus, against the backdrop of cultivation theory, we generally understand media’s role in society as including potential biases in news coverage that can distort people’s worldview. Since media have to make choices in their news selection, not everything that happens in the world at large can be covered and therefore certain more newsworthy events or incidents might get disproportional attention. Consequently, to get an understanding of how audience’s social world might become unnecessary filled with menace, it is important to understand such biases in the media’s news selection process.

**Mediatization**

To further understand how media have become interwoven with our daily lives, it is essential to consult literature on news selection and how such processes have changed over the years. The theory of mediatization provides a valuable starting point to understand how news media portray the world nowadays. Mediatization highlights a long-term process of societal change in which media have become more integrated into different levels of society (Strömbäck 2008) and how media’s institutional characteristics have changed (Strömbäck and Dimitrova 2011). It conceptualizes how, through dynamic over-time processes, media have become increasingly important and influential in today’s society.

Alongside the above developments, institutional characteristics of news media have changed, including standards of newsworthiness (Strömbäck and Dimitrova 2011). Shaped by so-called media logic, commercial orientation, professionalization, and limited resources, news media predominantly select items that fit well into the patterns of news values (Galtung and Ruge 1965). For example, events that are considered sensational or stories with particularly negative overtones (e.g., conflict, tragedy) get selected as news to gain the largest possible audience (Harcup and O’neill 2001). The growing importance of such selection criteria in news coverage of current affairs has allegedly resulted in
systematic biases in news coverage. Two specific news biases are of particular interest in the context of this study: negativity bias and distortion bias.

First, media’s tendency to overemphasize negative news has become more prominent over time (Semetko and Schoenbach 2003; Farnsworth and Lichter 2006). This negativism bias underlines that negativity has become a defining characteristic of news, whereas good news is almost synonymous with the absence of news (Soroka, Fournier, and Nir 2019). From a news values perspective, a negative tone in news reportage is an instrumental value for journalistic processes of deciding what news garners the highest ratings (Galtung and Ruge 1965; Harcup and O’Neill 2001). Compared with positive information, negative news is more appealing to audiences as it is seen as unambiguous, consensual, unexpected, dramatic, sensational, entertaining, eye-catching, interesting, and short-dated (Lengauer, Esser, and Berganza 2012). Accordingly, research in (social) psychology and neurology shows how audiences are drawn to negativity in information as an evolutionary mechanism to scan their environment for threats (Baumeister et al. 2001; Rozin and Royzman 2001).

Second, since news is by definition about the extraordinary, media predominantly portray isolated events or incidents rather than mirror long-term socioeconomic trends. With this so-called distortion bias (Entman 2007), media can turn rare incidents into the common world image (Gilliam and Iyengar 2000). In that sense, news can partly be seen as paradoxical, the more commonly something happens in the world, the less likely it is that you read about it in the news, and vice versa, when something rarely happens it is considered highly newsworthy. Accordingly, in their focus on current affairs, media coverage is commonly found to be event driven and framed as episodic stories. In doing so, media tend to overshadow broader social and political contexts or trends needed for a complete understanding of complex societal topics.

In a mediatized environment, where news values and selection biases have become more prominent, discrepancies might arise between what happens in the world and how media portray it. As negativity and distortion biases have grown with time (Farnsworth and Lichter 2006), media are likely to progressively overrepresent the frequency of negative and isolated events and create a biased reflection of reality. Thus, media, over time, might follow their own logic more instead of being guided by actual trends in the world (van der Meer et al. 2019).

Extant research has observed such discrepancies between media attention and real-world developments. For example, research has shown how immigration news predominantly focuses on threats and negativity (van Klinger et al. 2015), whereas trends in immigration news seem largely unaffected by real-life trends in society (Jacobs et al. 2018). Comparable findings can be found in research on crime news that has shown how news attention for crime has consistently increased and does not always reflect actual crime rates (Paulsen 2003; Smolej and Kivivuori 2008). Also, the relative media attention for aviation accidents is found to rise rather than follow the downward trend of actual accidents (van der Meer et al. 2019). As the current study is interested in the role news media play in the construction of risk perceptions regarding aviation and road accidents, we expect to observe similar patterns in news attention for
these incidents. In other words, it is expected that over time news media pay more attention to these negative events—i.e., aviation and road accidents—rather than follow trends in real-life data on the frequency of occurrence of these incidents:

H1: The frequency with which news media report on negative incidents—i.e., aviation and road accidents—increases over the years.

H2: There is a discrepancy between the frequency of occurrence of negative incidents—i.e., aviation and road accidents—and news media’s attention for these events.

Next, when comparing aviation and road accidents, it can be expected that in mediatized news systems, aviation accidents gain relatively more attention. Aviation accidents, compared with road traffic accidents, are more exceptional incidents and therewith more likely to make it into the news following the distortion bias. In addition, these incidents can be considered more newsworthy since they check more boxes regarding news values such as dramatization and sensationalism (Harcup and O’Neill 2001). Against the backdrop of processes of mediatization, we, therefore, hypothesize that the relative attention for aviation accidents, compared with road accidents, goes up over time:

H3: News attention for aviation accidents, relative to road accidents, rises over the years.

Effects of Distorted News Attention

In addition to explaining variation in media coverage of aviation and road accidents over time, our research is primarily designed to determine whether biased news attention for rare incidents can actually distort audiences’ behavioral responses. Cultivation theory distinguishes two levels of outcomes (Shrum 2004): First-order outcomes refer to when news exposure affects audiences’ memory-based judgments (e.g., the frequency of occurrence of negative incidents) and the second-order outcomes occur when meaning is extrapolated from news coverage to the extent that it shapes subjective attitudes (e.g., fear of becoming a victim of negative incidents). Such outcomes suggest that (disproportional) news attention for negative events can potentially have a large impact on society, where the inaccurate media reality constructed via the news becomes adopted as audiences’ social reality. Especially because media have become more institutionalized within society, due to processes of mediatization, audiences’ reality might increasingly mirror what the media portray.

A problematic distorted worldview among audiences might especially be created when media overrepresent aviation accidents. The occurrence of such commercial airplane crashes is extremely rare, especially when compared with the risk associated with other modes of transportation. Therefore, continuous coverage of such exceptional events, just because they are newsworthy and sensational, can distort audiences’ estimation of the frequency of occurrence of these incidents. When so-called low-probability high-consequence accidents become more available in the minds of the audiences, this might complicate their
rational decision making and risk assessment. If it comes to such incidents, (lay) audiences’ risk evaluation and risk-avoiding behavior often appear as irrational or biased (Pidgeon, Kasperson, and Slovic 2003).

Extant research has pointed to discrepancies between public responses and the risk judgments of experts. Incidents, assessed as minor risk events by (technical) experts, can produce a massive societal response. In contrast to the “objective” risk level, people’s perceived risk is inherently a social construct (Beck 1992). People rather use social and psychological dimensions in their risk judgments, like its catastrophic potential of the risk or observable character (Slovic, Fischoff, and Lichtenstein 2005). The same goes for aviation accidents. Based on rational risk calculations as a function of the probability of occurrence assessment, indicators have shown a continuous improvement of aviation safety over the last decades, making air travel the safest transportation mode (Li et al. 2015). Hence, the biased or ill-informed decision to refrain from commercial air travel—for example, in the wake of a fatal plane crash—is shaped by something else than statistical changes and real risk levels.

Within the field of risk research, scholars have considered news media as key actors in the social construction and definition of what acceptable levels of risk are (Beck 1992). In Beck’s view, many of modern society’s risks are open to social definition and construction. Here, mass media play an important role, both in the construction itself, as well as in criticizing and challenging institutional responses to those risks. In light of the news biases addressed in this paper, news value-driven media coverage on isolated and catastrophic accidents might cause disproportional amplification of or attentiveness to risks, creating irrationally high levels of fear (Berger 2001). Several related theoretical perspectives are useful in understanding how news content may contribute to a distorted worldview among audience members, shaping not only what we think about but also how we decide to act. First, scholars who draw most directly on theories of communication science have provided a long history of how media content, especially negative news (Soroka, Fournier, and Nir 2019), affects what people think about, what is readily accessible in our minds (i.e., agenda-setting theory) (McCombs and Shaw 1972), and how we interpret certain issues (i.e., framing theory) (Entman 1993). Hence, audiences might learn about the frequency of occurrence of certain events based on what is presented on the news and consider that these numbers are applicable to the real world. Second, psychological research highlights that individuals rely on available instances in their memory to make judgments—i.e., availability heuristic (Tversky and Kahneman 1973). The repeated coverage of negative incidents can increase their availability in audiences’ memory, independently of actual trends (Romer, Jamieson, and Aday 2003). Accordingly, news about negative events like aviation accidents can increase perceived vulnerability to the degree that such stories are covered frequently.

Previous research has indeed documented how disproportional media coverage relates to distortions in audiences’ perceptions and risk assessments. For example, it is observed how news exposure biases perceived risk of terrorism to self and others (Nellis and Savage 2012), how negative coverage can create
overly negative perceptions of minorities (Gilliam and Iyengar 2000), how news exposure explains salience of and fear for violent crimes rather than real crime rates (Gross and Aday 2003), and how media attention for aviation accidents can cause worries about airline safety (Li et al. 2015).

Next, media-induced fear perceptions can also have behavioral effects. Exposure to crime news, for example, found to be associated with avoidance behavior where people avoid certain areas because they overemphasize the possibility to become victimized there (Smolej and Kivivuori 2008). In the context of our study, it is expected that when media disproportionally cover aviation incidents, audiences might engage in irrational avoidance behavior as they misperceive travel-related risk levels. As plane crashes are vivid media exemplars, they might become more available in the minds of the audiences and therewith overshadow real risks like road traffic accidents. In other words, a biased media reality might be adopted as people’s social reality and, in turn, result in audiences’ misinformed risk judgment where road travel is incorrectly considered a safer alternative. Whether the population irrationally switches their transportation choices from air travel to road travel, in light of media coverage on aviation accident, can become evident when such media coverage relates to increased road traffic relative to air traffic (indicating that road travel is chosen as an alternative). Such media-inspired avoidance behavior can be consequential (Skogan 1986; Smolej and Kivivuori 2008). If people (in large numbers) decide to choose (long-distance) driving to refrain from commercial air travel, this likely increases the number of fatal road accidents as driving is statistically less safe than flying. Therefore, this study explores if media attention to aviation accidents is related to an increase in fatal road accidents:

\[ H4: \text{The level of news attention for aviation accidents is significantly and positively related to road traffic relative to air traffic.} \]

\[ H5: \text{The level of news attention for aviation accidents is significantly and positively related to the number of fatal road accidents.} \]

**Methods**

This study relies on a longitudinal design to compare US news attention with real-world statistics. A computer-assisted content analysis was applied to retrieve the articles that covered aviation accidents \( (N = 24,954) \) and road accidents \( (N = 55,731) \) in five quality and popular newspapers. The time period of 1996–2017 was selected as by this time commercial air travel has certainly become the safest transportation option and can be seen as an (affordable) alternative transportation mode to long-distance driving in the United States. Real-world data were collected for the number of fatal road accidents and total road traffic as the main outcome variables for testing the impact of potentially biased coverage. Fatal aviation accidents and total air traffic statistics are also collected as control variables in the analyses.
Measures

All data were collected for the time period of January 1996 till December 2017 and are measured on a monthly aggregated level.

Media coverage

The database of LexisNexis was consulted to obtain the number of news articles that cover transportation accidents in the period from 1996 until 2017. We relied on a combination of quality newspapers—i.e., The New York Times and Washington Post—and popular newspapers—i.e., Daily News, The New York Post, and USA Today—with the highest newspaper circulation from the United States to obtain a broad sense of the level of attention for such negative incidents. A census of all news articles about road traffic accident and accidents of commercial carriers was retrieved using a computer-assisted content analysis. In a first step, search terms were developed to retrieve relevant articles from the LexisNexis archive. For aviation accidents, the following search string was applied:“(plane OR airplane OR airline OR aircraft) AND (crash OR accident OR death) AND NOT military AND NOT striker jet AND NOT bomber” and for road accidents:“(car OR motor vehicle OR traffic) AND (crash OR accident OR death).” Numerous search strings were tested with analogies for the words in the search string; in the end, we observed that a less elaborate search string managed to best capture relevant articles. In a next step, we relied on an iterative process to improve the recall and precision of articles that actually contained references to accidents of motor vehicles or commercial carriers. We examined if the exclusion and exhaustion to ascertain the articles’ topic would improve when the words in the search string appear closer to each other in a news article. A comparison was made between the word range of 5, 10, 15, 20, 25, and 30 words. So, for retrieving articles about aviation accidents, it was explored what range between the words (“plane” or “airplane” or “airline” or “aircraft”) and (“crash” or “accident” or “death”) would retrieve relevant articles most accurately. We did the same for road accidents with the words (“car” or “motor vehicle” or “traffic”) and (“crash” or “accident” or “death”). In the end, by systematically scanning the texts and the topics of the articles, we concluded that the range of ten words was the best approach to retrieving articles about motor vehicle traffic accidents and accidents of commercial carriers. Table 1 presents an overview of number of articles about each type of accidents per newspaper.

A monthly level measure of media attention was constructed by aggregating all the articles per month. For the analysis, this study relies both on the absolute and relative media attention for both types of incidents. The absolute measure reflects the total number of articles in the selected newspapers that discuss aviation or road accident. In addition, a relative measure was constructed where the number of news articles about these accidents was divided by the total news circulation of newspapers in the United States. This measure allows for controlling whether over-time trends in news attention are not caused by fluctuations in newspaper circulation but rather show changes in relative attention.
Table 1. Total News Coverage on Aviation and Road Accidents

|                | Coverage on road accidents | Coverage on aviation accidents |
|----------------|---------------------------|-------------------------------|
|                | Total N                   | Average per month             | Total N   | Average per month             |
| The New York   | 18,049                    | 68.37 (22.49)                | 8,717     | 33.02 (19.45)                |
| Washington Post| 15,893                    | 60.20 (31.54)                | 6,799     | 25.75 (15.15)                |
| Daily News     | 8,235                     | 31.19 (11.24)                | 3,055     | 11.57 (14.03)                |
| The New York Post | 6,363             | 24.10 (11.78)                | 2,221     | 8.41 (10.09)                 |
| USA Today      | 5,694                     | 21.57 (8.95)                 | 3,211     | 12.16 (12.44)                |
| Total          | 55,731                    | 24.954                       |           |                              |

**Total road traffic**

To obtain an indication of road traffic in the United States, we rely on traffic volume trends, measured in Millions of Miles, documented by the Federal Highway Administration. These monthly statistics are based on hourly traffic count data reported by all US States. Data are collected at ~5,000 continuous traffic counting locations and re-adjusted to match vehicle miles of travel from the Highway Performance Monitoring System.

**Fatal road accidents**

The monthly measure of fatal motor vehicle traffic crashes was the sum of fatal accidents that occurred in a given month and were reported by National Center for Statistics and Analysis. This measure is a census of fatal motor-vehicle traffic crashes in the fifty States, the District of Columbia, and Puerto Rico. To be included, an accident must involve a motor vehicle traveling on a roadway and result in the death of at least one person (a vehicle occupant, driver, passenger, or a nonoccupant). In addition, the total number of fatalities per fatal road accidents for each month is retrieved from United States Department of Transportation, National Highway Traffic Safety Administration.

**Total air traffic**

To measure US air travel, number of monthly revenue passengers enplaned is obtained from database of Department of Transportation, the Bureau of Transportation Statistics (see data base T1: US Air Carrier Traffic and Capacity Summary by Service Class). These statistics included number of passengers on domestic and international flights of major carriers, national carriers, large and medium regional carriers. Together, these carriers account for most US commercial air traffic and can therefore be seen as a system-wide measure of commercial air traffic.
Fatal aviation accidents
The monthly statistics regarding aviation accidents were obtained from National Transportation Safety Board’s database. This database provides an overview of the number of accidents and of commercial carriers and related number of fatalities both worldwide and in the United States.

Analysis
To test the first and third hypotheses, we rely on ordinary least squares (OLS) regressions. H2, focusing on the autoregressive (AR) features of media attention for aviation accidents and how it is associated with real-world data, can be tested through estimation of partial adjustment (Koyck) autoregressive distributed lag (ADL) models. These regression models take the lag values of both dependent variable and independent variables into account to explain variation in media attention on a monthly level.

To explore the over-time effect of media attention for aviation accidents (H4 and H5), we draw on monthly level Autoregressive Integrated Moving Average (ARIMA) time-series techniques (Vliegenthart 2014). ARIMA modeling enables us to identify the size and delay of the effect of media coverage. In addition, these models take the series own past into account as it is assumed that the current values of time series—i.e., relative road travel and fatal road accidents—are strongly predicted by past values or seasonality in the series. Several steps are taken to ensure that the models accurately considered the autocorrelation of the series.

Before adding explanatory variables to the ARIMA models, the series need to be tested for stationarity, AR and moving average (MA) terms need to be determined, and the absence of autocorrelation of residuals need to be assessed (Vliegenthart 2014). First, the Dickey–Fuller test was applied to test the assumptions regarding mean stationarity. Second, the next step is to define the AR and MA terms of the ARIMA model. The terms help to build a model that reflects the past of the series and that includes all the previous information of the series over-time variance in the model. AR orders refer to the influence of previous values and MAs are about the influence of residuals from previous values. Finally, the Portmanteau (Q) test for white noise indicates whether the residuals and the squared residuals are autocorrelated or not.

Results
Media Distortion Hypotheses
We start with testing whether the actual occurrence of both aviation and road accidents show a different over-time trend as compared with news coverage of both accidents. First, we test the effect of a linear monthly trend variable on the real-world statistics on number of aviation and road accidents. OLS regressions show how this monthly trend variable has a negative effect on total number of
fatal road accidents \((b = -0.31, SE = 0.03, p < .001)\) and fatalities due to road accidents \((b = -0.40, SE = 0.04, p < .001)\). The same pattern is observed for fatal aviation accidents: worldwide \((b = -0.01, SE = 0.01, p < .001)\), in the United States \((b = -0.01, SE = 0.01, p < .001)\), and number of US fatalities as a result of aviation crashes \((b = -0.02, SE = 0.01, p < .001)\). These statistics suggest that the number of fatal aviation and road accidents decreases over the years. Important to note is that the monthly US fatalities as a result of road accidents \((M = 3,237.14, SD = 463.55)\) is substantially higher than fatalities related to aviation accidents \((M = 34.43, SD = 34.40)\). The figures in Supplementary Appendix visualize the over-time changes in total number of fatal road accidents (Supplementary Figure A1) and aviation accidents (Supplementary Figure A2).

Second, hypothesis 1 predicted that news attention for negative incidents—i.e., aviation and road accidents—increases over the years. We test whether, despite the decreasing number of road and aviation accidents, the monthly number of articles about such accidents goes up over the years. The number of articles per accidents is calculated by dividing the monthly articles (relative to total news circulation) about accidents by the total number of accidents that occurred in that given month. The same monthly trend variable is applied to predict news attention per road accident/fatality and aviation accident/fatality. The monthly trend variable shows a significant positive effect on number of articles per fatal road accident \((b = 5.53e-14, SE = 4.08e-15, p < .001)\), number of articles per fatality due to road accidents \((b = 5.27e-14, SE = 3.71e-15, p < .001)\), number of articles per fatal aviation accident \((b = 3.41e-12, SE = 8.19e-13, p < .001)\), and number of articles per fatality due to aviation accidents \((b = 2.80e-12, SE = 4.18e-13, p < .001)\). Figure 1 visualizes how the relative number of articles per aviation and road accident goes up over the years. In the Supplementary Appendix, Supplementary Figure A3 shows the over-time relative media attention for road and aviation accident and Supplementary Figure A4 shows the number of articles per accident. In support of hypothesis 1, these findings indicate that over-time news attention per fatal road and aviation accident increases, whereas the frequency with which these accidents occur decrease over time.

To test if news media follow their own logic when reporting on negative accidents, we compare media attention for aviation and road accidents with data on the actual occurrence of these accidents. Accordingly, it was hypothesized that there would be a discrepancy between the frequency of occurrence of negative incidents—i.e., aviation and road accidents—and news media’s attention for these events (H2).

**Aviation accidents**

In these analyses we ask whether media coverage of aviation accidents is explained by actual statistics on fatal aviation accidents. In table 2, two ADL models are shown, predicting the (i) absolute attention for aviation accidents and (ii) relative attention for aviation accidents. The statistically significant effects that can be observed for the AR terms of media attention indicates that attention for aviation accidents in the previous months explains attention in the next
Figure 1. Relative number of news articles per road and aviation accidents over time.

Table 2. Autoregressive Distributed Lag Model Predicting Relative and Absolute News Attention for Aviation Accidents

|                                | Absolute news attention aviation accidents | Relative news attention aviation accidents |
|--------------------------------|---------------------------------------------|---------------------------------------------|
| News attention (T-1)           | 0.29*** (0.06)                              | 0.27*** (0.06)                              |
| News attention (T-2)           | 0.18** (0.06)                               | 0.13* (0.06)                               |
| Number of fatal US aviation accidents | 0.03 (0.12)                                 | -3.79e-10 (1.18e-09)                       |
| Number of fatal US aviation accidents (T-1) | 0.19 (0.13)                                | 1.20e-09 (1.26e-09)                        |
| Number of fatal US aviation accidents (T-2) | 0.21 (0.12)                                | 1.12e-09 (1.10e-09)                        |
| Constant                       | 2.10 (2.45)                                 | 7.73e-08** (2.64e-08)                      |

Note: Cells contain unstandardized regression coefficients with standard errors.

* p < 0.05; ** p < 0.01; *** p < 0.001.

In support of H2, Table 2 shows the absence of an effect of the number of actual fatal aviation accidents, for any lags, on media attention, indicating that the occurrence of such accidents, in the same or previous months, is not leading for newspaper coverage on these accidents.

Road accidents
The same AR tests were run for media coverage of road accidents. The ADL models aim to predict relative and absolute news attention for road accidents based on AR terms and actual statistics on fatal road accidents in the United
Table 3. Autoregressive Distributed Lag Model Predicting Relative and Absolute News Attention for Road Accidents

|                              | Absolute news attention road accidents | Relative news attention road accidents |
|------------------------------|----------------------------------------|----------------------------------------|
| News attention (T-1)         | 0.22*** (0.06)                         | 0.36*** (0.06)                         |
| News attention (T-2)         | 0.13* (0.06)                           | 0.34*** (0.06)                         |
| Number of fatal US road accidents | 0.01 (0.01)                           | 2.91e-12 (3.00e-11)                    |
| Number of fatal US road accidents (T-1) | 0.01 (0.01)                           | 2.06e-11 (3.994e-11)                   |
| Number of fatal US road accidents (T-2) | 0.01 (0.01)                           | −3.56e-11 (2.97e-11)                   |
| Constant                     | 16.04** (5.46)                         | 1.70e-07** (6.46e-08)                  |

Note: Cells contain unstandardized regression coefficients with standard errors. *p < 0.05; **p < 0.01; ***p < 0.001.

States. A comparable pattern is observed as was found for aviation accidents. Clear AR effects can be observed if we look at Table 3, whereas no effects of the actual number of fatal US road accidents on coverage is present. These findings together support H2 and suggest that news media follow their own mediatized logic and reality, rather than accurately representing what happens in the world.

Hypothesis 3 assumed that news attention for aviation accidents, relative to road accidents, rises over the years. Accordingly, the next regression analysis presents how the number of articles per aviation accident fatalities, relative to articles per fatal road accidents, varies over the years. The total number of articles per fatal road accidents was subtracted from the total number of articles per fatalities due to aviation accidents. A positive effect of the monthly trend variable was found on this indicator of news attention for aviation accidents relative to road accidents ($b = 2.75e-12$, SE = 4.18e-13, $p < .001$). The over-time changes are graphed in the Supplementary Appendix, Supplementary Figure A5. So, despite higher absolute media attention for road accidents, the relative attention for rare aviation accidents goes up over time, therewith H3 is confirmed.

The over-time Effects of Media Attention

To determine the effects of media coverage of aviation accidents, we, in a first step, assess its effect on travel behavior (H4). By relying on monthly aggregated ARIMA modeling, we aim to see if road traffic, relative to air traffic, increases as a consequence of more news coverage on aviation accidents in previous months. A new variable was constructed to measure relative travel behavior by dividing total US road traffic with US aviation traffic and multiplying it by 10,000. This relative measure is used as it best reflects whether road traffic is chosen as an alternative for air travel since an increase in this measure indicates that the
US population on average more often decided to travel by car rather than by commercial airlines. The Dickey– Fuller tested indicated that the dependent times series—relative road travel—are stationary. To remove autocorrelation from the residuals, AR terms at lag 1, 3, 4, 6, 12, and MA terms at lag 1, 7, 12 were added. Table 4 presents three ARIMA models for the effect of absolute news attention. Supplementary Table A1, in the Supplementary Appendix, presents the same three models but with the effect of relative news attention. The first model is the model with only the AR and MA terms and the year and month as control variables. The second model also includes the following control variables: news attention for road accidents on T-1 and T-2, number of fatal road accidents on T0 and T-1, and a dummy variable controlling for the occurrence of 9/11. This 9/11 dichotomous variable was constructed as temporary dummy three months after the tragic event. The final model also includes news attention for aviation accidents at T-1 and T-2 to test whether attention for aviation accidents in the previous two months results in less road traffic. The models show positive effects of media attention for T-1 on traffic behavior. For the purpose of face validity of this empirical relationship, we look at a few instances of how increase in media coverage relates to declines in air travel. First, the time-series model showed an effect of the 9/11 variable on travel behavior. The data showed that the 9/11 incident came with a 156% increase in media coverage about aviation accidents and a drop of 20.9% in relative air travel in the subsequent two months. Next, a drop in air travel after increased media attention can also be observed beyond the occurrence of such high-profile accidents, hinting at a biased response among audience members following disproportionate media attention. For example, in July 2013, media coverage on plane crashes increased with 187.5%, a drop in air travel of 15.8% was observed in the subsequent two months, whereas number of fatalities due to aviation accidents was relatively low (i.e., 52.19 SDs below the mean). Another example is September 1998, where an increase in media coverage of 137.3% was followed by a decrease of 7.9% in relative air travel.

Additional analyses were run to determine if accidents with high numbers of fatalities prompted greater road traffic. Since particularly deadly events might be covered at even higher rates, accidents with high number of fatalities might explain the relation between media attention and travel behavior. In the Supplementary Appendix, Supplementary Table A2, model 1 depicts the same ARIMA model run with individual dummy variables for the deadliest incidents—i.e., all airliner accidents in the United States that have resulted in at least eighty fatalities (N = 6). Moreover, in the Supplementary Appendix, Supplementary Table A2, model 2 includes the ARIMA model with a dummy variable for the months with more than fifty US fatalities due to aviation accidents (N = 49). The results of both models show how some of the deadliest incidents and months with high number of fatalities affect relative travel behavior, whereas the effect of media coverage of aviation accidents still holds. In sum, as predicted by H4, these results indicate that an increase in media attention for aviation accidents results in more relative road traffic in the next month.

To test H5, it needed to be assessed whether more media coverage of aviation accidents actually results in an increase in fatal road accidents. The Dickey–Fuller
Table 4. ARIMA Estimation of the Effect of Absolute Media Attention on Road Traffic Relative to Aviation Traffic, 1996–2017

|                                      | Model 1          | Model 2              | Model 3              |
|--------------------------------------|------------------|----------------------|----------------------|
| Absolute media attention for aviation accidents (T-1) | 0.61* (0.24)     |                      |                      |
| Absolute media attention for aviation accidents (T-2) | −0.19 (0.28)     |                      |                      |
| Absolute media attention for road accidents (T-1) | 0.06 (0.37)      | 0.10 (0.35)          |                      |
| Absolute media attention for road accidents (T-2) | −0.57 (0.39)     | −0.64† (0.37)        |                      |
| Total number of fatal US road accidents (T0) | −0.02 (0.03)     | −0.02 (0.02)         |                      |
| Total number of fatal US road accidents (T-1) | 0.03 (0.03)      | 0.04 (0.03)          |                      |
| Total number of fatal US aviation accidents (T0) | −1.26 (0.86)     | −1.13 (0.85)         |                      |
| Total number of fatal US aviation accidents (T-1) | −0.09 (0.80)     | −0.16 (0.78)         |                      |
| Dummy 9/11                            | 370.11*** (15.95)| 362.26*** (14.76)    |                      |
| GDP (T0)                              | −0.07† (0.04)    | −0.08* (0.04)        |                      |
| GDP (T-1)                             | −0.04 (0.04)     | −0.02 (0.04)         |                      |
| Month                                 | 2.47 (2.86)      | 6.14** (1.97)        | 5.77** (2.13)        |
| Year                                  | −7.18 (4.66)     | 28.76* (11.29)       | 28.83** (11.08)      |
| AR L1                                 | 0.34*** (0.06)   | 0.15* (0.07)         | 0.12† (0.07)         |
| AR L2                                 | 0.11 (0.08)      | 0.14*** (0.04)       | 0.10* (0.04)         |
| AR L4                                 | 0.24** (0.07)    | 0.23*** (0.05)       | 0.25*** (0.05)       |
| AR L6                                 | −0.16† (0.08)    | −0.09† (0.05)        | −0.06 (0.05)         |
| AR L12                                | 0.19* (0.07)     | 0.51*** (0.10)       | 0.53*** (0.10)       |
| MA L1                                 | 0.17* (0.08)     | 0.13 (0.09)          | 0.16† (0.09)         |
| MA L7                                 | 0.07 (0.06)      | 0.10 (0.08)          | 0.12 (0.08)          |
| MA L12                                | 0.25*** (0.07)   | 0.01 (0.11)          | 0.01 (0.11)          |
| Constant                              | 61.87*** (1.06)  | 45.41*** (1.61)      | 44.82*** (1.69)      |

Note: Cells contain unstandardized regression coefficients, standard errors in parentheses. † p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001.
test indicated that the dependent times series—total US fatal road accidents—is stationary. AR terms at lag 1, 2, 11, 12, 24, 36, and MA terms at lag 1, 7 were added; however, no white noise could be obtained in the residuals. Despite the series behave with clear patterns and in a seasonal matter, adding (seasonal) AR and MA terms did not result in the complete absence of autocorrelation in the residuals. Therefore, next to adding the most important AR and MA terms, multiple control variables as exogenous variables were included in the ARIMA model, among the year and month, to control for as many confounding factors as possible.

Table 5 and Supplementary Table A3, in the Supplementary Appendix, present the ARIMA models for both the effect of the absolute and relative news attention for aviation accidents. The first model is again the basic model including just the AR and MA terms and the year and month as control variables. The second model also controls for news attention for road accidents on T-1 and T-2, number of fatal US aviation accidents at T-0 and T-1, total road traffic in the same and previous month, total number of enplaned passengers at the same and previous month, and the dummy variable controlling for the occurrence of 9/11. The final model also includes news attention for aviation accident on T-1 and T-2. The ARIMA models show that the attention for aviation accidents has an increasing effect on the number of fatal road accidents both in the next month as well as in the month after. A single additional news article in one of the newspapers about an aviation accident in a given month yields an increase of 1.30 road accidents in the next month and another 1.14 in the month after (table 5). Since the effect of media attention for aviation accidents still holds while the analyses control for actual road traffic and the autoregression of fatal road accidents, it can be argued that this media effect is not just an epiphenomenon of increase in road traffic. Since the previous analyses showed how attention for aviation accidents can be disproportionate, the observed media effect here seems to go beyond a proportional relationship between road traffic and fatalities in road traffic. This effect seems to mainly reflect irrational decisions based on news coverage of sensational and rare aviation accidents since no (negative) association between media attention for road accidents and the occurrence of actual fatal road accidents is found.

Additional ARIMA models were run with total death toll from road traffic accidents, also relative to air traffic fatalities. Supplementary Table A4 in the Supplementary Appendix shows how media attention for aviation accidents increases total fatalities due to car crashes (model 1, Supplementary Table A4) and total fatalities due to car crashes relative to fatalities due to plane crashes (model 2, Supplementary Table A4) in the subsequent month. Moreover, the same controlling analyses as for testing H4 were performed. The ARIMA model in Supplementary Table A5 includes the deadliest aviation incidents and months with high number of fatalities due to aviation incidents. With the addition of these control variables, the effect of media attention for aviation accidents on fatal road accidents still holds.

Finally, since the data suggest that the absolute numbers of both types of accidents are decreasing over time, whereas the total number of trips are
Table 5. ARIMA Estimation of the Effect of Absolute Media Attention on Fatal Road Accidents, 1996–2017

|                                          | Model 1                  | Model 2                  | Model 3                  |
|-----------------------------------------|--------------------------|--------------------------|--------------------------|
| Absolute media attention for aviation  |                          |                          |                          |
| accidents (T-1)                         | 1.30* (0.59)             |                          |                          |
| Absolute media attention for aviation  |                          |                          |                          |
| accidents (T-2)                         | 1.14* (0.60)             |                          |                          |
| Absolute media attention for road       |                          |                          |                          |
| accidents (T-1)                         | −0.90 (0.75)             | −0.91 (0.72)             |                          |
| Absolute media attention for road       |                          |                          |                          |
| accidents (T-2)                         | 0.23 (0.74)              | 0.20 (0.73)              |                          |
| Total number of fatal US aviation       |                          |                          |                          |
| accidents (T0)                          | 2.18 (1.52)              | 1.63 (1.57)              |                          |
| Total number of fatal US aviation       |                          |                          |                          |
| accidents (T-1)                         | −2.23 (1.55)             | −2.18 (1.53)             |                          |
| Total road traffic (T0)                 | 0.01* (0.00)             | 0.00* (0.00)             |                          |
| Total road traffic (T-1)                | −0.00† (0.00)            | −0.00† (0.00)            |                          |
| Total aviation traffic (T0)             | 0.00** (0.00)            | 0.00*** (0.00)           |                          |
| Total aviation traffic (T-1)            | 0.00 (0.00)              | 0.00 (0.00)              |                          |
| Dummy 9/11                              | 188.13† (107.45)         | 146.24 (115.01)          |                          |
| GDP (T0)                                | 0.06 (0.09)              | 0.03 (0.09)              |                          |
| GDP (T-1)                               | 0.03 (0.08)              | 0.05 (0.08)              |                          |
| Month                                   | 32.25*** (7.79)          | 13.84† (7.28)            | 13.60† (7.34)            |
| Year                                    | −11.88 (14.96)           | −100.88*** (23.66)       | −98.79*** (22.69)        |
| AR L1                                   | −0.04 (0.07)             | −0.08 (0.09)             | −0.09 (0.08)             |
| AR L2                                   | 0.22*** (0.05)           | 0.22*** (0.06)           | 0.23*** (0.07)           |
| AR L11                                  | 0.14*** (0.04)           | 0.18*** (0.05)           | 0.19*** (0.05)           |
| AR L12                                  | 0.52*** (0.07)           | 0.38*** (0.07)           | 0.38*** (0.07)           |
| AR L24                                  | 0.19* (0.08)             | 0.23*** (0.07)           | 0.23** (0.07)            |
| AR L36                                  | −0.05 (0.06)             | 0.04 (0.07)              | 0.04 (0.07)              |
| MA L1                                   | 0.40*** (0.09)           | 0.42*** (0.11)           | 0.44*** (0.11)           |
| MA L7                                   | 0.24*** (0.06)           | 0.16* (0.06)             | 0.18** (0.06)            |
| Constant                                | 129.31*** (6.52)         | 115.29*** (6.43)         | 113.77*** (6.62)         |

**Note:** Cells contain unstandardized regression coefficients, standard errors in parentheses. 
†p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001.
increasing, an additional model is run where the outcome variable, number of fatal road accidents, is normalized. Although the other models control for total road traffic, Supplementary Table A6 shows the same analyses but with the relative score of the dependent variable, where absolute number of road accidents is divided by total road traffic and multiplied by 100,000. The findings regarding the effect of media coverage are comparable with the other models.

In conclusion, in line with H5, the results presented above indicate that the level of news attention for aviation accidents is significantly and positively related to the number of fatal road accidents and number of fatalities due to road accidents in the subsequent months.

Discussion

Since risk and fear dominate most headlines, this study aimed to clarify people’s irrational fear perceptions as a result of overly negative news. To do so, we rely on the case of travel accidents. The purpose was to explore if news media disproportionately portray such negative incidents and if news attention for rare and vivid aviation accidents can overshadow real-world risks. Audiences might choose (long-distance) driving over flying in the wake of a biased media reality that portrays aviation accidents as a common threat, despite that flying is statistically the safest alternative.

This paper, first of all, concludes that news media, in their coverage of aviation and road accidents, create and follow their own logic and are increasingly driven by a biased focus on the negative rather than accuracy. Our findings show that (i) despite the decreasing number of actual road and aviation accidents, the monthly number of news articles about such accidents goes up over the years and (ii) real-world frequency of occurrence of such accidents is not leading for news attention on these accidents. Thus, the current study finds robust support for what previous research has argued: News media’s interest in the negative has grown over time, such that media coverage has become increasingly detached from real-world trends (Jacobs et al. 2018; van der Meer et al. 2019). Hence, the findings expose distortions, in terms of a negativity bias and selection bias (Entman 2007), in the context of news attention for traffic accidents.

The observed over-time patterns align with the theorization regarding the long-term processes of mediatization. Media logic and the growing importance of news values institutionalized in news selection processes can potentially explain the growing interest in negative and rare incidents (Strömbäck and Dimitrova 2011). Moreover, the institutionalization of media in society might explain the documented absence of a relationship between what happens in the world and news attention, media rather construct their own reality based on what news events gain the largest audience. In turn, this media reality, rather than what actually happens in the world, likely shapes audiences’ social reality and therewith complicates their rational decision making.

Second, as air travel is statistically the safest transportation mode, it is argued that disproportionate attention for aviation accidents would particularly be
alarming. More media attention for such accidents can induce ill-informed fear for flying and result in irrational risk-avoiding behavior. This type of behavior is exactly what we observed. As the main contribution, this study shows, based on time-series analyses that control for important confounding variables, how more media attention for aviation accidents results in more relative road traffic and more fatal road accidents and fatalities due to road accidents in the subsequent months. In line with empirical survey research that showed how exposure to crime news can relate to risk-avoiding behavior (Smolej and Kivivuori 2008), our aggregated findings indicate that audiences engage in irrational risk-avoiding behavior with potentially fatal consequences. We conclude that media’s systematic overrepresentation of low-frequency high-consequence accidents can have far-reaching consequences and stimulate irrational and dangerous fear-avoiding behavior where driving is inaccurately considered a safer transportation alternative to flying. Gigerenzer (2006) showed comparable risk-avoiding behavior in the context of a period of fear for terrorism: The tragic terrorist attacks of 9/11 temporarily resulted in an increase in road travel and accidents increased. Seemingly, these effects go beyond irrational fear for terrorism as the patterns we found are not limited to the context of 9/11, and news media seem to play an important role in audiences’ irrational risk-avoiding behavior under normal circumstances.

We interpret the observed relation between news attention and irrational risk-avoiding behavior as being in line with the central notion of cultivation theory (Gerbner 1969), in terms of how media can shape social reality in ways that deviate from what actually happens in the world. The strong focus of news media on vivid, but exceptional aviation accidents may cultivate audiences to focus on the risk of flying and ignore other threats or problems, like road-traffic accidents, that happen more common but there with less likely to end up on the front pages (Romer, Jamieson, and Aday 2003). Traditional cultivation theory mainly studies these relationships by surveying audiences and testing whether heavy (local) news viewers are more likely to report fear of victimization of crime. With its over-time focus, the current study is unable to look at such individual level fear perceptions and news consumption patterns since such data are unavailable for a longer period. Yet, the study does expose aggregated level patterns that hint toward media’s cultivating impact on society where the relation between news attention and (irrational) travel behavior serves as a case in point for how audiences’ exposure to certain news content relates to their fear perceptions.

Despite the study’s focus on one type of topic within one national context, the findings can inspire future studies. In terms of broader implications, further work can build off of these results in exploring how news media can induce irrational behavior. Extant empirical studies have documented how overly negative media coverage can significantly alter audiences’ perceptions, irrespective of actual statistics. A next step would be assessing whether media biases can be associated with (proxies of) irrational behavioral reactions. For example, in the context of news on immigration, research has shown that this coverage is overly negative and disproportionally related to issues of crime and terrorism (Jacobs et al. 2018). Such biased and negative coverage on immigration is observed to have
an effect on the attitudinal level (van Klinger et al. 2015). Subsequently, researchers can think about behavioral-level effects of media biases. One could imagine how negative stories of immigrants not only spurs the growth of anti-immigration sentiment in the United States (and beyond), but also in part fuels assaults on democracy—e.g., in terms of violent protests or (online) assaults of outgroup members. Accordingly, we often read in the news about cases of irrational collective behavior that might be inspired by media coverage. As an illustration, in 2017, 1,500 people were injured in a stampede after mistaking firecrackers for a terrorist attack when Juventus fans watched the Champions League final in a Turin square (Jones 2017). Such partly irrational fear perceptions and potentially dangerous behavioral responses might well be partly related to how media, in this case, cover terrorism (since news exposure is related to irrational fear of becoming a victim of terrorism) (Nellis and Savage 2012).

The observed relation between media attention for aviation accidents and fatal road accidents might not only be explained as a result of media bias, especially since the absolute number of articles about road accidents is generally higher than the coverage of aviation accidents. Arguably, the effect of media attention for aviation accidents is partly explained by a negativity bias in the information processing of audiences. Individuals generally react stronger to more negative information (Soroka, Fournier, and Nir 2019). Both road and aviation accidents are negative events, yet, as aviation accidents are more exceptional, vivid, and, in a way, sensational, especially the coverage of these accidents might exaggerate the salience and availability of risk for flying in the minds of the audience. In addition, not only a negativity bias in audiences’ news processing but also in their news selection might exacerbate such trends. In a high-choice media environment, people can select all types of news they are personally interested in and opt out of news assessed as uninteresting. Here, individuals are also found to be drawn to negative stories in their news selection (Knobloch-Westerwick, Mothes, and Polavin 2020). Such selection biases might further increase audiences’ disproportionate exposure to negative news on isolated incidents. In addition, when people are already worried about airline travel, they may be drawn to articles that further stoke this fear. Such news patterns relate to another selection bias, known as the confirmation bias, where audiences tend to select news that is in line with their prior beliefs and understanding of the world (Knobloch-Westerwick, Mothes, and Polavin 2020). These desires for certain news can outweigh the need for correctness or a complete understanding and therewith people can create their own biased news environment.

With the observed increase in coverage on negativity, media are often blamed for having a blind spot for progression. Rather than presenting structural base-rate information, uncommon incidents are overreported, which potentially creates a distortion in audiences’ estimation of the frequency of occurrence of incidents (Sherman 1996). To counter irrational risk perceptions as a result of media attention, it has been proposed to provide audiences with added context when they are presented with negative and isolated events that do not reflect
a negative long-term global trend (Skovsgaard and Andersen 2020). Contextualizing news stories in such a way might avoid that people automatically extrapolate risk assessments and draw overly negative conclusions about travel safety based on negative news on isolated aviation accidents. From an alternative perspective, it has been argued that the focus on negative and rare events serve a certain alarming function in society. This so-called “burglar alarm news standard” argues how negativity in news draws people’s attention to urgent issues and signals important threats in society (Zaller 2003). In numerous cases, such a surveillance function of professional journalists and mass media plays an important and functional role for society. Pressing real-life threats and risks need to be brought to the attention of the public and other actors such as politicians and policymakers. Being focused on the negative and highlighting things that go wrong can therefore be essential for journalism to fulfill a critical and investigative role within society. For example, in the context of aviation accidents, grounding all Boeing 737 MAX airplanes in the wake of two crashes on October 29, 2018 and March 10, 2019, partly under pressure of the media, possibly prevented more accidents due to the faulty software of these 737 planes. Yet, when such alarms ring all the time and for the wrong reason (Bennett 2003), a distorted media reality is portrayed that can bias people’s understanding of the world around them. Here, the question is if there is actually something like a “neutral” or an “objective” worldview, as compared with a distorted worldview, that news media can cover to more accurately mirror the world. Overall, this paper argues that, although negativity in the news can be conducive at times, it becomes harmful when such news biases become disproportionate as they can lead to irrational risk-taking behavior.

As with any academic study, this research bared some limitations. First, in our aim to better understand the role of the news media in irrational fear perceptions in our contemporary world, we only incorporate the case of air and road traffic accidents. Accordingly, these findings are not straightforwardly generalizable to other contexts in which discrepancies exist between the media and actual reality. Second, it was beyond the scope of this study to also incorporate the content of the news articles about the accidents. Future research could, for example, look at what type of news values or frames are emphasized in most articles and if this increases over time in light of mediatization theory. Next, additional survey data for the same years on measures such as fear perceptions would have provided us with more psychological insights into why individuals would refrain from commercial air travel based on media coverage. In addition, the findings primarily document the relationship between media coverage, number of accidents and travel numbers on an aggregated level, rather than tracing the effect of news coverage on actual individual consumer choices. Consumer choices between different modes of travel might be jointly determined by alternative explanations that were not included in the model—e.g., gasoline prices and airline pricing or perceived survivability of a plane crash versus car crash. Yet, our analytical strategy incorporated several key control variables, which solidifies our confidence in the robustness of the observed relationship. These limitations notwithstanding, this study provides a valuable exploration of how irrational
fear perceptions can be media inspired and how impactful a distorted worldview can be.

**Supplementary Material**

Supplementary material is available at *Social Forces* online, http://sf.oxfordjournals.org/.

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