EJHC | European Journal of Health Communication

ISSN 2673-5903
ejhc.org

Article *Special Issue on Mis- and Disinformation About Covid-19*

Deprived, Radical, Alternatively Informed

Factors Associated with People's Belief in Covid-19 Related Conspiracy Theories and their Vaccination Intentions in Germany

DOI: 10.47368/ejhc.2022.205
2022, Vol. 3(2) 97-130
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Abstract

The Covid-19 pandemic was accompanied by a massive increase of the supply and demand for pandemic-related information. Similarly, conspiracy theories about the origins and functions of the Covid-19 virus flourished during the early stages of the pandemic. The present study draws on a nationally representative sample of the German population aged 18+ (N = 1,207) to investigate factors that are associated with people's susceptibility to believe in such theories. We draw on research from sociology, political science, and communication to predict that factors related to relative deprivation, political radicalism, and the consumption of alternative news on websites, video platforms, Social Network Sites, and messenger services are associated with an increased belief in Covid-19 conspiracy theories. The data largely supports our assumptions. Additionally, we show that the strength of belief in Covid-19 conspiracy theories is associated with reduced vaccination intentions, which suggests detrimental real-world health consequences of such a belief.

Keywords

Covid-19 conspiracy theories, vaccination intentions, right-wing radicalism, alternative news, relative deprivation.

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The Covid-19 pandemic caused by the spread of the SARS-CoV-2 virus kept the world in suspense since the beginning of 2020: Both the numbers of infections with the Covid-19 virus disease and the cases of deaths related to the virus were rising rapidly, pushing many societies to their limits. The pandemic was accompanied by enormous social, political, and economic consequences as countries all over the world shut down parts of their economy and public life (Agence France-Presse, 2020; Asongu et al., 2020).

Just as rapidly as the virus itself, disinformation and conspiracy theories (CT) related to the Covid-19 pandemic spread via analogous and digital channels. This situation led the World Health Organization (WHO) to speak of an "Infodemic" (WHO, 2020), a neologism made up of the two terms *information* and *pandemic*. Particularly the exposure to Covid-19 conspiracy theories (CCT) is seen as a threat because these theories can shake the confidence and trust of the population in governments, health systems, and in collective decisions (Craft et al., 2017; Nocun & Lamberty, 2020). For example, vaccinations are the most effective global strategy to end the pandemic, but CT often fuel vaccine hesitancies or rejection by claiming that vaccinations are disease-causing, ineffective, or part of a conspiracy between governments and the pharmaceutical industry (Kata, 2012). Thus, a potentially increasing spread of CCT among the population could lead to distrust toward governments and existing health measures (WHO, 2020). Ultimately, researchers have warned that believing in CCT could make people unwilling to follow hygiene measures (Allington et al., 2020; Imhoff & Lamberty, 2020) or contact restrictions (Bierwiaczonek et al., 2020; Pummerer et al., 2021). In sum, CCT could represent a serious obstacle to a successful coping with the pandemic.

The aims of the present study are twofold: We (1) investigate associations between socioeconomic, political, and media-related factors and people's belief in CCT, and (2) we analyse how this belief is associated with people's vaccination intentions. Although several recent studies have investigated factors associated with people's endorsement of CCT (Allington et al., 2020; Bierwiaczonek et al., 2020; Georgiou et al., 2020; Imhoff & Lamberty, 2020; Miller, 2020a, 2020b; Uscinski et al., 2020), few published works have relied on representative data. Additionally, the proclivity to believe in CT is a complex phenomenon, which can best be investigated by using different theoretical perspectives (Andrade, 2020). Based on these two observations, we extend previous work by drawing on a representative CATI sample of the German population ($N = 1{,}207$) and by combining factors potentially associated with CCT from sociology, political science, and communication research. Additionally, few previous studies, to the best of our knowledge, have combined an analysis of potential causes of CCT with an investigation of its potential effects. We therefore investigate the association between people's belief in CCT and their vaccination intentions. Thereby, our study advances the understanding of the factors associated with people's belief in CT during times of crisis and how such belief is related to people's willingness to follow health-protective behaviours. Ultimately, such insights can also contribute to a better handling of people's concerns in future crises.

Our hypotheses are tested using representative survey data that was collected in November 2020, which corresponds to a time of rapidly rising infection rates in Germany. The results show that people's perceived deprivation, their attitudes, and their sympathy for the right-wing populist party *Alternative für Deutschland*, as well as their use of messenger apps and social networking sites as political information sources are positively associated with their belief in CCT. In contrast, using websites and apps from quality media and reading local newspapers is negatively associated with belief in CCT. A stronger belief in CCT is associated with lower

intentions to get vaccinated against the Covid-19 virus. We conclude that, on a societal level, CCT can be a threat to a successful mastering of the pandemic.

Conspiracy Theories and the Covid-19 Virus

CT are a phenomenon in the overarching realm of misinformation, disinformation, and false beliefs (Lyons & Guess, 2020). According to Uscinski and Parent (2014), they can be defined as explanations of past, current, or future events through the actions of a usually small group of powerful conspirators, who act in secret to enforce their own interests at the expense of the common good. Conspiracy theories are characterised by the narrative that the conspirators are evil and intend to control or destroy an institution, a country, or even the whole world (Andrade, 2020; Butter, 2020). The conspirators can be anyone perceived as powerful, such as a government, scientists, CEOs, religious organizations, but also socially marginalised groups (van Prooijen et al., 2015).

The majority of CT contradicts a so-called "official version" of public events and offers alternative ways of interpreting them (Schetsche, 2005). In most Western democracies, however, the official version, which is also mostly supported by scientific evidence, represents the social consensus as well as what a majority considers as the truth (Götz-Votteler & Hespers, 2019; Sunstein & Vermeule, 2009). Consequently, following Butter (2020), CT—as well as in our case CCT—are mostly untrue.

Since CT primarily refer to events that people perceive as politically or socially significant (Douglas et al., 2019), times of social crisis, such as a global pandemic, encourage the emergence and spread of CT (van Prooijen & Douglas, 2017). Conspiracy theorists evaluate crises as the result of an intentional plot by a powerful, evil group (Andrade, 2020). The strength of this thinking corresponds to the impact of an event, because a high-impact event makes it harder for conspiracy theorists to believe that it occurred by chance (Andrade, 2020; Quattrociocchi, 2018; van Prooijen, 2018b; van Prooijen & Douglas, 2018). This is known as *Proportionality Bias* (Andrade, 2020; van Prooijen, 2018b). It is, therefore, not surprising, that the Covid-19 pandemic has become the subject of many CT.

As it is common for health-related CT, the core element of most CCT is an assumed global conspiracy between the pharmaceutical industry, governments, technology corporations, and civil society institutions: For the U.S., Shahsavari et al. (2020) examined social media content and journalistic news to point out the underlying narrative networks of CCT. They found four main CCT narratives, namely (1) the 5G network being a cause of the Covid-19 virus, and Bill Gates's involvement in a global vaccination project; (2) Covid-19 being "a cover-up perpetrated by the Chinese Communist Party" (p. 313), (3) the release of the Covid-19 virus from a laboratory and its role as a bioweapon, and 4) Covid-19 being a hoax and not more dangerous than a mild flu or cold (Shahsavari et al., 2020). Studies examining the spread of belief in CCT in Germany and German-speaking countries often include these and similar narratives (Kuhn et al., 2021; Lebernegg & Eberl, 2021).

Regarding the endorsement rates of CCT, representative surveys showed that nearly a third of U.S.-Americans believe that the Covid-19 virus was intentionally bred in the lab (Schaeffer, 2020; Uscinski et al., 2020), and nearly half of them consider the virus a Chinese bioweapon (Miller, 2020a). These high numbers may also be due to former U.S. president Donald Trump repeatedly doubting scientific knowledge concerning the Covid-19 virus and fuelling related

CCT (Gensing, 2020b). In Germany, fewer people believe in these CCT. One study showed that 25% of Germans believe that the Covid-19 virus was bred in a Chinese laboratory, and 13% are convinced that it is a Chinese bioweapon (Friedrich-Naumann-Stiftung, 2020). Around 8-14% of Germans believe in the general CCT of Covid-19 being a hoax, and although this prevalence seems minor, it has been relatively stable during the pandemic (COSMO, 2021). A similar percentage endorses the CCT that Big Pharma created the Covid-19 virus to profit from the vaccines (Kuhn et al., 2021). With endorsement rates around 6%, even fewer Germans believe in specific CCT, such as the conspiracy theory that the Covid-19 virus is caused by 5G or that Bill Gates is testing a future vaccine to implant microchips into people. Similar endorsement rates of CCT can be observed in other German-speaking countries, such as Austria (Lebernegg & Eberl, 2021). In sum, even though only a minority of the German population fully endorses CCT, some of these theories have quickly become similarly popular as more established CT, such as the moon landing conspiracy or the 9/11 conspiracy (Schultz et al., 2017).

Factors Related to the Strength of Belief in Covid-19 Conspiracy Theories

In the following, we derive hypotheses regarding the factors that likely are associated with people's belief in Covid-19 conspiracy theories (CCT). These hypotheses are not exclusive for CCT and could be transferred to other CT explored in future studies as well. That is because people who believe in a specific conspiracy theory (CT) often believe in other conspiracies as well (Goertzel, 1994), sometimes even when the CT logically contradict each other (Wood et al., 2012, for CCT see Miller 2020a). In fact, a deciding factor for conspiracy theorists evaluating the truthfulness of a new CT is that it does not contradict their general world view (Douglas et al., 2019). This general world view of conspiracy theorists is shaped by a monological belief system that has been labelled "conspiracy mentality" (Goertzel, 1994; Imhoff & Bruder, 2014; Uscinski & Parent, 2014). Conspiracy theorists are also characterised by a more intuitive thinking style combined with a so-called "illusory pattern perception" (van Prooijen, 2018b, p. 40), which describes people's tendency to perceive connections in their environment that do not exist. Also, conspiracy theorists desire to be unique and to stand out from the crowd (Imhoff & Lamberty, 2017).

The current study adds to these psychological findings a perspective that integrates fragmented findings from previous research on the associations between people's belief in CT and their socioeconomic characteristics (Uscinski & Parent, 2014), their political views (van Prooijen et al., 2015), and their media usage (Stempel et al., 2007).

Socioeconomic Status: Lower Education and Perceived Deprivation as Cause?

Education. Various studies have reported an association between a low level of education and a strong belief in CT (Douglas et al., 2016; Freeman & Bentall, 2017; Oliver & Wood, 2014; Roose, 2020; Schließler et al., 2020; van Prooijen, 2016; Zick et al., 2019). Researchers have explained this association arguing that higher education makes people more likely to reject simple solutions to complex problems because they have better analytical abilities (e.g., van Prooijen, 2016). In fact, studies have demonstrated a negative correlation between analytical

thinking and conspiracy belief (Swami et al., 2014). Although CT are often much more complicated than "official versions" (Uscinski & Parent, 2014, p. 38), it is easier to understand complex issues when viewed through a compelling narrative that fits already existing beliefs (Craft et al., 2017). Additionally, researchers have discussed the possibility that a lower education is associated with a stronger tendency to the *illusory pattern perception* (Douglas et al., 2016), which can be an attempt to understand complex social processes despite a lack of cognitive skills (Douglas et al., 2019; Schetsche, 2005). Early research on CT has also argued that people with a lack of access to the political process—which often applies to the less educated—may perceive the decision-makers as omnipotent, sinister, and malicious because of their own distance from them (Hofstadter, 1966). In contrast, a higher level of education is an important resource for gaining recognition and reputation in societies. Its lack may explain the connection between the feeling of powerlessness and conspiracy belief (Imhoff & Bruder, 2014). In sum, there is reason to assume that the association between low education and strong belief in CT also applies to CCT.

H1: There is a positive association between people's low education and their belief in CCT.

Perceived Deprivation. Butter (2020) has stressed that it is important to consider people's perception of their current or future situation as a factor associated with their belief in CT. Major political or social events are often followed by an increase in people's social, financial, or existential worries, and feelings of loss of control, power, or security (Douglas et al., 2019; Uscinski & Parent, 2014). Such feelings can promote fears of being disadvantaged – either in the present or in the future (Uscinski & Parent, 2014). People's sense of being socially or economically disadvantaged has been coined with the term deprivation (Decker et al., 2018; Runciman, 1966). Paying more attention to CT and believing in them can help people make these undesirable feelings tangible and explain one's actual or feared declassification (Douglas et al., 2019; Goertzel, 1994; Goreis & Voracek, 2019; Green & Douglas, 2018; Imhoff & Bruder, 2014). Additionally, CT often include exaggerated criticism of elite actors in political, media, or economic subsystems of societies (Jackob et al., 2017). Such elite-centred criticism allows people to define specific culprits for one's (feared) disadvantaged life situation. Ultimately, many CT, at least implicitly, suggest that it is still possible to stop the conspiracy (Butter, 2020). This may counteract people's sense of powerlessness by making them feel capable of changing something and reclaiming control (Hammel, 2017; Imhoff & Bruder, 2014).

In fact, a survey study revealed that people who were socio-economically disadvantaged and perceived their position in this way were more likely to belief in CT (Freeman & Bentall, 2017). Two surveys with German respondents have additionally reported a positive association between people's personal and general economic fears and their belief in CCT (Bruder & Kunert, 2021; Schließler et al., 2020). Consequently, we hypothesise that people's negative assessment of their future individual economic situation—as an indicator for perceived *economic deprivation* (Decker et al., 2018)—and their negative evaluation of their own social position compared to other members of the society—as an indicator for perceived *relative deprivation* (Runciman, 1966)—is positively associated with their belief in CCT.

H2a: There is a positive association between people's perceived economic deprivation and their belief in CCT.

H2b: There is a positive association between people's perceived relative deprivation and their belief in CCT.

Political Attitudes: Right-Wing Radicalism as Cause?

In Germany, many participants of the numerous demonstrations against COVID-19 health measures wore clothing with Nazi symbols or held signs with nationalist and extremist slogans (Gensing, 2020a; Tagesschau, 2020; Vieten, 2020). At the same time, numerous participants offensively voiced CCT (Nachtwey et al., 2020; Schließler et al., 2020; Vieten, 2020). Even though "these protest movements cannot be labelled far-right populist, their anti-elite anger and willingness to share platforms with neo-Nazis [and] anti-Semites (…) confirms the argument for the normalisation of far-right orientations" (Vieten, 2020, p. 11) within the participant group. In the following, we thus investigate whether two attitudes connected to right-wing extremism—nationalistic worldviews and an affinity towards the right-wing populist party *Alternative für Deutschland (AfD)*—are associated with people's belief in CCT.

Nationalism is a core element of right-wing radicalism (Carter, 2018; Minkenberg, 2003). It is characterised by the assumption that being part of a nation is conditioned by a person's ancestry. People who wish to belong to a nation through migration, for example, are considered a threat to the survival of the own race and the nationalist's goal of an ethnocracy (Bieber, 2020; Mudde, 2016; Stögner, 2017). To justify such attitudes, nationalism often promotes racist views and assumes that individuals are of different value according to their belonging to a certain group (Carter, 2018; Turda & Weindling, 2007). In Germany, the right-wing populist party *AfD* provides a substrate for such attitudes (Sterphone, 2018). Additionally, the German Constitutional Court has classified parts of the *AfD* as right-wing extremist (Bundesamt für Verfassungsschutz, 2020). Thus, a high willingness of individuals to vote for the *AfD* can be considered an additional indicator for right-wing radicalism.

There are three reasons why right-wing radicalism, as indicated through nationalism and propensity to vote for the *AfD,* could be associated with higher belief in CCT: First, regarding psychological motives, right-wing radicalism appeals particularly to people who lack the cognitive resources to understand complex social processes because it offers easy solutions (Heaven et al., 2011; Lanzke, 2016). Likewise, CT provide simplified explanations for complex relationships (Andrade, 2020; Clarke, 2002; Götz-Votteler & Hespers, 2019; van Prooijen et al., 2015). In doing so, both right-wing radicalism and CT define specific culprits, such as a corrupt political elite or a social group (Götz-Votteler & Hespers, 2019; Mudde, 2016). Thereby, right-wing radicalism and CT induce their followers to agree on a personalised concept of an enemy, which unifies *the good guys* to see through and fight against the conspirators, *the bad guys* (Lanzke, 2016; Oliver & Wood, 2014; Uscinski & Parent, 2014). Such narratives, in turn, can result in a strengthened sense of community: right-wing radicalism, often through nationalist worldviews, allows collective identification, promises belonging, unity, orientation, and support (Stögner, 2017), similar to what conspiracy belief does by means of a "shared reality" (Douglas et al., 2017, p. 541).

Second, there are similarities between the argumentative structures and approaches of right-wing radicals and conspiracy theorists. Right-wing radicals tend to support their views with presumed scientific knowledge (Lanzke, 2016; Marcks & Pawelz, 2020), which can also be found among conspiracy theorists (Butter, 2020). In addition, right-wing radicals support their arguments by focusing on personal and emotional narratives, feelings, or experiences and exploit topics like child abuse (Lanzke, 2016) in a similar way as conspiracy theorists do

(Butter, 2020). These strategies aim at legitimizing the often sexist, racist, anti-Semitic, and inhuman views.

Third, several empirical studies support the theoretical connections between right-wing radicalism and belief in CT or CCT. Regarding nationalism as a sub-dimension of right-wing radicalism, van Prooijen (2018a) reviewed studies demonstrating that particularly a "threatened nationalism" (p. 18) is associated with belief in conspiracy theories. For Germany, Imhoff and Decker (2013) concluded that conspiracy beliefs are most strongly represented on the right-wing political fringe. Similarly, a survey in Austria suggested that CCT are particularly popular among people with a strong right-wing political ideology (Imhoff & Bruder, 2014). This is in line with the finding that supporters of the right-wing populist party *AfD* are more prone to CT than other voters (Schuler et al., 2020). Unsurprisingly, supporters of the *AfD* also have the strongest right-wing political attitudes (Schuler et al., 2020; Vehrkamp, 2021; Vehrkamp & Merkel, 2020) and are more anti-democratic and anti-Semitic than other people (Roose, 2020; Schuler et al., 2020).

CT are the *glue* that holds right-wing groups together and can even connect them to the centre of society (Bartlett & Miller, 2010) by making their worldviews appear socially acceptable or as the right thing to do. In addition, CT can catalyse the right-winger's radicalization (*ibid*.). Thus, with nationalism and propensity to vote for the *AfD* as two important elements of right-wing radicalism in Germany, we hypothesise:

> *H3:* There is a positive association between people's right-wing radicalism, as indicated through nationalism (H3a) and propensity to vote for the right-wing populist party AfD (H3b), and their belief in CCT.

Media Use: Consumption of Alternative News as Cause?

Situations of crisis boost people's uncertainty and their need for information, explanation, and orientation (van Prooijen & Douglas, 2017). Thus, the various sources from which people obtain their crisis-related information can be assumed to play an important role in shaping their opinions and attitudes. During the Covid-19 pandemic, many people felt flooded by the massive amount of information, making it difficult to filter news and to stay oriented (Nielsen et al., 2020). It is, therefore, comprehensible that many people searched for simple answers to complex questions. These simple answers are often provided by so-called alternative news media (Stano, 2020). Many of these alternative news media "represent a proclaimed and/or (self)perceived corrective, opposing the overall tendency of public discourse emanating from what is perceived as the dominant mainstream media in a given system" (Holt et al., 2019, p. 862). They claim to counter the allegedly tendentious, sometimes even allegedly fabricated information of the mainstream media with *truthful* reporting (Butter, 2020; Figenschou & Ihlebæk, 2019). The current study uses the term to refer to a specific kind of hyperpartisan media or "dark alternatives" (Schwarzenegger, 2021, p. 101), which are often linked to disinformation and CT (Barnidge & Peacock, 2019). In Germany, there are several alternative news websites (e.g., *politically incorrect, RT Germany,* and *compact)* that prominently distribute such content.

In the Covid-19 pandemic, many alternative news websites carried a considerable amount of toxicity and negativity (Quandt et al., 2020) and sustained their narrative of a fundamental opposition to the mainstream media (Boberg et al., 2020). During the first lockdown in Germany in March 2020, 35% of Germans used alternative websites regularly to get

information on the pandemic (Viehmann et al., 2020). To increase the reach of their content, alternative news websites distribute it or encourage its sharing on messenger services, such as Telegram, video platforms, such as YouTube, and social network sites, such as Facebook (Allcott et al., 2019). On many of these platforms, information is less regulated (Allington et al., 2020; Butter, 2018; Schetsche, 2005), which allows rumours, disinformation, and CT to circulate rather freely. Due to their exaggerating and dramatizing nature, alternative news and CT spread faster and wider than scientific evidence, true claims, or corrections on social media (Del Vicario et al., 2016). Thus, social network sites and other social media platforms can facilitate the rapid and audience-wide circulation of CT (Vosoughi et al., 2018). Consequently, we will investigate associations between people's use of alternative news websites as well as social network sites, video platforms, and messenger services as news sources and their belief in CCT.

Several arguments support a positive association between these variables. First, research on the spiral of silence posits that depending on the way how reality is depicted in different information sources, people arrive at different impressions of the opinion climate in their society (Noelle-Neumann, 1974; Tsfati et al., 2014). Thus, a high use of sources propagating alternative news could lead people into thinking that most members of the society agree with these statements. Second, cultivation research assumes that the more intensely people use a certain media outlet or genre, the more they are confronted with the meta-messages and narratives conveyed in these media (Gerbner & Gross, 1976), which in turn shape people's perception of social reality. Transferred to the websites and platforms spreading alternative news, cultivation theory would suggest that the more frequently people are exposed to such information, the more often they get in touch with CCT and the more likely they are to accept these theories as reality. Third, according to the *Illusory Truth Effect*, an intense exposure to CT via the consumption of alternative news could result in CT gaining higher credibility. In essence, the illusory truth effect states that the more often people are exposed to the same (news) content, the more credible they will rate it (Pennycook et al., 2018). This is because people process information that they are repeatedly exposed to more easily and they can also integrate it more easily into existing thought patterns. As a result, the perceived truth of this information increases (Unkelbach & Rom, 2017). Empirical research confirmed this effect even for irrational statements as well as CT, which showed long term effects on conspiracy beliefs (Fazio et al., 2019; Kim & Cao, 2016; Warner & Neville-Shepard, 2014). In this sense, repeated exposure to sources and platforms spreading alternative news likely increases the credibility and, consequently, the acceptance of CCT.

In sum, the illusory truth effect, the spiral of silence theory, and cultivation theory suggest that the more intense people use certain information sources, the more they perceive the statements circulating on these sources as credible and the more they arrive at similar impressions of social reality as portrayed in these sources. Transferring these basic mechanisms to the Covid-19 pandemic and to the information sources that carried at least a certain amount of disinformation and alternative news, we hypothesise:

> *H4a:* There is a positive association between people's use of alternative news websites as an information source and their belief in CCT.
>
> *H4b:* There is a positive association between people's use of messenger services as an information source and their belief in CCT.

H4c: There is a positive association between people's use of video platforms as an information source and their belief in CCT.

H4d: There is a positive association between people's use of social network sites as an information source and their belief in CCT.

Quality news media are often considered the counterpart of alternative media (e.g., Boberg et al., 2020; Quandt et al., 2020). They include established newspapers and public service TV —sources which societies ascribe relatively high levels of trust and relevance (Viehmann et al., 2021). The relationship between alternative news and quality media can be described as follows: "alternative news media function much like a photo negative of what and how the large [quality] media reports on; the outlines are the same, but they are mirrored with reversed colors" (Boberg et al., 2020, p.17). While alternative news media create a "homogeneous information environment" (Rojecki & Meraz, 2016, p. 37), mainstream media often react, investigate, and refute many of these claims. Thus, quality news media put emphasis on facts rather than on sensation, provide more background information, and employ fact checking to debunk myths (Hollander, 2018; Lewandowsky et al., 2017). In fact, in the first months of the Covid-19 pandemic, German quality media seemed to have done a good job in terms of providing a balance of actors, an overall wide range of pandemic-related information, and by debunking false information (Quandt et al., 2020).

Much like alternative news media function as photo negative of quality news media, we can apply the theoretical argumentation and the hypotheses regarding the effects of using alternative media on people's belief in CCT to quality news media – yet in the inverse direction. Thus, we assume:

H4e: There is a positive association between people's use of websites or apps from quality media as an information source and their belief in CCT.

H4f: There is a positive association between people's use of local newspapers as an information source and their belief in CCT.

H4g: There is a positive association between people's use of public broadcast television as an information source and their belief in CCT.

H4h: There is a positive association between people's use of nationwide quality newspapers as an information source and their belief in CCT.

Associations Between Belief in Covid-19 Conspiracy Theories and Vaccination Intentions

Vaccinations are a rather unconventional medication because they are administered to a healthy (instead of a usually sick) body (Betsch et al., 2010). Therefore, for some people, it may seem illogical to inject vaccinations and take the risk of side effects. In addition, vaccinations have been part of popular CT throughout history and still are today (Kata, 2012). Scepticism about vaccinations was already evident before the Covid-19 pandemic: 14% of Germans believed that the measles vaccination is probably or certainly more dangerous than the disease (Roose, 2020). Through a survey and experiment with British participants, Douglas and Jolley (2014) demonstrated that belief in anti-vaccine CT is related to lower intentions to have one's child vaccinated.

Recent studies have shown that the belief in CCT is negatively associated with behaviours that are considered crucial in successfully tackling the pandemic. A survey identified a

connection between people's CCT beliefs and their justification of and willingness to use violence in general (Jolley & Paterson, 2020). Additionally, Bierwiaczonek et al. (2020) and Pummerer et al. (2021) found a negative link between Covid-19 conspiracy beliefs and adherence to physical distancing rules. People who believed in CCT adhered to these rules to a smaller extent than other people—this was the case even when the CCT they believed in did not question or relativise the danger of an infection (e.g., the virus was developed in the laboratory). Another study found a negative association between people's Covid-19 conspiracy beliefs and their willingness to follow health-protective behaviours during the pandemic (Allington et al., 2020). Recent studies have also identified a positive relationship between belief in CCT and vaccination hesitancy for other countries (Bertin et al., 2020; Teovanović et al., 2020). We transfer these findings to Germany and hypothesise:

> *H5:* There is a negative association between people's belief in CCT and their intention to get vaccinated against the Covid-19 virus.

Method

Sample

To test the hypotheses, we conducted a quantitative CATI survey in November 2020. This period corresponds to the beginning of the so-called "second wave" of the Covid-19 pandemic in Germany, when infection rates with the Covid-19 virus increased rapidly. Participants (N = 1,207) living in Germany were surveyed by telephone in a structured interview. The sample was generated using the ADM-Sampling-System for telephone surveys. On the household level, the last-birthday method was used to randomly select individual interviewees. The study is representative of the German population aged 18 years and older. 51% of respondents were women, the average age of the respondents is 50 years. Regarding formal education, 7% of respondents have lower education, 59% reported to have medium education and 34% have higher education (see below for classification of education levels).

Measures

Table 2 includes the full wording of the central constructs measured in the survey.

Formal Education. The educational level of a person (*education*) is represented by her/his highest school-leaving qualification and included "low education" (no school graduation or graduation from "Hauptschule" without professional training), "medium education" (graduation from "Hauptschule" with professional training or graduation from "Realschule" without university entrance qualification), and "high education" (university entrance qualification or university degree).

Perceived Economic Deprivation. Respondents were asked to evaluate the change of their own future economic situation on a five-point scale from 1 (*will deteriorate very much*)' to 5 (*will improve very much*). The variable is reversed for analysis so that a high value represents a perceived deterioration of one's own economic situation in the future.

Perceived Relative Deprivation. Following Kim et al. (2017), we measured respondents' perceived relative deprivation via their agreement with the following three statements on a five-point scale: "When I think about other people in Germany, I feel deprived." "I feel

aggrieved when I think about what other people in Germany get." and "I am dissatisfied with how I am doing compared to other people in Germany.". High scores represent high relative deprivation. The Cronbach's alpha value for the three items yielded a satisfactory value of .72, therefore, we condensed the single items into a mean index.

Support for the Right-Wing Populist Party *Alternative für Deutschland*. To measure respondents' intentions to vote for the right-wing populist party *AfD*, they were asked to indicate on a five-point scale whether they would be 1 (*very unlikely*) to 5 (*very likely*) to vote for the *AfD*.

Nationalism. Our questionnaire included the construct of nation-based localism, which is associated with nationalism (Haller & Roudometof, 2010). Following Haller & Roudometof (2010), respondents indicated on five-point scales (1 = *not at all important* to 5 = *very important*) whether they rate the circumstances of "Being born in Germany", "Having lived most of one's life in Germany", and "Feeling German/German" as important to be considered German. The Cronbach's alpha value for the three items was .72, which allowed us to condense the items into a mean index.

Use of Alternative News Sites and Social Media Platforms. Following our definition of alternative news, we asked respondents 1) how often they used alternative news websites, such as Russia Today or compact, as an information source. Since alternative news also circulates on social network sites, video platforms, and messenger platforms (e.g., Allington et al., 2020), we additionally asked respondents how often they use 2) messenger services such as Telegram and WhatsApp, 3) video platforms such as YouTube, and 4) social network sites such as Facebook and Instagram as information sources. Respondents indicated on five-point scales from 1 (*never*) to 5 (*daily or almost daily*) how often they used the four different sources to stay informed about current events in politics and society.

Use of Quality News Media. Following Viehmann et al. (2021), we asked respondents how often they used 1) websites or apps from quality media sources (i.e., newspapers, publishers, or broadcasters), 2) local newspapers, 3) public broadcast television and 4) nationwide quality newspapers as sources of political information. Respondents indicated their response on five-point scales from 1 (*never*) to 5 (*daily or almost daily*). The question included examples of representative brands in Germany (see Table 2).

Belief in CCT. Respondents were asked to indicate the perceived truthfulness of three CCT. These included one CCT concerning a possible cause for the Covid-19 virus ("The pharmaceutical industry has deliberately created the virus to sell more drugs afterwards."), one CCT concerning its spread ("The new 5G transmission towers are responsible for the spread of the Covid-19 virus."), and one CCT about the vaccine ("Bill Gates intends to implant microchips in people with Covid-19 vaccinations to control them."). During the conception of this study in Summer 2020, we identified these CCT as relevant since they were frequently discussed in German public discourse (e.g., Rathcke, 2020; Schließler et al., 2020). Although we did not discover other published studies measuring belief in CCT at the time of the conception of this study, the theories we measured are also included in various studies published afterwards (e.g., Allington et al., 2020; Kuhn et al., 2021; Miller, 2020a).

Responses were measured on five-point scales from 1 (*definitely untrue*) to 5 (*definitely true*). The single scores were condensed into a mean index that showed an acceptable Cronbach's alpha value of .76.

Intentions to get Vaccinated. Respondents indicated on five-point scales from 1 (*certainly not*) to 5 (*certainly yes*) whether they intend to get vaccinated against the Covid-19 virus.

Data Analysis

The data were analysed using the statistical software package IBM SPSS Statistics 27. A first multiple linear regression analysis was conducted to investigate the associations between the socioeconomic, political, and media use measures and people's belief in CCT. We also included people's age and gender as control variables in the models (see Table 1). We checked the predictors for multicollinearity, yet all variance inflation factors were below 5, thus showing no evidence of multicollinearity (Field, 2018).

To assess the association between belief in CCT and vaccination intentions (H5), we performed a second multiple linear regression analysis, in which belief in CCT served as the independent variable and people's vaccination intentions were inserted as the dependent variable. The other variables from the first regression were included as control variables. This model also showed no signs of multicollinearity.

Both regression analyses were conducted hierarchically, but we mainly interpret each last model. Non-responses and "do not know" responses were treated as missing values and the respective cases were eliminated using listwise deletion. This reduced the number of cases to $n = 899$.

Table 1. Structure of the Regression of People's Belief in CCT on Social, Political, and Media-Related Factors

Model #	Name of block	Predictors Used
1	Controls	Age Gender
2	Socioeconomic status	Education (dummy variables) Economic deprivation Relative deprivation
3	Political attitudes	Intentions voting for AfD Index nationalism
4	Media usage	Local newspapers National newspapers Public broadcasters Websites/apps of quality news media Alternative news websites Messenger services Video platforms Social networking sites Local newspapers National newspapers

Results

Descriptive Results and Zero-Order Correlations

Table 2 includes descriptive data on the central predictor and outcome variables used in this study. Roughly a fifth of the respondents was at least undecided regarding the truthfulness of at least one of the CCT we measured, although only 8% largely or fully endorsed at least one of these theories. Regarding vaccination intentions, 21% of the respondents indicated that they were unwilling to get vaccinated against the Covid-19 virus. The zero-order correlations between all variables and indices that were used in our two multiple linear regression analyses, as well as their standard deviations and means are reported in Table A in the appendix.

Table 2. Descriptive Data on the Central Variables Measured in this Study

Conspiracy theories	*Definitely/ probably not true*	*Undecided*	*Probably/ definitely true*	*N*
"The pharmaceutical industry deliberately spreads pathogens to sell more drugs afterwards."	82%	11%	7%	1,183
"The new 5G transmission towers are partly responsible for the spread of the Covid-19 virus."	93%	5%	2%	1,170
"Bill Gates intends to implant microchips in people with Covid-19 vaccinations to control them."	90%	7%	3%	1,176
Vaccination intentions	***Definitely/ probably not***	***Undecided***	***Probably/ definitely yes***	***N***
"I intend to get vaccinated against the Covid-19 virus."	21%	19%	60%	1,192
Economic deprivation	***Very/ rather improve***	***No change***	***Rather/ very worsen***	***N***
"What is it like when you think about the future? How will your economic situation develop then?"	27%	49%	24%	1,153
Relative deprivation	***Definitely/ rather not***	***Undecided***	***Rather/ definitely yes***	***N***
"When I think about other people in Germany, I feel deprived."	83%	11%	6%	1,198
"I feel aggrieved when I think about what other people in Germany get."	76%	13%	11%	1,184
"I am dissatisfied with how I am doing compared to other people in Germany."	83%	8%	9%	1,187

Table 2. Descriptive Data on the Central Variables Measured in this Study (continued)

Nationalism	*Very/rather unimportant*	*Undecided*	*Rather/ very important*	*N*
"In order to be considered German, how important do you think it is to be born in Germany?"	57%	11%	32%	1,197
"In order to be considered German, how important do you think it is to have lived most of one's life in Germany?"	46%	17%	37%	1,189
"In order to be considered German, how important do you think it is to feel German?"	37%	18%	45%	1,185
Intentions voting AfD	*Very/ rather unlikely*	*Undecided*	*Rather/ very likely*	*N*
"How likely would you vote for this party? Alternative for Germany AfD"	89%	5%	6%	1,147
Media usage[1]	*Never or less than once a month*	*Once or multiple times a month (but less than weekly)*	*Weekly/ daily*	*N*
"Public television, e.g., ARD or ZDF"	17%	6%	77%	1,205
"National newspapers, e.g. Süddeutsche Zeitung or Frankfurter Allgemeine Zeitung"	68%	8%	24%	1,204
"Local newspapers, that is, the local newspaper from your home or region"	35%	11%	54%	1,205
"Websites or apps of established news media, e.g., tagesschau.de or spiegel.de"	31%	13%	56%	1,035
"Alternative news websites, e.g., politically incorrect, compact, Deutsche Wirtschafts Nachrichten or Russia Today"	79%	8%	13%	1,017
"News in Messenger services, e.g., WhatsApp or Telegram"	68%	6%	26%	1,036
"News on video platforms, e.g., YouTube"	62%	12%	26%	1,040
"News on social network sites, e.g., Facebook or Instagram"	65%	6%	29%	1,037

Note. [1] Introduction text to the question: "Now the question is how often you use various media offerings to find out about current events in politics and society. I will read out some media offerings to you for this purpose. Please indicate whether you use them 'never,' 'less frequently than once a month,' 'once or several times a month,' 'once or several times a week,' or 'daily or almost daily.'"

Associations Between Socioeconomic, Political, and Media-Related Factors and Belief in CCT

Socioeconomic Status. H1 stated that people's low education is associated with a higher belief in CCT. Our findings do not support this hypothesis: Compared to higher education, neither lower education (β = 0.02, p = .585) nor medium education (β = 0.03, p = .296) is associated with an increased belief in CCT in the final model (for all results see Table 3). Still, note that before entering the media-related variables in model 4, medium education, as compared to high education, was positively associated with people's belief in CCT (model 3).

H2a postulated a positive association between people's perceived economic deprivation and their belief in CCT. The final model does not support this hypothesis (β = 0.05, p = .161). Similar to education, however, perceived economic deprivation is positively associated with belief in CCT when neglecting the media-related variables (model 3). Supporting H2b, people's perceived relative deprivation is positively associated with their belief in CCT (β = 0.22, p < .001). Adding this block increases the explained variance of the dependent variable by .15 (change of R^2).

Political Attitudes. Supporting H3a, the data show a positive association between nationalistic attitudes and strength of belief in CCT (β = 0.07, p = .035). Additionally, respondents' intentions to vote for the right-wing populist party *AfD* are positively associated with their belief in CCT (β = 0.13, p < .001), which supports H3b. Overall, these results support the assumption that variables related to right-wing radicalism are associated with an increased belief in CCT. Adding this block increased the explained variance of the dependent variable by .04 (change of R^2).

Media Use. Our findings support H4b and H4d: People's use of WhatsApp/Telegram channels (β = 0.07, p = .047) and social network sites such as Facebook and Instagram (β = 0.10, p = .002) as information source are positively associated with their belief in CCT. Frequently accessing alternative news websites is positively associated with people's belief in CCT as well, though the relation just misses the conventional significance level (β = 0.06, p = .055). The same applies to the association between the frequency of using video platforms and belief in CCT (β = 0.06, p = .086). Thus, there is only weak support for H4a and H4c. Finally, supporting H4e, frequently using websites or apps of quality news media is negatively associated with people's belief in CCT (β = -0.17, p < .001). H4f is also supported, because the use of local newspapers as an information source is negatively associated with people's belief in CCT (β = -0.09, p < .004). Frequently watching public broadcast television (β = -0.03, p = .351) and reading nationwide quality newspapers (β = -0.04, p = .169) show no significant association with respondent's belief in CCT. Thus, H4g and H4h are rejected. Adding this block increased the explained variance of the dependent variable by .07 (change of R^2).

Table 3. Results of a Blockwise Regression of People's Belief in CCT on Social, Political, and Media-Related Predictors

Variable	Model 1			Model 2			Model 3			Model 4		
	β	*SEM*	*p*	β	*SEM*	*p*	β	*SEM*	*p*	β	*SEM*	*p*
1. Control Variables												
Age	0.07	0.00	.040	0.05	0.00	.613	0.01	0.00	.790	0.08	0.00	.035
Gender: Male	0.00	0.04	.960	-0.01	0.04	.821	0.01	0.04	.854	0.03	0.04	.350
Gender: Female	ref			ref			ref			ref		
2. Socioeconomic status												
Education low				0.05	0.10	.132	0.04	0.09	.168	0.02	0.09	.585
Education medium				0.09	0.04	.007	0.08	0.04	.019	0.03	0.04	.296
Education high				ref			ref			ref		
Economic deprivation				0.07	0.02	.030	0.07	0.02	.030	0.05	0.02	.161
Relative deprivation				0.27	0.02	< .001	0.27	0.02	< .001	0.22	0.02	< .001
3. Political views												
Nationalism							0.10	0.02	.005	0.07	0.02	.035
Intentions voting AfD							0.19	0.02	< .001	0.13	0.02	< .001
4. Media usage												
Local newspapers										-0.09	0.01	.004
National newspapers										-0.04	0.01	.169
Public television										-0.03	0.01	.351
Websites/apps quality news media										-0.17	0.01	< .001
Alternative news websites										0.06	0.02	.055
Messenger services										0.07	0.01	.047
Video platforms										0.06	0.01	.086
Social network sites										0.10	0.01	.002
Adjusted R^2	.002			.151			.193			.252		
Change R^2	.005			.152			.043			.066		
F-statistics	*F* (2, 896) = 2.12, *p* = .120			*F* (6, 892) = 27.58, *p* < .001			*F* (8, 890) = 27.76, *p* < .001			*F* (16, 882) = 19.93, *p* < .001		

Note. SEM = Standard error of the mean. Dependent variable: Belief in CCT. *n* = 899.

Association Between Belief in CCT and Vaccination Intentions

The second multiple regression analysis aimed at identifying the association between belief in CCT and one's intentions to get vaccinated against the Covid-19 virus. Our results (see Table 4) show a negative significant association between people's belief in CCT and their intentions to get vaccinated against the Covid-19 virus (β = -0.13, $p < .001$). This supports H5 and suggests that a person who holds stronger beliefs in CCT is less willing to get vaccinated. However, lower education (β = -0.11, $p < .001$), a higher sympathy for the *AfD* (β = -0.13, $p < .001$) and a more frequent use of alternative news (β = -.14, $p < .001$) and messenger services (β = -0.07, $p = .040$) are also associated with lower vaccination intentions. Frequently using websites and apps of quality news media (β = 0.14, $p < .001$), in contrast, is positively associated with people's vaccination intentions. Age shows the strongest association of all predictors on the intentions to get vaccinated: The older people are, the more willing they are to get vaccinated (β = 0.26, $p < .001$). The predictors included explain approximately 19% of the variance of vaccination intentions (adjusted R^2).

Table 4. Results of a Blockwise Regression of Vaccination Intentions on People's Belief in CCT and Other Predictors

Variable	Model 5		
	β	*SEM*	*p*
1. Control Variables			
Age	0.26	0.00	< .001
Gender: Male	0.01	0.09	.693
Gender: Female	ref		
2. Socioeconomic status			
Education low	-0.11	0.22	.001
Education medium	-0.00	0.09	.894
Education high	ref		
Economic deprivation	-0.10	0.05	.004
Relative deprivation	-0.03	0.06	.384
3. Political views			
Nationalism	0.05	0.04	.145
Intentions voting AfD	-0.13	0.05	< .001
4. Media usage			
Local newspapers	-0.02	0.03	.475
National newspapers	0.04	0.03	.243
Public television	0.04	0.03	.228
Websites/apps quality news media	0.14	0.03	< .001
Alternative news websites	-0.14	0.04	< .001
Messenger services	-0.07	0.03	.040
Video platforms	0.02	0.03	.563
Social network sites	0.05	0.03	.159
5. Belief in CCT			
Belief in CCT	-0.13	.08	< .001
Adjusted R^2		.19	
F-statistics		F (17, 871) = 13.360, $p < .001$	

Note. SEM = Standard error of the mean. Dependent variable: Vaccination intentions. *n* = 899.

Discussion

The Covid-19 pandemic posed a major challenge to societies worldwide. The fight against the virus was accompanied by a fight against disinformation and conspiracy theories (CT). Covid-19 conspiracy theories (CCT) in particular were regarded as an obstacle for successful coping with the pandemic. The present study contributes to extant research on the prevalence of beliefs in CCT and the factors associated with this belief. Based on a cross-sectional survey with participants from Germany, we tested our hypotheses that people's socioeconomic characteristics, political views, and media usage are associated with the likelihood of endorsing CCT and that there is a negative association between CCT beliefs and vaccination intentions. The results largely support our assumptions and show that indicators of relative deprivation, right-wing radicalism, and information usage via messenger apps and social network sites are associated with CCT belief. By showing that CCT belief is associated with a lower willingness to get vaccinated against the virus, our findings suggest that such belief may impact people's health-protective behaviour.

Regarding people's socioeconomic characteristics, relative deprivation as the perceived personal disadvantage compared to other people shows the strongest association with people's CCT belief. This finding is consistent with extant research on what makes people believe in non-Covid-19 CT (Freeman & Bentall, 2017; van Prooijen et al., 2018). Additionally, the finding confirms Butter's (2020) claim that it is not people's deprived position per se, but the subjective perception of their position that is associated with their endorsement of CT. This can be due to the objective of CT to make one's own disadvantaged position tangible and define a clear culprit for it. In fact, concerns about being disadvantaged in one's own society can be quite justified and are by no means necessarily irrational: In recent years, a widening of the social gap between rich and poor could be observed in German society (Hans Böckler Stiftung, 2020). In this sense, Uscinski and Parent (2014) conclude: "While many conspiracy theories may be fictitious, they speak to real perceptions of power" (p. 151). Still, according to our results, worries about one's economic future and lower education are not associated with people's belief in CCT, which contradicts the results of previous research (Andrade, 2020; Bruder & Kunert, 2021; van Prooijen, 2016). However, these studies did not consider media use as a potentially intervening factor; in fact, before entering media use into our final regression model, models 2 and 3 showed a negative association between perceived economic deprivation, education, and conspiracy belief, indicating that people with high worries about their economic future and medium education tend to believe stronger in CCT than people with higher education and less worries. This association becomes insignificant when people's media use is considered. Ample research has found education and income to be associated with specific media use (e.g., Burgoon & Burgoon, 1980; Schramm & White, 1949; Shehata & Strömbäck, 2011), and in our case, the associations between education, economic worries, and endorsement of CCT could be subject to a complex mediation. Revisiting the zero-order correlations shows that economic worries are higher among lower educated individuals, and that lower education is associated with a less frequent use of quality media (see Table 3). A less frequent use of quality media ultimately is associated with a higher belief in CCT. This interpretation implies for future studies that a more differentiated examination of predictors and mediators of belief in CCT could be fruitful.

Turning to political attitudes, our findings confirm that indicators of right-wing radicalism are associated with people's belief in CCT, albeit they only explain an additional 4% of the

variance of CCT belief. This finding is consistent with extant research on right-wing radicalism and its association with beliefs in CT (Imhoff & Decker, 2012; Schultz et al. 2021) and CCT (Küppers & Reiser, 2021; Schließler et al., 2020). Political radicals tend "to perceive their political ideas as the simple and only solution to societal problems – a style of sense making that also induces them to perceive evil conspiracies as causal explanations for various societal events" (van Prooijen et al., 2015). This also seems to apply to the Covid-19 pandemic: Individuals with nationalistic and right-wing radical attitudes may endorse CCT to justify their convictions that there is a small group of elite actors that conspires to control and suppress the innocent people (e.g., Krämer, 2017).

The present study also corroborates and extends findings from media effects research. Media use explains approximately 7% of the variance of CCT belief. Frequently using websites and apps of quality media shows the strongest negative association with belief in CCT. Also, in line with previous studies from the U.S. (Hollander, 2018; Stempel et al., 2007), the use of local newspapers is negatively associated with the belief in CT. Contrary to extant research, we did not find that the use of public broadcast television (Kull et al., 2003; Schemer et al., 2021) and nationwide newspapers (Hollander, 2018; Stempel et al., 2007) as information sources are associated with higher resilience to CT. How can this pattern be explained? CT particularly appeal to people who feel detached and excluded from society (Rose, 2017). Frequently reading local newspapers, in contrast, has been associated with an increased feeling of connectedness with one's local community (Davidson & Cotter, 1997). Regular readers of local newspapers, therefore, probably do not seek additional or alternative communities, such as those of conspiracy theorists. The finding that only exposure to the online services of nationwide newspapers and public broadcasting—but not their offline pendants—was negatively associated with people's belief in CCT could be due to our selection of CCT: The 5G conspiracy and the Bill Gates conspiracy are rather specific CCT that were particularly popular on social media (Shahsavari et al., 2020). It is possible that these CCT were not prominent enough to be picked up in the offline programs of public broadcasting services or in the main issues of nationwide newspapers, but that they were debunked in online fact checks and articles of these news outlets (e.g., Tagesschau, 2021; Kramliczek, 2020). Even though research on the effects of fact checking during the Covid-19 pandemic is in an early stage, Schuetz et al. (2021) showed that fact checking can help users to discern true from false information on how to protect themselves against Covid-19.

Turning to online platforms where alternative news, rumors, and disinformation often circulates rather freely, our findings reveal a positive association between people's belief in CCT and their use of social network sites and messenger apps, which supports previous research (Nielsen et al., 2021). We also found positive associations between people's CCT belief and their use of alternative news websites and video platforms such as YouTube, albeit these associations were only by trend significant and, therefore, less predictive of people's CT beliefs than in previous studies (Allington et al., 2020; Nielsen et al., 2021; Stempel et al., 2007). Overall, these findings may justify the demand that providers of social media platforms need to increase the regulation of the content on their platforms or at least self-reflect on the information quality in their environments (Allington et al., 2020; Theocharis et al., 2021). Still, the different strengths of associations between people's use of single online information sources and their belief in CCT suggest that not every social media platform contributes to cultivating such beliefs in a similar way (Theocharis et al., 2021). Possible reasons include platform-specific algorithms and rigor of regulation (Scharkow et al., 2020). For example,

during the Covid-19 pandemic, YouTube banned various alternative news channels and influencers propagating CT in Europe, including Russia Today and Ken Jebsen (Stegemann, 2021; Vincent, 2022). While such deplatforming may decrease the amount of disinformation and CT on the specific platform, the deplatformed actors likely move to less regulated platforms to reach their audience (Rogers, 2020). In the Covid-19 pandemic, particularly the messenger service Telegram gained popularity among conspiracy theorists (Guhl & Gerster, 2020), which possibly explains the association between the use of these services and people's belief in CCT.

Reviewing our results from a bird's eye view, it is important to mention that the factors associated with people's belief in CCT investigated here—socioeconomic status, political views, and media usage—are interrelated. We already pointed to the associations between education, economic deprivation, and media use. Additionally, research has found right-wing radicalism and social media use to be associated with perceived relative deprivation and economic deprivation (Cho, 2014; Decker & Brähler, 2006; Decker et al., 2018). Also, voters of the right-wing populist party *AfD* use alternative news websites and video platforms such as YouTube more often as a source of political information than other voters (Schultz et al., 2021). Ultimately, using video platforms and other relatively unregulated social media platforms as information sources, combined with general conspiratorial beliefs, is associated with a lower willingness to get vaccinated (Jennings et al., 2021). Therefore, it can be assumed that there are interactions between the socioeconomic, political, and media-related factors we investigated, and these interactions form a nexus of what makes people susceptible to believe in CCT. More specifically, our findings suggest that exaggerated elite-directed criticism could be a superordinate construct of this nexus: Relative and economic deprivation are often linked to people's attribution of responsibility to political elites for one's own disadvantaged position (Marx, 2020). Alternative news' key element is to cast doubt on established definitions of reality, thus distributing elite-directed criticism towards science, politics, and the news media (Krüger & Seiffert-Brockmann, 2018). Right-wing radicals see themselves as opposition to a liberal political elite (Minkenberg, 2003). Ultimately, vaccination hesitancy is deeply linked to mistrust and criticism towards scientists and doctors (Kata, 2012).

In sum, the current study points to the danger of conspiracy theorists' increasing dissociation from societal institutions, namely the media, polity, and science. Simplified, our results could be interpreted as follows: CCT believers feel disadvantaged in their own society and seek someone to blame for their fear of declassification. Consequently, they become susceptible to the narratives of right-wing radicalism and CT, which fulfill the desire to belong to a community and define a culprit. Using alternative media, CCT believers find these narratives and their worldviews confirmed, which catalyzes their radicalization. While the process sketched here is certainly simplified, it illustrates the need for further longitudinal research into the nexus of causes and consequences of people's belief in CT.

Finally, our study provides further knowledge on potential consequences of people's belief in CCT. Germany is currently struggling with a persistent share of citizens who refuse to get vaccinated (Bundesministerium für Gesundheit, 2022). In our sample, 21% of the respondents were unwilling to get vaccinated against the Covid-19 virus. Interestingly, this corresponds to the current rate of unvaccinated people in Germany (Bundesministerium für Gesundheit, 2022). Keeping in mind that our survey was conducted before vaccination against the virus was approved, this points to a large proportion of consistent vaccine refusers. We identified CCT belief as a strong factor associated with vaccine hesitancy. This association was also revealed

in other societies, such as in Arab countries (Sallam et al., 2021), in the U.S. (Romer & Jamieson, 2020), in France (Bertin et al., 2020), in Serbia (Teovanović et al., 2020) and in the UK (Jennings et al., 2021). Thus, our study supports the concern that CCT can be a significant obstacle in successfully tackling crises and pandemics.

Limitations

The current study provides timely and relevant insights into the potential causes and consequences of people's belief in CCT. Still, the findings have to be interpreted in light of several limitations. First, the cross-sectional nature of our survey does not allow us to determine with certainty the direction of causality. For many predictors investigated in this study, it can be assumed that they are reciprocally associated to people's belief in CCT (e.g., Romer & Jamieson, 2021). For example, regarding right-wing radicalism, research has outlined that conspiracy beliefs can also be a cause for radical right-wing attitudes (Decker et al., 2018; Schließler et al., 2020). They function as a "radicalizing multiplier" (Bartlett & Miller, 2010, p. 4) that holds extremist groups together and pushes them into an even more extreme and sometimes violent direction. Similar issues of causality concern the media-related variables measured in the current study. Following research into selective exposure (e.g., Zillmann & Bryant, 1985), specific patterns of media usage are not only a cause for people's belief in CCT, but also a consequence in the sense that people prefer to consume the information that is congruent with their worldviews. Still, longitudinal research has shown that people's media diet has a small yet significant effect on people's belief systems (e.g., Garrett, 2019; Romer & Jamieson, 2021). We are thus confident that the effects model proposed in this study is not invalid, although more longitudinal research is clearly needed to investigate the degree of reciprocity between the variables investigated.

Second, our study measured a broad variety of factors associated with people's belief in CCT, but owing to this breadth, the selection and operationalization of some of these factors was imperfect. For example, our questionnaire did not include additional dimensions of right-wing radicalism, such as authoritarianism (Carter, 2008). It also did not include a measure of left-wing radicalism, although previous research has found that CT appeal to people from this political spectrum (e.g., van Prooijen et al., 2015). Our measure of media use considered various information channels and therefore was more nuanced compared with previous research. Still, we did not assess the specific content that people were exposed to on the specific channels. This is a limitation since people do not exclusively consume disinformation and conspiracy theories on social media platforms, but also information from established news media and official institutions (Scharkow et al., 2020). Future studies may consider combining survey data with tracking data to investigate more closely whether the effects of using various information sources on belief in CCT only occur when people are confronted with massive amounts of disinformation or conspiratory content. Ultimately, regarding our measure of belief in CCT, we included very specific CCT, such as the 5G conspiracy, which particularly circulated in social media (Shahsavari et al., 2020) and were often mentioned by established German news media online. It may be that this specific selection was partly responsible for the relatively strong associations between people's use of online information sources and their belief in CCT, although comparative research has identified several similar predictors regarding people's propensity to belief in Covid-19 related misinformation in general (Nielsen

et al., 2021). Still, future studies should include a more comprehensive measure of the various existing CCT.

Finally, our findings are limited to a single country. Compared to other countries, such as the U.S., Germany is characterised by a lower degree of societal and political polarisation, a highly diversified media system with strong public broadcasters, and relatively high levels of trust in established institutions, such as the media and political administration (e.g., Hanitzsch et al., 2017; Quiring et al., 2021). This may not only affect the general endorsement rates of CCT, but also the factors related to the belief in CCT. In fact, previous research has revealed country-specific effects of the use of different social media platforms on people's belief in CCT. For example, using WhatsApp was positively related to CCT beliefs in Germany, Austria, Italy, and the U.K., but unrelated in the Netherlands and Denmark (Theocharis et al., 2021). Other research found that a left-leaning political ideology was positively associated with people's susceptibility to Covid-19 related misinformation in the U.S., but not in Germany (Nielsen et al., 2021). Thus, further comparative research that includes socioeconomic, political, and media-related predictors of CCT or CT in general is needed.

Conclusion

The Covid-19 pandemic provided a breeding ground for conspiracy theories (CT). In late 2020, 8% of the German population largely or fully endorsed at least one Covid-19 related conspiracy theory (CCT). Feelings of social disadvantage, right-wing attitudes, and frequent exposure to online information sources where alternative news, rumors, and disinformation about the pandemic flourish are positively associated with people's belief in CCT. Our results also suggest that CCT could pose a serious threat to a successful coping with the pandemic in terms of individual vaccination intentions, though CCT belief certainly is not the only factor associated with these intentions.

Our study also provides implications for developing strategies to counter CT in health crises and to improve people's health-related behaviour: In the Covid-19 pandemic, as an obvious first step, prominent and widespread CCT need to be officially debunked. This, on one hand, falls into the responsibility of the platforms and outlets where CCT flourish. For example, social networking sites could upscale their collaborations with fact-checking organizations and further work on implementing features for users to report and check dubious information. In a rapidly changing information environment, more resources will be needed to verify the continuously emerging truth claims from different sources and to stop CCT from growing and spreading. On the other hand, CCT need to be debunked through statements and information campaigns from official and trustworthy sources. Our findings on the factors associated with people's belief in CCT can help authorities in government, health, and science to better assess the target group of such official information campaigns and find an empathetic tone towards them. Addressing their specific social concerns and worries and taking them seriously might prove to be beneficial. In contrast, typical health communication strategies that include loss-framing or even fear appeals (e.g., Ruiter et al., 2014) might be detrimental to reach people who are already anxious and suspicious of elites. Instead, gain-framed messages that highlight positive outcomes of health-protecting behaviours could be effective. In fact, empirical evidence suggests that social appeals explaining that getting vaccinated against Covid-19 can also protect vulnerable other groups in society has been shown to have a larger effect on people's vaccination willingness than other strategies, including fear appeals (Rieger, 2020).

Most importantly though, when considering CT as a societal phenomenon of a small but stable group, the goal should be to tackle the basic mechanisms behind the belief in those alternative explanations of reality. Education certainly is a long-term strategy to break the downward spiral of disenchantment and disinformation early on and teach media competencies both to children and adults who must navigate an increasingly digitised world. Ultimately, however, the underlying elite criticism among CCT believers and vaccination sceptics may also point to a fundamental fear of being left behind and to a growing divide in society, which may, after all, not be entirely unjustified. Authorities must find new ways and means to meet the concerns of these people seriously and empathetically to avoid losing them to alternative facts, alternative communities, and alternative realities. More inclusive, comprehensible, transparent, and empathetic political, science, and health communication may help to put a stronger focus on dialogue and participation with the citizens affected. It is unlikely that such measures will wipe out CT completely, but they certainly increase the resilience of societies in dealing with them.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

Agence France-Presse. (2020). *Nearly 1 billion people confined to homes globally due to Coronavirus*. https://www.voanews.com/a/science-health_coronavirus-outbreak_nearly-1-billion-people-confined-homes-globally-due-coronavirus/6186175.html

Allcott, H., Gentzkow, M., & Yu, C. (2019). Trends in the diffusion of misinformation on social media. *Research & Politics, 6*(2), 1-8. https://doi.org/10.1177/2053168019848554

Allington, D., Duffy, B., Wessely, S., Dhavan, N., & Rubin, J. (2020). Health-protective behaviour, social media usage and conspiracy belief during the COVID-19 public health emergency. *Psychological Medicine*, *51*(10), 1763–1769. https://doi.org/10.1017/S003329172000224X

Andrade, G. (2020). Medical conspiracy theories: Cognitive science and implications for ethics. *Medicine, Health Care, and Philosophy*, *23*(3), 505–518. https://doi.org/10.1007/s11019-020-09951-6

Asongu, S. A., Diop, S., & Nnanna, J. (2020). The geography of the effectiveness and consequences of Covid-19 measures: Global evidence. *Journal of Public Affairs, 21*(4), Article e2483. https://doi.org/10.1002/pa.2483

Barnidge, M., & Peacock, C. (2019). A third wave of selective exposure research? The challenges posed by hyperpartisan news on social media. *Media and Communication, 7* (3), 4–7. https://doi.org/10.17645/mac.v7i3.2257

Bartlett, J., & Miller, C. (2010). *The power of unreason: Conspiracy theories, extremism and counter-terrorism*. Demos.

Bertin, P., Nera, K., & Delouvée, S. (2020). Conspiracy beliefs, rejection of vaccination, and support for hydroxychloroquine: A conceptual replication-extension in the COVID-19 pandemic context. *Frontiers in Psychology*, *11*, Article 565128. https://doi.org/10.3389/fpsyg.2020.565128

Betsch, C., Renkewitz, F., Betsch, T., & Ulshöfer, C. (2010). The influence of vaccine-critical websites on perceiving vaccination risks. *Journal of Health Psychology*, *15*(3), 446–455. https://doi.org/10.1177/1359105309353647

Bieber, F. (2020). Global nationalism in times of the COVID-19 pandemic. *Nationalities Papers*, *50*(1), 13–25. https://doi.org/10.1017/nps.2020.35

Bierwiaczonek, K., Kunst, J. R., & Pich, O. (2020). Belief in COVID-19 conspiracy theories reduces social distancing over time. *Applied Psychology. Health and Well-Being, 12*(4), 1270–1285. https://doi.org/10.1111/aphw.12223

Boberg, S., Quandt, T., Schatto-Eckrodt, T., & Frischlich, L. (2020). Pandemic populism: Facebook pages of alternative news media and the corona crisis – A computational content analysis. *ArXiv.* https://doi.org/10.48550/arXiv.2004.02566

Burgoon, J. K., & Burgoon, M. (1980). Predictors of newspaper readership. *Journalism Quarterly, 57*(4), 589–596. https://doi.org/10.1177%2F107769908005700406

Bruder, M., & Kunert, L. (2021). The conspiracy hoax? Testing key hypotheses about the correlates of generic beliefs in conspiracy theories during the COVID-19 pandemic. *International Journal of Psychology, 57*(1), 43–48 https://doi.org/10.1002/ijop.12769

Bundesamt für Verfassungsschutz. (2020). *Bundesamt für Verfassungsschutz stuft AfD-Teilorganisation "Der Flügel" als gesichert rechtsextremistische Bestrebung ein*. https://www.verfassungsschutz.de/SharedDocs/pressemitteilungen/DE/2020/pressemitteilung-2020-1-afd.html

Bundesministerium für Gesundheit (2022). *Impfdashboard*. https://impfdashboard.de

Butter, M. (2020). *The nature of conspiracy theories*. Polity.

Carter, E. (2018). Right-wing extremism/radicalism: reconstructing the concept. *Journal of Political Ideologies*, *23*(2), 157–182. https://doi.org/10.1080/13569317.2018.1451227

Cho, J. (2014). Will social media use reduce relative deprivation? Systematic analysis of social capital's mediating effects of connecting social media use with relative deprivation. *International Journal of Communication*, *8*, 2811–2833.

Clarke, S. (2002). Conspiracy theories and conspiracy theorizing. *Philosophy of the Social Sciences*, *32*(2), 131–150. https://doi.org/10.1177/0048931032002001

COSMO (2021). *Verschwörungsdenken*. https://projekte.uni-erfurt.de/cosmo2020/web/topic/vertrauen-ablehnung-demos/30-verschwoerung/

Craft, S., Ashley, S., & Maksl, A. (2017). News media literacy and conspiracy theory endorsement. *Communication and the Public*, *2*(4), 1–14. https://doi.org/10.1177/2057047317725539

Davidson, W. B., & Cotter, P. R. (1997). Psychological sense of community and newspaper readership. *Psychological Reports, 80*(2), 659-665. https://doi.org/10.2466%2Fpr0.1997.80.2.659

Decker, O., & Brähler, E. (2006). *Vom Rand zur Mitte: Rechtsextreme Einstellungen und ihre Einflussfaktoren in Deutschland*. Friedrich-Ebert-Stiftung Forum Berlin.

Decker, O., Yendell, A., & Brähler, E. (2018). Anerkennung und autoritäre Staatlichkeit. In O. Decker, E. Brähler, & D. Baier (Eds.), *Flucht ins Autoritäre: Rechtsextreme Dynamiken in der Mitte der Gesellschaft. Leipziger Autoritarismus-Studie 2018* (pp. 157–178). Psychosozial-Verlag.

Del Vicario, M., Bessi, A., Zollo, F., Petroni, F., Scala, A., Caldarelli, G., Stanley, H. E., & Quattrociocchi, W. (2016). The spreading of misinformation online. *Proceedings of the National Academy of Sciences of the United States of America, 113*(3), 554–559. https://doi.org/10.1073/pnas.1517441113

Douglas, K. M., & Jolley, D. (2014). The effects of anti-vaccine conspiracy theories on vaccination intentions. *PLOS ONE*, *9*(2), Article e0213500. https://doi.org/10.1371/journal.pone.0089177

Douglas, K. M., Sutton, R. M., Callan, M. J., Dawtry, R. J., & Harvey, A. J. (2016). Someone is pulling the strings: hypersensitive agency detection and belief in conspiracy theories. *Thinking & Reasoning*, *22*(1), 57–77. https://doi.org/10.1080/13546783.2015.1051586

Douglas, K. M., Sutton, R. M., & Cichocka, A. (2017). The psychology of conspiracy theories. *Current Directions in Psychological Science*, *26*(6), 538–542. https://doi.org/10.1177/0963721417718261

Douglas, K. M., Uscinski, J. E., Sutton, R. M., Cichocka, A., Nefes, T., Ang, C. S., & Deravi, F. (2019). Understanding conspiracy theories. *Political Psychology*, *40*(1), 3–35. https://doi.org/10.1111/pops.12568

Field, A. P. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). SAGE Publications.

Figenschou, T. U., & Ihlebæk, K. A. (2019). Challenging journalistic authority. *Journalism Studies*, *20*(9), 1221–1237. https://doi.org/10.1080/1461670X.2018.1500868

Freeman, D., & Bentall, R. P. (2017). The concomitants of conspiracy concerns. *Social Psychiatry and Psychiatric Epidemiology*, *52*(5), 595–604. https://doi.org/10.1007/s00127-017-1354-4

Friedrich-Naumann-Stiftung (Ed.). (2020). *Globale Studie: Desinformationen durchdringen Gesellschaften weltweit: Erstmalig werden gezielt Aussagen zu „Corona-Fakes" auf internationaler Ebene ausgewertet.* https://www.freiheit.org/de/globale-studie-desinformationen-durchdringen-gesellschaften-weltweit

Garrett, R. K. (2019). Social media's contribution to political misperceptions in U.S. Presidential elections.*PLOS ONE*, *14*(3), Article e0213500. https://doi.org/10.1371/journal.pone.0213500

Gensing, P. (2020a). Esoterik, Gandhi und Reichsflaggen: Corona-Proteste. *Tagesschau.de*. https://www.tagesschau.de/faktenfinder/esoterik-impfgegner-corona-101.html

Gensing, P. (2020b). Relativieren und verwirren: Trump und die Pandemie. *Tagesschau.de*. https://www.tagesschau.de/faktenfinder/trump-corona-121.html

Georgiou, N., Delfabbro, P., & Balzan, R. (2020). Covid-19-related conspiracy beliefs and their relationship with perceived stress and pre-existing conspiracy beliefs. *Personality and Individual Differences*, *166*, 1–30. https://doi.org/10.1016/j.paid.2020.110201

Gerbner, G., & Gross, L. (1976). Living with television: The violence profile. *Journal of Communication*, *26*(2), 173–199. https://doi.org/10.1111/j.1460-2466.1976.tb01397.x

Goertzel, T. (1994). Belief in conspiracy theories. *Political Psychology*, *15*(4), 731–742. https://doi.org/10.2307/3791630

Goreis, A., & Voracek, M. (2019). A systematic review and meta-analysis of psychological research on conspiracy beliefs: Field characteristics, measurement instruments, and associations with personality traits. *Frontiers in Psychology*, *10*, Article 205. https://doi.org/10.3389/fpsyg.2019.00205

Götz-Votteler, K., & Hespers, S. (2019). *Alternative Wirklichkeiten? Wie Fake News und Verschwörungstheorien funktionieren und warum sie Aktualität haben*. *X-Texte zu Kultur und Gesellschaft*. Transcript-Verlag.

Green, R., & Douglas, K. M. (2018). Anxious attachment and belief in conspiracy theories. *Personality and Individual Differences*, *125*, 30–37. https://doi.org/10.1016/j.paid.2017.12.023

Guhl, J.,& Gerster, L. (2020). *Krise und Kontrollverlust: Digitaler Extremismus im Kontext der Corona-Pandemie.* Institute for Strategic Dialogue (ISD).

Haller, W., & Roudometof, V. (2010). The cosmopolitan-local continuum in cross-national perspective. *Journal of Sociology*, *46*(3), 277–297. https://doi.org/10.1177/1440783310371401

Hammel, L. L. (2017). Verschwörungsglaube, Populismus und Protest. *Politikum,* 3, 32–40.

Hanitzsch, T., Van Dalen, A., & Steindl, N. (2018). Caught in the nexus: A comparative and longitudinal analysis of public trust in the press. *The International Journal of Press/Politics, 23*(1), 3-23. https://doi.org/10.1177%2F1940161217740695

Hans Böckler Stiftung (Ed.). (2020). *Soziale Ungleichheit in Deutschland*. https://www.boeckler.de/de/auf-einen-blick-17945-20845.htm

Heaven, P. C., Ciarrochi, J., & Leeson, P. (2011). Cognitive ability, right-wing authoritarianism, and social dominance orientation: A five-year longitudinal study amongst adolescents. *Intelligence*, *39*(1), 15–21. https://doi.org/10.1016/j.intell.2010.12.001

Hofstadter, R. (1966). The paranoid style in American politics: And other essays. In R. Hofstadter (Ed.), *The paranoid style in American politics and other essays* (pp. 3–40). Knopf.

Hollander, B. A. (2018). Partisanship, individual differences, and news media exposure as predictors of conspiracy beliefs. *Journalism & Mass Communication Quarterly*, *95*(3), 691–713. https://doi.org/10.1177/1077699017728919

Holt, K., Ustad Figenschou, T., & Frischlich, L. (2019). Key dimensions of alternative news media. *Digital Journalism, 7*(7), 860–869. https://doi.org/10.1080/21670811.2019.1625715

Imhoff, R., & Bruder, M. (2014). Speaking (un-)truth to power: Conspiracy mentality as a generalised political attitude. *European Journal of Personality*, *28*(1), 25–43. https://doi.org/10.1002/per.1930

Imhoff, R., & Decker, O. (2013). Verschwörungsmentalität als Weltbild. In O. Decker, J. Kiess, E. Brähler, J. Deppe, I. Fritsche, N. Geißler, A. Hinz, & R. Imhoff (Eds.), *Rechtsextremismus der Mitte: Eine sozialpsychologische Gegenwartsdiagnose* (pp. 146–160). Psychosozial-Verlag.

Imhoff, R., & Lamberty, P. K. (2017). Too special to be duped: Need for uniqueness motivates conspiracy beliefs. *European Journal of Social Psychology*, *47*(6), 724–734. https://doi.org/10.1002/ejsp.2265

Imhoff, R., & Lamberty, P. K. (2020). A bioweapon or a hoax? The link between distinct conspiracy beliefs about the Coronavirus disease (COVID-19) outbreak and pandemic behavior. *Social Psychological and Personality Science*, *11*(8), 1110–1118. https://doi.org/10.1177/1948550620934692

Jackob, N., Quiring, O., & Schemer, C. (2017). Wölfe im Schafspelz? Warum manche Menschen denken, dass man Journalisten nicht vertrauen darf – und was das mit Verschwörungstheorien zu tun hat. In K. N. Renner, T. Schultz, & J. Wilke (Eds.), *Journalismus zwischen Autonomie und Nutzwert* (pp. 225–250). Herbert von Halem Verlag.

Jennings, W., Stoker, G., Bunting, H., Valgarðsson, V. O., Gaskell, J., Devine, D., McKay, L., & Mills, M. C. (2021). Lack of trust, conspiracy beliefs, and social media use predict COVID-19 vaccine hesitancy. *Vaccines*, *9*(6), Article 593. https://doi.org/10.3390/vaccines9060593

Kata, A. (2012). Anti-vaccine activists, Web 2.0, and the postmodern paradigm—An overview of tactics and tropes used online by the anti-vaccination movement. *Vaccine*, *30*(25), 3778–3789. https://doi.org/10.1016/j.vaccine.2011.11.112

Kim, H., Callan, M. J., Gheorghiu, A. I., & Matthews, W. J. (2017). Social comparison, personal relative deprivation, and materialism. *The British Journal of Social Psychology*, *56*(2), 373–392. https://doi.org/10.1111/bjso.12176

Krämer, B. (2017). Populist online practices: The function of the Internet in right-wing populism. *Information, Communication & Society, 20*(9), 1293-1309. https://doi.org/10.1080/1369118X.2017.1328520

Kramliczek, P. (2020). *#Faktenfuchs: Corona-Mythen zu Bill Gates*. Bayerischer Rundfunk. https://www.br.de/nachrichten/wissen/faktenfuchs-corona-mythen-zu-bill-gates,RxdUCnX

Küppers, A., & Reiser, M. (2021). 'It is not worse than a flu'–COVID-19 scepticism and the role of trust and far-right attitudes in Germany. *SocArXiv*. https://doi.org/10.31235/osf.io/afnmz

Kuhn, S., Lieb, R., Freeman, D., Andreou, C., & Zander-Schellenberg, T. (2021). Coronavirus conspiracy beliefs in the German-speaking general population: Endorsement rates and links to reasoning biases and paranoia. *Psychological Medicine*. Advance online publication, 1-15. https://doi.org/10.1017/S0033291721001124

Kull, S., Ramsay, C., & Lewis, E. (2003). Misperceptions, the media, and the Iraq War. *Political Science Quarterly*, *118*(4), 569–598. https://doi.org/10.1002/j.1538-165X.2003.tb00406.x

Lanzke, A. (2016). Viraler Hass: Rechtsextreme Wortergreifungsstrategien im Web 2.0. In S. Braun, A. Geisler, & M. Gerster (Eds.), *Strategien der extremen Rechten* (pp. 623-630). Springer Fachmedien Wiesbaden.

Lebernegg, N. S., & Eberl, J.-M. (2021). *Coronavirus Verschwörungstheorien: Gekommen um zu bleiben?* https://viecer.univie.ac.at/corona-blog/corona-blog-beitraege/blog118/

Lewandowsky, S., Ecker, U. K., & Cook, J. (2017). Beyond misinformation: Understanding and coping with the "post-truth" era. *Journal of Applied Research in Memory and Cognition*, *6*(4), 353–369. https://doi.org/10.1016/j.jarmac.2017.07.008

Lyons, B. A., & Guess, A. M. (2020). Misinformation, disinformation, and online propaganda. In N. Persily & J. A. Tucker (Eds.), *Social Media and Democracy* (pp. 10–33). Cambridge University Press.

Marcks, H., & Pawelz, J. (2020). From myths of victimhood to fantasies of violence: How far-right narratives of imperilment work. *Terrorism and Political Violence.* Advance online publication. https://doi.org/10.1080/09546553.2020.1788544

Marx, P. (2020). Anti-elite politics and emotional reactions to socio-economic problems: Experimental evidence on "pocketbook anger" from France, Germany, and the United States. *The British Journal of Sociology, 71*(4), 608–624. https://doi.org/10.1111/1468-4446.12750

Miller, J. (2020a). Do COVID-19 conspiracy theory beliefs form a monological belief system? *Canadian Journal of Political Science*, *53*(2), 319–326. https://doi.org/10.1017/S0008423920000517

Miller, J. (2020b). Psychological, political, and situational factors combine to boost COVID-19 conspiracy theory beliefs. *Canadian Journal of Political Science*, *53*(2), 327–334. https://doi.org/10.1017/S000842392000058X

Minkenberg, M. (2003). The West European radical right as a collective actor: Modeling the impact of cultural and structural variables on party formation and movement mobilization. *Comparative European Politics*, *1*(2), 149–170. https://doi.org/10.1057/palgrave.cep.6110017

Mudde, C. (2016). Populist radical right parties in Europe today. In J. Abromeit, Y. Norman, G. Marotta, B. M. Chesterton (Eds.), *Transformations of populism in Europe and the Americas: History and recent tendencies* (pp. 295–307). Bloomsbury Academic. http://dx.doi.org/10.5040/9781474225243.ch-016

Nachtwey, O., Schäfer, R., & Frei, N. (2020). Politische Soziologie der Corona-Proteste. *SocArXiv*. https://doi.org/10.31235/osf.io/zyp3f

Nielsen, R. K., Fletcher, R., Newman, N., Brennen, J. S., & Howard, P. N. (2020). *Navigating the 'infodemic': How people in six countries access and rate news and information about Coronavirus.* Reuters Institute for the Study of Journalism.

Nielsen, R. K., Schulz, A., & Fletcher, R. (2021). *An ongoing infodemic: How people in eight countries access news and information about Coronavirus a year into the pandemic.* Reuters Institute for the Study of Journalism.

Nocun, K., & Lamberty, P. K. (2020). *Fake facts: Wie Verschwörungstheorien unser Denken bestimmen*. Bastei Lübbe AG.

Noelle-Neumann, E. (1974). The spiral of silence–A theory of public opinion. *Journal of Communication*, *24*(2), 43–51. https://doi.org/10.1111/j.1460-2466.1974.tb00367.x

Oliver, J. E., & Wood, T. J. (2014). Conspiracy theories and the paranoid style(s) of mass opinion. *American Journal of Political Science*, *58*(4), 952–966. https://doi.org/10.1111/ajps.12084

Pennycook, G., Cannon, T. D., & Rand, D. G. (2018). Prior exposure increases perceived accuracy of fake news. *Journal of Experimental Psychology*, *147*(12), 1865–1880. https://doi.org/10.1037/xge0000465

Pummerer, L., Böhm, R., Lilleholt, L., Winter, K., Zettler, I., & Sassenberg, K. (2021). Conspiracy theories and their societal effects during the COVID-19 pandemic. *Social Psychological and Personality Science*, *13*(1), 49-59. https://doi.org/10.1177/19485506211000217

Quandt, T., Boberg, S., Schatto-Eckrodt, T., & Frischlich, L. (2020). Pandemic news: Facebook pages of mainstream news media and the Coronavirus crisis—A computational content analysis. *ArXiv.* https://doi.org/10.48550/arXiv.2005.13290

Quattrociocchi, W. (2018). “Fake News” in sozialen Netzwerken. In C. Könneker (Ed.), *Fake oder Fakt? Wissenschaft, Wahrheit und Vertrauen* (pp. 143–164). Springer.

Quiring, O., Ziegele, M., Schemer, C., Jackob, N., Jakobs, I., & Schultz, T. (2021). Constructive skepticism, dysfunctional cynicism? Skepticism and cynicism differently determine generalized media trust. *International Journal of Communication, 15*, 3497–3518.

Rathcke, J. (2020). *Fünf Verschwörungstheorien zur Corona-Pandemie – und ihre Widerlegung.* Redaktionsnetzwerk Deutschland. https://www.rnd.de/panorama/5-corona-verschworungstheorien-und-ihre-widerlegung-JLA5AH3FB5C7PF7EPJD36RJOD4.html

Rieger, M. O. (2020). Triggering altruism increases the willingness to get vaccinated against COVID-19. *Social Health and Behavior, 3*(3), 78-82. https://doi.org/10.4103/SHB.SHB_39_20

Rojecki, A., & Meraz, S. (2016). Rumors and factitious informational blends: The role of the web in speculative politics. *New Media & Society*, *18*(1), 25–43. https://doi.org/10.1177/1461444814535724

Romer, D., & Jamieson, K. H. (2020). Conspiracy theories as barriers to controlling the spread of COVID-19 in the U.S. *Social Science & Medicine*, *263*, 113356. https://doi.org/10.1016/j.socscimed.2020.113356

Romer, D., & Jamieson, K. H. (2021). Conspiratorial thinking, selective exposure to conservative media, and response to COVID-19 in the US. *Social Science & Medicine, 291*, 114480. https://doi.org/10.1016/j.socscimed.2021.114480

Roose, J. (2020). *Sie sind überall: Eine repräsentative Umfrage zu Verschwörungstheorien*. Berlin. https://www.kas.de/documents/252038/7995358/Eine+repr%C3%A4sentative+Umfrage+zu+Verschw%C3%B6rungstheorien.pdf/0f422364-9ff1-b058-9b02-617e15f8bbd8?version=1.0&t=1599144843148

Rose, C. L. (2017). *The measurement and prediction of conspiracy beliefs*. Wellington: Victoria University of Wellington.

Ruiter, R. A. C., Kessels, L. T. E., Peters, G.-J. Y., & Kok, G. (2014). Sixty years of fear appeal research: Current state of the evidence. *International Journal of Psychology, 49*(2), 63–70. https://doi.org/10.1002/ijop.12042

Runciman, W. G. (1966). *Relative deprivation and social justice*. Routledge.

Sallam, M., Dababseh, D., Eid, H., Al-Mahzoum, K., Al-Haidar, A., Taim, D., Yaseen, A., Ababneh, N. A., Bakri, F. G., & Mahafzah, A. (2021). High rates of COVID-19 vaccine hesitancy and its association with conspiracy beliefs: A study in Jordan and Kuwait among other Arab countries. *Vaccines*, *9*(42). https://doi.org/10.3390/vaccines9010042

Schaeffer, K. (2020). *Nearly three-in-ten Americans believe COVID-19 was made in a lab.* https://www.pewresearch.org/fact-tank/2020/04/08/nearly-three-in-ten-americans-believe-covid-19-was-made-in-a-lab/

Scharkow, M., Mangold, F., Stier, S., & Breuer, J. (2020). How social network sites and other online intermediaries increase exposure to news. *Proceedings of the National Academy of Sciences of the United States of America, 117*(6), 2761–2763. https://doi.org/10.1073/pnas.1918279117

Schemer, C., Ziegele, M., Schultz, T., Quiring, O., Jackob, N., & Jakobs, I. (2021). Political information use and its relationship to beliefs in conspiracy theories among the German public. *Journalism & Mass Communication Quarterly*. Advance online publication. https://doi.org/10.1177/10776990211063527

Schetsche, M. (2005). Die ergoogelte Wirklichkeit: Verschwörungstheorien und das Internet. In K. Lehmann & M. Schetsche (Eds.), *Die Google-Gesellschaft: Vom digitalen Wandel des Wissens* (pp. 113–120). Transcript-Verlag.

Schließler, C., Hellweg, N., & Decker, O. (2020). Aberglaube, Esoterik und Verschwörungsmentalität in Zeiten der Pandemie. In O. Decker & E. Brähler (Eds.), *Autoritäre Dynamiken: Alte Ressentiments - neue Radikalität. Leipziger Autoritarismus-Studie 2020* (pp. 283–310). Psychosozial-Verlag.

Schramm, W., & White, D. M. (1949). Age, education, economic status: Factors in newspaper reading. *Journalism Bulletin, 26*(2), 149-159. https://doi.org/10.1177%2F107769904902600203

Schuetz, S. W., Sykes, T. A., & Venkatesh, V. (2021). Combating COVID-19 fake news on social media through fact checking: antecedents and consequences. *European Journal of Information Systems, 30*(4), 376–388. https://doi.org/10.1080/0960085X.2021.1895682

Schuler, J., Kiess, J., Decker, O., & Brähler, E. (2020). *Rechtsextremismus, Gewaltbereitschaft, Antisemitismus und Verschwörungsmentalität: AfD-Wähler_innen weisen die höchste Zustimmung zu anti-demokratischen Aussagen auf*. Leipziger Autoritarismus-Studien. Leipzig. Universität Leipzig.

Schultz, T., Jackob, N., Ziegele, M., Quiring, O., & Schemer, C. (2017). Erosion des Vertrauens zwischen Medien und Publikum? Ergebnisse einer repräsentativen Bevölkerungsumfrage. *Media Perspektiven*, 5, 246–259.

Schultz, T., Ziegele, M., Jackob, N., Jakobs, I., Quiring, O., & Schemer, C. (2021). Verschwörungsglaube, Medienzynismus und Militanz: Einstellungen und Informationsquellen von Menschen mit AfD-Wahlpräferenz – ein Beitrag zur Radikalisierungsforschung. *ZRex – Zeitschrift Für Rechtsextremismusforschung, 1*(1), 60–89. https://doi.org/10.3224/zrex.v1i1.05

Shahsavari, S., Holur, P., Tangherlini, T. R., & Roychowdhury, V. (2020). Conspiracy in the time of Corona: Automatic detection of Covid-19 conspiracy theories in social media and the news. *Journal of Computational Social Science, 3*, 279–317. https://doi.org/10.1007/s42001-020-00086-5

Shehata, A., & Strömbäck, J. (2011). A matter of context: A comparative study of media environments and news consumption gaps in Europe. *Political Communication, 28*(1), 110-134. https://doi.org/10.1080/10584609.2010.543006

Stano, S. (2020). The Internet and the Spread of Conspiracy Content. In M. Butter & P. Knight (Eds.), *Routledge handbook of conspiracy theories* (pp. 483–496). Routledge.

Stegemann, P. (2021). *YouTube sperrt KenFM: Verschwörungserzähler Ken Jebsen.* Deutschlandfunk Kultur. https://www.deutschlandfunkkultur.de/verschwoerungserzaehler-ken-jebsen-youtube-sperrt-kenfm-100.html.

Stempel, C., Hargrove, T., & Stempel, G. H. (2007). Media use, social structure, and belief in 9/11 conspiracy theories. *Journalism and Mass Communication Quarterly*, *84*(2), 353–372. https://doi.org/10.1177/107769900708400210

Sterphone, J. (2018). "Mut zu Deutschland!". In F. López-Alves & D. E. Johnson (Eds.), *Populist Nationalism in Europe and the Americas* (pp. 99–115). Routledge. doi.org/10.4324/9780429437366-6

Stögner, K. (2017). Angst vor dem „neuen Menschen": Zur Verschränkung von Antisemitismus, Antifeminismus und Nationalismus in der FPÖ. In S. Grigat (Ed.), *AfD & FPÖ: Antisemitismus, völkischer Nationalismus und Geschlechterbilder* (pp. 137–162). Nomos.

Sunstein, C. R., & Vermeule, A. (2009). Conspiracy theories: Causes and cures. *Journal of Political Philosophy*, *17*(2), 202–227. https://doi.org/10.1111/j.1467-9760.2008.00325.x

Swami, V., Voracek, M., Stieger, S., Tran, U. S., & Furnham, A. (2014). Analytic thinking reduces belief in conspiracy theories. *Cognition*, *133*(3), 572–585. https://doi.org/10.1016/j.cognition.2014.08.006

Tagesschau (Ed.). (2020). *Über 90 Corona-Demos von Rechten dominiert: Proteste gegen Schutzregeln*. https://www.tagesschau.de/inland/corona-demos-rechtsextreme-101.html

Tagesschau (Ed.). (2021). *ARD-faktenfinder.* https://www.tagesschau.de/faktenfinder/faktenchecks-corona-101.html

Teovanović, P., Lukić, P., Zupan, Z., Lazić, A., Ninković, M., & Žeželj, I. (2020). Irrational beliefs differentially predict adherence to guidelines and pseudoscientific practices during the COVID-19 pandemic. *Applied Cognitive Psychology*, *35*(2), 486–496. https://doi.org/10.1002/acp.3770

Theocharis, Y., Cardenal, A., Jin, S., Aalberg, T., Hopmann, D. N., Strömbäck, J., Castro, L., Esser, F., van Aelst, P., Vreese, C. de, Corbu, N., Koc-Michalska, K., Matthes, J., Schemer, C., Sheafer, T., Splendore, S., Stanyer, J., Stępińska, A., & Štětka, V. (2021). Does the platform matter? Social media and COVID-19 conspiracy theory beliefs in 17 countries. *New Media & Society*. Advance online publication. https://doi.org/10.1177/14614448211045666

Tsfati, Y., Stroud, N. J., & Chotiner, A. (2014). Exposure to ideological news and perceived opinion climate. *The International Journal of Press/Politics*, *19*(1), 3–23. https://doi.org/10.1177/1940161213508206

Turda, M., & Weindling, P. (Eds.). (2007). *"Blood and homeland": Eugenics and racial nationalism in Central and Southeast Europe, 1900-1940*. Central European University Press.

Unkelbach, C., & Rom, S. C. (2017). A referential theory of the repetition-induced truth effect. *Cognition*, *160*, 110–126. https://doi.org/10.1016/j.cognition.2016.12.016

Uscinski, J. E., Enders, A. M., Klofstad, C., Seelig, M., Funchion, J., Everett, C., Wuchty, S., Premaratne, K., & Murthi, M. (2020). Why do people believe COVID-19 conspiracy theories? *Harvard Kennedy School Misinformation Review*, *1, 1-12.* https://doi.org/10.37016/mr-2020-015

Uscinski, J. E., & Parent, J. M. (2014). *American conspiracy theories*. Oxford University Press.

van Prooijen, J.-W. (2016). Why education predicts decreased belief in conspiracy theories. *Applied Cognitive Psychology*, *31*(1), 50–58. https://doi.org/10.1002/acp.3301

van Prooijen, J.-W. (2018a). Populism as political mentality underlying conspiracy theories. In B. T. Rutjens & M. J. Brandt (Eds.), *Belief systems and the perception of reality* (pp. 79–96). Routledge. https://doi.org/10.4324/9781315114903-6

van Prooijen, J.-W. (2018b). *The psychology of conspiracy theories*. Routledge.

van Prooijen, J.-W., & Douglas, K. M. (2017). Conspiracy theories as part of history: The role of societal crisis situations. *Memory Studies*, *10*(3), 323–333. https://doi.org/10.1177/1750698017701615

van Prooijen, J.-W., & Douglas, K. M. (2018). Belief in conspiracy theories: Basic principles of an emerging research domain. *European Journal of Social Psychology*, *48*(7), 897–908. https://doi.org/10.1002/ejsp.2530

van Prooijen, J.-W., Krouwel, A. P. M., & Pollet, T. V. (2015). Political extremism predicts belief in conspiracy theories. *Social Psychological and Personality Science*, *6*(5), 570–578. https://doi.org/10.1177/1948550614567356

van Prooijen, J.-W., Staman, J., & Krouwel, A. P. (2018). Increased conspiracy beliefs among ethnic and Muslim minorities. *Applied Cognitive Psychology, 32*(5), 661–667. https://doi.org/10.1002/acp.3442

Vehrkamp, R. (2021). *Rechtsextreme Einstellungen der Wähler:innen vor der Bundestagswahl 2021: Zukunft der Demokratie*. Gütersloh.

Vehrkamp, R., & Merkel, W. (2020). *Populismusbarometer 2020: Populistische Einstellungen bei Wählern und Nichtwählern in Deutschland 2020*. Gütersloh. https://doi.org/10.11586/2020044

Viehmann, C., Ziegele, M., & Quiring, O. (2021). Communication, cohesion, and Corona: the impact of people's use of different information sources on their sense of societal cohesion in times of crises. *Journalism Studies, 23*(5-6), 629-649. https://doi.org/10.1080/1461670X.2021.1965907

Viehmann, C., Ziegele, M., & Quiring, O. (2020). Gut informiert durch die Pandemie? Nutzung unterschiedlicher Informationsquellen in der Corona-Krise: Ergebnisse einer dreiwelligen Panelbefragung im Jahr 2020. *Media Perspektiven* (10-11), 556–577.

Vieten, U. M. (2020). The "new normal" and "pandemic populism": The COVID-19 crisis and anti-hygienic mobilisation of the Far-Right. *Social Sciences*, *9*(9), 165. https://doi.org/10.3390/socsci9090165

Vincent, J. (2022). *YouTube blocks Russian news channels RT and Sputnik in Europe: Move follows similar blocks on Facebook and Instagram.* https://www.theverge.com/2022/3/1/22956114/youtube-blocks-russian-media-rt-russia-today-sputnik-europe

Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science, 359*(6380), 1146–1151. https://doi.org/10.1126/science.aap9559

Wood, M. J., Douglas, K. M., & Sutton, R. M. (2012). Dead and alive: Beliefs in contradictory conspiracy theories. *Social Psychological and Personality Science*, *3*(6), 767–773. https://doi.org/10.1177/1948550611434786

World Health Organization. (2020). *Infodemic management: Infodemiology.* https://www.who.int/teams/risk-communication/infodemic-management

Zick, A., Schröter, F., & Küpper, B. (2019). *Verlorene Mitte - feindselige Zustände: Rechtsextreme Einstellungen in Deutschland 2018/19.* https://ec.europa.eu/migrant-integration/library-document/verlorene-mitte-feindselige-zustaende-rechtsextreme-einstellungen-deutschland_de

Zillmann, D., & Bryant, J. (1985). Selective-exposure phenomena. In D. Zillmann & J. Bryant (Eds.), *Selective exposure to communication* (pp. 1–11). Routledge.

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Appendix

Table A. Zero-Order Correlations

Variable	*M (SD)*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Education[d]	-	1														
2. Economic deprivation	3.0 (0.9)	-.12[c]	1													
3. Social deprivation	1.8 (0.9)	-.18[c]	.15[c]	1												
4. Support for AfD	1.4 (1.0)	-.08[b]	.20[c]	.25[c]	1											
5. Nationalism	2.9 (1.1)	-.20[c]	.12[c]	.18[c]	.17[c]	1										
6. Public broadcasters	4.1 (1.4)	.01	.02	-.14[c]	-.18[c]	-.01	1									
7. National newspapers	2.1 (1.5)	.26[c]	-.13[c]	-.14[c]	-.09[c]	-.09[c]	.13[c]	1								
8. Local newspapers	3.3 (1.7)	.04	-.02	-.12[c]	-.12[c]	.02	.29[c]	.26[c]	1							
9. Websites/ apps of established news media	3.3 (1.6)	.25[c]	-.15[c]	-.14[c]	-.14[c]	-.21[c]	.16[c]	.18[c]	.04	1						
10. Alternative news websites	1.7 (1.2)	.09[b]	.08[a]	.20[c]	.21[c]	.02	-.10[b]	.06	-.05	.08[a]	1					
11. Messenger services	1.6 (0.6)	-.02	-.04	.15[a]	-.01	.01	-.10	-.18[a]	-.23[c]	-.05	.04	1				
12. Video platforms	1.6 (0.6)	-.08	.08	-.05	-.04	-.07	-.20[a]	-.32[c]	-.23[a]	-.19[a]	.19	.20	1			
13. Social network sites	1.6 (0.6)	.21[b]	.03	.13	-.09	-.25[c]	-.14	-.01	-.08	.01	-.16[a]	.83[c]	.49[b]	1		
14. Belief in CCT	1.4 (0.7)	-.15[c]	.13[c]	.37[c]	.30[c]	.19[c]	-.19[c]	-.14[c]	-.19[c]	-.26[c]	.15[c]	.26[c]	.10	.02	1	
15. Vaccination Intentions	3.7 (1.4)	-.03	-.10[c]	-.18[c]	-.21[c]	.00	.19[c]	.11[c]	.11[c]	.18[c]	-.16[c]	-.14	-.03	-.09	-.22[c]	1

Note. Coefficients significant at [a] $p < .05$ level, [b] $p < .01$ level, and [c] $p < .001$ level. *SD* = Standard deviation. *M* = Means. [d] Education is ordinally scaled, which is why we report the Spearmans-Rho coefficient *rs* instead of the Pearson's correlation coefficient *r* for all correlations with this variable.