A bioweapon or a hoax? The link between distinct conspiracy beliefs about the Coronavirus disease (COVID-19) outbreak and pandemic behavior

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In November 2019, a 55-year old man from the Hubei province in China was diagnosed with a new disease caused by a new virus SARS-CoV-2. In the beginning of 2020, the coronavirus pandemic has infected an enormous amount of people worldwide. Countries closed their borders, announced lockdowns and people were asked to follow protective measures against the new coronavirus such as physical distancing or hand washing. Health systems were often not properly prepared to handle the influx of cases and arguably, the public information system was not prepared either. Already in February 2020, Dr Tedros Adhanom Ghebreyesus, the Director General of the WHO, warned that the world is "not just fighting an epidemic; we're fighting an infodemic. Fake news spreads faster and more easily than this virus, and is just as dangerous" (WHO, 2020). A survey from mid-March 2020 conducted in the U.S. supported this notion: 42% of the US-Americans have seen a lot or some news about the coronavirus outbreak that seemed completely made up (Mitchell & Oliphant, 2020). In the present paper, we sought to better understand how such distorted beliefs about the coronavirus relate to the various way to react to the pandemic. Specifically, we tested whether conspiracy beliefs claiming that the pandemic is a hoax are linked to a weaker support of containment-related behavior compared to perceiving the pandemic as human made which should be linked to a stronger support of self-centered prepping behavior.

The COVID-19 pandemic and conspiracy beliefs

Past research shows that the increase of conspiracy theories during a pandemic is not a new phenomenon: Especially in times of crises, conspiracy thinking increases substantially

(e.g., Van Prooijen & Douglas, 2017). For virtually all major events over the past decades, official version of why these came about were confronted with various conspiracy allegations that proposed an explanation involving plots hatched in secret by powerful agents instead. This is also true for major outbreaks of diseases. A misinformation campaign run by the *Soviet* Committee for State Security claimed HIV to be a biological weapon developed by the US (Geissler & Sprinkle, 2013) and the widespread belief that AIDS is a conspiracy to kill black people has a direct impact on prevention behavior (e.g., using condoms or pre-exposure prophylaxis; e.g., Bogart & Thorburn, 2005; Bogart et al., 2010). During the Zika virus outbreak 2015-2016, there were speculations that the virus was caused by genetically modified mosquitoes or used by the governments to kill people on purpose (e.g., Klofstad et al., 2019).

Events of such magnitude beg an explanation of comparable magnitude (Leman & Cinnirella, 2007). Providing explanations is psychologically advantageous for several reasons, with one sticking out in the previous literature: granting an illusion of control. Considering this reasoning, it is not surprising that a lack of control has been identified as one of the key drivers of conspiracy beliefs. When people are not able to gain control in the real world, they compensate for this lack by perceiving patterns - even if they are an illusion (e.g., Douglas et al., 2017). The current coronavirus crisis is an almost ideal breeding ground for conspiracy thinking (Van Bavel et al., 2020), as there is no easily comprehensible mechanistic explanation of the disease, it is an event of massive scale, it affects people's life globally, and leaves them with lots of uncertainty.

Such conspiracy beliefs might potentially even be palliative in giving people back at least a sense of control. Nevertheless, so we argue, there are real dangers in such conspiracy theories as they might motivate problematic behavior in the current crisis. During the coronavirus pandemic, many scientists, specifically epidemiologists and physicians, have

been the most articulate voices in making recommendations how to "flatten the curve" and slow down the infections. *Conspiracy mentality*, however, a generalized belief that powerful forces operate in secret to rule the world (Imhoff & Bruder, 2014) has been connected to both generalized distrust in science in general (as it is perceived as high power; Imhoff et al., 2018) and the biomedical system more specifically (for the same reason: Lamberty & Imhoff, 2018; Galliford & Furnham, 2017; Oliver & Wood, 2014). Thus, people who endorse a conspiracy worldview are particularly unlikely to trust the expert recommendations aimed at reducing infection rates.

Whereas most people use information about what others do as a cue to how to behave themselves, and thus are more likely to show conformity and follow (descriptive) social norms, there are some exceptions to this rule. Specifically, people high in a *need for uniqueness*, for whom it is a great importance to stick out from the crowd, are intentionally trying to not do or say what the majority of people says or does (Imhoff & Erb, 2009). This is relevant, as endorsement of conspiracy beliefs has been associated with an increased need for uniqueness both in correlational and experimental studies (Imhoff & Lamberty, 2017; Lantian et al., 2017). Thus, conspiracy believers are less likely than others to comply with descriptive social norms. Additionally, a conspiracy-prone worldview does not only reduce trust in official versions and adherence to norms, but is also linked to a stronger acceptance of violence (Rees & Lamberty, 2019). Conspiracy worldview also make it more plausible to engage in illegal, non-normative forms of action to reach one's goals as people who imagined seeing the world as people high in conspiracy mentality, saw it as more defensible to use force and other illegal means to pursue one's political goals (Imhoff et al., 2020).

Distinct effects of different conspiracy beliefs on behavior

Many of the above-cited findings rely on associations between certain attitudes or behavioral intentions with a generalized conspiracy worldview (e.g., Imhoff & Bruder, 2014;

Moscovici, 1987; Popper, 2006). The reasoning behind this relies on the robust finding that content-wise even completely unrelated conspiracy beliefs are so highly intercorrelated that they typically load on one factor (Bruder et al., 2013; Swami et al., 2011) and are thus often understood as specific expressions of a generalized mindset or political attitude (Imhoff & Lamberty, 2018). This goes as far as logically incompatible conspiracy theories correlating positively (Wood et al., 2012).

Although this general pattern seems to be one of the most robust findings in the psychology of conspiracy theories, in the current COVID-19 situation two popular conspiracy theories did not only seem to be logically incompatible but might be related to different behaviors as well. While many people played down the danger of COVID-19, calling it no worse than a flu, and suspected others to purposefully claim otherwise for their own advantage (e.g., hurting national economies, passing unpopular/restricting laws), others painted an even more drastic picture by claiming that the new coronavirus had not evolved by mutation (Andersen et al., 2020) but had been intentionally manufactured and purposefully spread as a bioweapon for political or economic gains. A survey conducted in the beginning of March 2020 in the US supported the notion to differentiate between the two types of conspiracy beliefs: The results showed that 49 percent claimed that the coronavirus is a manmade epidemic. In contrast, 44 percent thought that the threat of the coronavirus is being exaggerated for political reasons and 13 percent were convinced that the coronavirus is a hoax (Frankovic, 2020).

The denial or downplay of the danger of an illness should directly affect the risk assessment of a person and the perception of illness related risks influences in turn directly health promoting self-care behavior (e.g., Ferrer & Klein, 2015; Rosenstock, 1974). A higher perceived risk is, for example, associated with a greater likelihood to engage in protective behavior (Brewer et al., 2004). Therefore, if people believe that the COVID-19 pandemic is a

hoax or exaggerated by the government, they should be less likely to follow official recommendations like hand-washing and social-distancing (see also Stanley et al., 2020).

On the other hand, many people are convinced that the virus was created in a lab - either accidentally or to intentionally "reduce the population" as a secret plan of a so-called "new world order". People who hold these kinds of beliefs should be less likely to underestimate the severity of the coronavirus outbreak since they perceive it as an attack of governments or secret services against "the people". As a consequence, these people should not follow the recommended behavior of the institutions that they suspect of plotting a conspiracy (i.e., governments, WHO, health care providers) and might instead follow their own policies of protection against the pandemic (e.g., alternative medicine, weapons, hoarding).

The Present Research

Conspiracy theories that suggest that the coronavirus pandemic is a hoax are expected to primarily be related to refusal to engage in containment-related behavior (e.g., hygiene, physical distancing). Conspiracy theories that describe SARS-CoV-2 as a human-manufactured virus are expected to mainly relate to more self-centered prepping behavior (e.g., alternative remedies, hoarding). Despite these divergent associations (and the logical inconsistency), we expect both conspiracy beliefs to be positively correlated and positively correlated with conspiracy mentality. All materials and data (including the supplemental study) are available at https://osf.io/6p8tv.

Study 1

Study 1 was an *ad-hoc* inclusion of relevant measures in a planned data collection for a retest of a scale tapping into maintenance motivation unconnected to the current paper (Ecker et al., 2020). With the current research question in mind, we also added (in that order) questions about perceived threat by COVID-19, pandemic-related behaviors, endorsement of

conspiracy beliefs and a measure of general conspiracy mentality. We expected conspiracy beliefs that COVID-19 is a hoax or its relevance exaggerated to be associated with a hesitancy to follow official recommendations, but conspiracy beliefs stating that SARS-CoV-2 was human made to be associated with increased tendencies to engage in prepping behavior. Despite these dissociated associations, we did expect to replicate the well-established finding that the two are positively correlated. Data collection took place between March 20th and March 23rd, 2020.

Methods

Participants

We invited 280 *MTurk* workers who had passed an attention check in study two weeks earlier. Of these, 237 accepted the invitation within the first three days (over which participation dropped continuously and prompted the decision to terminate data collection: day 1: 212, day 2: 14, day 3: 6, day 4: 5) and participated in the current study, but n=17 failed an attention check ("To indicate that you read this item carefully, please mark the lowest rating") and were thus excluded from the sample. This left a final N=220 (118 men, 97 women, 5 other; M_{age}=40.18, SD_{age}=12.33; 79% identified as White, 9% as Black/ African American, 9% as Asian) with a median annual income of $40,000, implying 80% power to detect correlations of ρ=.17 or higher.

Measures

COVID-19 conspiracy beliefs. We created two sets of three items (one reverse-coded) to tap into the two most prevalent conspiracy beliefs. To tap into the idea that it is a harmless virus that receives overblown attention for personal benefit of a few people (COVID-19 hoax) we asked participants for their agreement with the following statements: "The virus is intentionally presented as dangerous in order to mislead the public", "Experts intentionally mislead us for their own benefit, even though the virus is not worse than a flu", and "We

should believe experts when they say that the virus is dangerous" (reverse-coded). The (logically incompatible) notion that the virus was purposefully created for the personal benefit of a few people (SARS-Cov-2 human-made) was assessed by asking for agreement with the following propositions: "Corona was intentionally brought into the world to reduce the population", "Dark forces want to use the virus to rule the world", and "I think it's nonsense that the virus was created in a laboratory" (reverse-coded). All six statements were completed on a scale ranging from *strongly disagree* (1) to *strongly agree* (7).

Pandemic-related behavior. To tap into respondents' self-reported pandemic-related behavior we asked them to report for 18 possibilities to what extent they behaved this way from *never* (1) to *always/ strongly* (7). Specifically, participants were informed that "people have reacted differently to the emergence of the new coronavirus. Below, we ask you to indicate for each of several behaviors to which extent you have implemented this as part of your reaction to the coronavirus." These behavior option were either containment related (e.g., increased hygiene behavior, keeping physical distance to others) or self-centered prepping behavior (e.g., hoarding everyday goods, relying on "alternative" sources of information or remedies; see Table 1 for the full list as well as factor loadings).

COVID-19 threat perception. We asked participants with four items how strongly they felt affected by the outbreak("To what extent are you currently worried about the spread of coronavirus?", "To what extent are you currently personally affected by the spread of coronavirus?", "To what extent do you currently feel threatened by the spread of coronavirus?", and "To what extent are you at risk for COVID-19 complications?") on scale from *not at all* (1) to *very much* (7).

Table 1

Factor loadings for Exploratory Factor Analyses of self-reported COVID-19-related behaviors.

	Study 1 (US)		*Study 2a (US)*		*Study 2b (UK)*	
1. Disinfecting hands after being outside		.783		.704		.375
2. Avoiding social contacts		.744		.716		.700
3. Washing hands after being outside		.740		.715		.715
4. Avoiding crowds		.725		.840		.643
5. Not touching the face while being outside		.660		.741		.477
6. Staying at home in quarantine		.614		.591		.448
7. Stocking up on food	.457	.558	-	-	-	-
8. Stocking up on sanitary items	.492	.541	.485	.317	.442	
9. Buying weapons for defense and security purposes	.702		.751		.396	
10. Stocking up on petrol and oil	.723		.812		.372	
11. Buying equipment for water storage and water purification	.685		.810		.530	
12. Withdrawing available cash from my bank account	.662		.777		.479	
13. Wearing protective face masks out of the house	.625		.729		.576	
14. Invest in stock market	.474		(.690)			
15. Using alternative remedies like homeopathy or essential oils	.506		.766		.479	
16. Searching information by alternative media online	.530	.312	.483		.418	
17. Spreading information online	.519		-	-	-	-
Eigenvalue (% of variance)	2.54 (14.09)	4.98 (27.66)	4.88 (32.51)	3.06 (20.37)	1.71 (11.39)	2.32 (15.46)

Note. N_{Study1} = 220; $N_{Study2a}$ = 288; $N_{Study2B}$=298. All analyses conducted with promax rotation and the kappa parameter of 4, as the generally recommended default (Hendrickson & White, 1964). Loadings under .30 are suppressed. One item included in Study loaded ~ .35 on both factors and was thus excluded ("Search information by official virologists online").

Additional variables. For exploratory purposes, we also included the twelve-item conspiracy mentality scale (Imhoff & Bruder, 2014; e.g., "There are secret organizations that have great influence on political decisions."; 7-point scale from *strongly disagree* to *strongly agree*). Additionally, one item tapped into self-reported political orientation on a scale from *extremely liberal* (1) to *extremely conservative* (7).

Results

All scales proved to be satisfactorily reliable (Table 2). The *exploratory factor analysis* of pandemic-related behavior clearly suggested a two-factor solution. Only two items on hoarding behavior (stocking up on food and sanitary items) exhibited double loadings (see Table 1). This may be due to the fact the "hoarding" of such goods (which was discussed as an overreaction and primarily problematic) had created a situation where a) these goods were indeed becoming scarce and b) to avoid physical contact, less frequent grocery shopping (and thus "stocking up") was becoming instrumental. We thus excluded these two items and averaged the others to composite scales of containment-related behavior and self-centered prepping behavior.

Table 2
Intercorrelations of the key variables in Study 1

	M	*SD*	α	1.	2.	3.	4.	5.	6.
1. COVID-19 Hoax	2.08	1.35	.848						
2. SARS-Cov-2 Human-Made	2.46	1.45	.672	**.511**					
3. Containment-related behavior	5.87	1.15	.859	**-.356**	-.123				
4. Self-centered prepping behavior	2.36	1.20	.827	**.256**	**.342**	**.227**			
5. COVID-19 Threat	4.35	1.41	.820	**-.305**	-.038	**.429**	**.229**		
6. Conspiracy Mentality	4.17	1.35	.925	**.357**	**.523**	.042	**.236**	.046	
7. Political Orientation	3.29	1.66	-	**.261**	**.320**	-.014	**.202**	-.055	.063

Note. $N = 220$. Bonferroni-adjusting for all 28 correlations yields correlations ≥ .210 significant ($p < .00178$), printed in bold.

As expected, the two specific conspiracy beliefs were highly correlated, and both associated with conspiracy mentality as a general mindset. People who believed that the pandemic was a hoax were more likely to perceive the pandemic as less threatening, while there was no significant link between assuming that the virus was human-made and threat

perception (Table 2). To test our focal hypothesis that the two distinct conspiracy beliefs were distinctly associated with recommended and non-recommended reactions to the coronavirus pandemic, and whether this would hold above and beyond effects of political orientation, we regressed the respective self-reported behaviors on the two conspiracy belief scales and added political orientation[1]. In line with our predictions, believing that COVID-19 was a hoax was a strong negative prediction of containment-related behaviors like hand-washing and keeping physical distance, B=-0.345, SE=0.063, p<.001, whereas believing in a human origin of the coronavirus did not, B=0.049, SE=0.060, p=.413. Self-reported conservatism had no prediction above beyond these, B=0.050, SE=0.047, p=.286. The local effect size of COVID-19 hoax above and beyond the other predictors was thus f^2 = .133. Self-centered prepping behavior was uniquely associated (as expected) with conspiracy beliefs about human creation of the coronavirus, B=0.217, SE=0.063, p=.001, but not with the idea that COVID-19 is a hoax, B=0.087, SE=0.066, p=.187, our conservatism, B=0.067, SE=0.049, p=.173. Thus, only the idea the virus was human-made had a substantial effect on self-reports of behavior characterized as overreacting (e.g., hoarding), f^2 = .068. Exploratory analyses show that associations between both conspiracy beliefs and prepping behavior were stronger, the more threatened people felt by the virus (see supplement).

Discussion

Study 1 provides first evidence that - although there is a certain overlap of constructs - different conspiracy theories are associated with different types of self-reported behavior. While people who belittle the risk of COVID-19 are less likely to follow official recommendations, people who believe that the virus originated in a laboratory are more likely to prepare for worst case scenarios. Intriguingly, these strong reactions were independently

[1] As income might be a proxy for education which has been associated with conspiracy beliefs (van Prooijen, 2017), we also controlled for that but found no significant association with either containment-related behavior, r = -.042, or prepping behavior, r = -.125.

related also to the endorsement that COVID-19 is no worse than a flu, particularly for those who feel strongly threatened by it. This finding raises some doubt to what extent these respondents were actually fully convinced of their own opinion that it was an overblown but actually harmless disease. In light of the purely exploratory nature, the ad-hoc construction of scales and the scarcity of control variables, we conducted a set of replications and extensions in two different national contexts to bolster our findings' generalizability.

Study 2

The main aim of study 2 was to replicate the results of study 1 in two national contexts: the USA and the UK. For this purpose, the double-loading behaviors were removed, and we aimed to show the specific influence of conspiracy beliefs as distinguished from other constructs. Most notably, people's reactions to the pandemic has been associated with political ideology. While we controlled for this in Study 1, it was a mere one item measure with unclear reliability. We thus included two multi-item scales of well-established constructs of political ideology: *right-wing authoritarianism* (RWA) and *social dominance orientation* (SDO). Despite being more specific and more reliable measures of overall political orientation, both also entail specific aspects. People high in RWA tend to follow norms and be obedient to authorities, allowing the prediction of greater adherence to official recommendations. High SDO, on the other hand, reflects a belief system of a "dog-eat-dog" world (Pratto et al., 1994). Therefore, people with a pronounced SDO should rather follow prepping behavior that benefit themselves. We also added the *Big Five* personality traits as control variables frequently associated with health behavior (e.g., Atherton et al., 2014). All data was collected on March 25th. The night before data collection was planned to start in the US and UK, UK prime minister Johnson declared a lockdown. For this reason, we had to adjust the wordings of the items inquired about *past* behavior. For the UK, we also included

an exploratory measure of intentions to comply with this lockdown. We partly deviated from our pre-registration (https://aspredicted.org/5nx8k.pdf), as we detail in Table.S1.

Method

Participants

To achieve 80% power to observe the smaller of the two effects found in Study 1 only required 110 participants. In light of general recommendations for robust correlational estimates, we aimed for a sample of N=300 in each sub-study, which equipped us with 1-β>.99 for both effects. For Study 2a, we invited 300 US-based *MTurk* workers (82% identified as White, 11% as Black/ African American) out of which 12 recommended to not use their data, leaving a final sample of N=288 (169 men, 117 women; M_{age}=36.60, SD_{age}=11.16). For Study 2b the same number of UK-based participants was recruited via *ProlificAcademic*. Only two participants recommended not using their data, resulting in a final N=298 (123 men, 172 women; M_{age}=37.29, SD_{age}=12.79; we did not record data on ethnicity).

Measures

Measures for confirmatory analyses. All measures for our confirmatory analyses (two conspiracy beliefs, pandemic behaviors) were taken from Study 1 with the exception that three behaviors were deleted from the self-reported behavior scale (items 7, 9, and 18 in Table 1).

Measures for exploratory analyses. In addition the single political orientation item and the scale tapping into feelings of threat also copied from Study 1, we specifically asked whether respondents or someone they knew had been tested positively for COVID-19 ("Have you or someone you know been tested positively for COVID-19?"). Only in the UK version of the survey, we included a scale in response to the declared lockdown effective from that day on ("Now, that there is a lockdown please let us know about the behavior you expect to

show."). We designed six questions tapping into people's intentions to disregard the lockdown regulation (e.g., "hang out in groups of friends in public places", "go directly home from work/ grocery shopping without seeing anyone" (reverse-coded) that were completed on the same scale as the COVID-19 related actions. As additional control variables, we added a measure of RWA (Nießen et al., 2019; e.g., "We need strong leaders so that we can live safely in society."; item order randomized), of SDO (Ho et al., 2015; e.g., "Some groups of people are simply inferior to other groups."; item order randomized), and a short 10-item scale to tap into the big five personality facets (BFI-10, Rammstedt et al., 2014; fixed item order).

Results

Descriptive Analyses

The majority of our samples did not know persons tested positively for COVID-19 (USA: 87%; UK: 92%). Nevertheless, 16 US-based participants (5%) had been tested positively themselves and another eleven (4%) shared a home with a positively tested person (n = 2 in the UK sample). The proportion of participants with a positive case in their extended surroundings was larger in the UK sample (n=20; 7%) than the US sample (n = 10; 3%). We ran initial EFAs on the pandemic-related behaviors in both sub-studies to include only behaviors that loaded at least .30 on one, but only one of the two factors. All items but one met this criterion. Investing in the stock market, however, showed strong loading on the non-recommendable factor in the US, but no loading at all in the UK. Building composite scores of self-centered prepping behavior with and without this item yielded highly correlated measures in both samples (r=.99) and did not yield any difference on any of the central analyses. We thus kept the item in both sub-studies to enhance comparability. For descriptive purposes, Table 3 shows all measured variables and their intercorrelations.

Table 3

Intercorrelations of the key variables in Study 2a and Study 2b

		Study 2a (US)			Study 2b (UK)																
		M	SD	α	M	SD	α	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1.	COVID-19 Hoax	2.51	1.59	0.81	1.74	1.03	0.81		**.693**	**-.524**	**.554**	-	-.082	**.407**	**.415**	**.418**	**.594**	**-.315**	**-.340**	.139	**-.317**	.164
2.	SARS-Cov-2 Human-Made	2.87	1.57	0.68	2.35	1.36	0.74	**.509**		**-.307**	**.605**	-	.111	**.570**	**.439**	**.473**	**.509**	**-.309**	**-.264**	.113	**-.326**	.076
3.	Containment-related behavior	5.81	1.18	0.86	5.84	0.92	0.68	-.154	.014		-.133	-	**.367**	-.106	-.076	-.078	**-.309**	.174	**.328**	-.111	**.209**	-.071
4.	Self-centered prepping behavior	3.08	1.54	0.90	1.90	0.73	0.66	.184	**.304**	**.217**		-	**.447**	**.414**	**.340**	**.601**	**.455**	**-.340**	**-.372**	.174	-.219	.149
5.	Non-compliance with lockdown	-	-	-	1.51	0.62	0.63	**.276**	.066	**-.402**	.051		-	-	-	-	-	-	-	-	-	
6.	COVID-19 Threat	4.62	1.36	0.82	4.60	1.10	0.68	**-.254**	.023	**.253**	.131	**-.252**		.165	.099	**.312**	.032	-.085	-.111	.044	-.037	.165
7.	Conspiracy Mentality	4.12	1.26	0.90	4.09	1.20	0.92	**.365**	**.506**	.017	**.241**	.036	.023		**.296**	**.353**	**.321**	-.097	-.122	-.040	**-.348**	.137
8.	Political Orientation	3.57	1.91	-	3.52	1.49	-	.194	**.212**	.073	**.266**	.054	-.035	.092		**.506**	**.545**	**-.269**	-.144	.037	-.191	.121
9.	Right-Wing Authoritarianism	2.73	0.95	0.91	2.90	0.74	0.84	.159	**.207**	.016	.157	-.001	.020	.082	**.433**		**.557**	**-.412**	**-.270**	.171	-.061	.104
10.	Social Dominance Orientation	2.68	1.41	0.91	2.50	1.14	0.88	**.273**	**.233**	-.145	**.279**	.177	-.042	.172	**.590**	**.464**		**-.386**	**-.331**	.165	**-.321**	.189
11.	Openness (Big 5)	3.59	0.96	0.45	3.56	0.97	0.52	-.082	-.026	.085	.051	-.044	.087	.067	**-.244**	-.143	-.183		**.301**	.053	.196	-.106
12.	Conscientiousness (Big 5)	3.9	0.92	0.54	3.87	0.82	0.59	-.031	.061	**.223**	.101	-.092	.174	-.071	.158	**.233**	.001	159		.074	**.303**	**-.405**
13.	Extraversion (Big 5)	2.6	1.01	0.54	2.77	0.96	0.69	-.097	.011	.160	.060	-.017	.062	-.063	-.037	.047	-.076	.084	**.205**		.139	**-.285**
14.	Agreeableness (Big 5)	3.43	0.97	0.38	3.47	0.87	0.40	.039	-.051	.017	-.102	.043	-.014	-.165	-.064	.055	**-.209**	-.036	**.280**	.082		**-.333**
15.	Neuroticism (Big 5)	2.62	1.08	0.68	2.98	1.04	0.64	-.047	.046	-.089	-.088	-.127	.114	.054	-.146	-.090	-.107	.135	-.177	**-.246**	-.150	

Note. Descriptives and correlations for US (N = 288; correlations above the diagonal) and UK (N = 298; correlations below the diagonal) sample. Correlation coefficient significant at Bonferroni-corrected level for 105 bivariate correlations (p=.000476) are printed in bold.

Confirmatory Analyses

As predicted, both conspiracy beliefs were positively correlated as well as correlated with a general conspiracy mentality in both samples (Table 3). To test our central predictions that doubting either the seriousness of COVID-19 (hoax) or the natural origin of the coronavirus (human-made) had distinct implications for self-reported behavior, we regressed recommended and self-centered prepping behavior on both conspiracy beliefs simultaneously.

As predicted, containment-related behavior was negatively predicted by believing that COVID-19 was a hoax, B=-0.448, SE=0.052, p<.001, but not by believing the coronavirus was human-made, B=0.080, SE=0.052, p=.129, in the US sample, f^2=.26, as well as the UK sample, even if less pronouncedly, f^2=.04 (B=-0.196, SE=0.060, p=.001 for *hoax*; B=0.085, SE=0.045, p=.060 for *human-made*). To test whether these results were significant we subjected the difference in standardized regression coefficients to a significance test following Cohen and colleagues (2003; Appendix 2.1). Hoax beliefs were stronger predictors than human-made beliefs both in the US, Δβ=.707, t(285)=12.98, p<.001, and the UK, Δβ=.343, t(295) = 5.21, p<.001.

On the contrary, self-centered prepping behavior in the US sample was strongly associated with believing in human-made origin of the coronavirus, B=0.412, SE=0.0162, p<.001, f^2=.16, albeit also (seemingly paradoxically) with the belief in a COVID-19 hoax, B=0.252, SE=0.062, p<.001. Self-centered prepping behavior was indeed more strongly associated with human-made beliefs than with hoax beliefs, Δβ =.162, t(285) = 3.25, p=.001. Both remained significant predictors when controlling for all other variables (Table.S3). In the UK sample, the effect of the two conspiracy beliefs were similar, albeit both smaller, yielding a significant relation to human-made beliefs, B=0.153, SE=0.035, p<.001, f^2=.07, but not the same (paradoxical) one with hoax beliefs, B=0.028, SE=0.046, p=.538. This

difference in standardized betas, Δβ = -.244, was again different from zero, $t(295)=3.82$, $p<.001$.

Exploratory Analyses

We had based our central hypotheses on the simple comparison between the predictive validity both conspiracy beliefs and this was supported by the data. At the same time, it might be that these correlations are spurious due to shared influence of third variables (e.g., political ideology). To control for the respective unique associations, in a second step we added measures of political ideology in a stepwise procedure (to avoid multicollinearity and suppression issues due to their high intercorrelation) and added the personality measures, age and COVID-19 threat in a third step. The full regression tables are available in the supplement (Table.S2 to Table.S6), importantly, however, controlling for all these variables did not alter the results.

In the pre-registration, we had mentioned the inclusion of a measure of compliance with lockdown regulations in the UK sample, but failed to specify predictions. Following from the proximity to containment-related behavior, we tested whether hoax beliefs would not only relate to past containment-related behavior but also to future expectation of complying with (at that time very new) lockdown regulations. We also thus applied the same analytical procedure to the intended noncompliance with lockdown regulations. Mirroring the results for containment-related behavior, this noncompliance was associated with hoax beliefs, $B=0.197$, $SE=0.039$, $p<.001$, $f^2=.09$, but not human-made beliefs, $B=-0.046$, $SE=0.029$, $p=.120$, Δβ=.429, $t(295)=6.69$, $p<.001$ (Table.S6).

Discussion

Overall, Study 2 replicated Study 1- both in the USA and the UK. The belief that COVID-19 is a hoax was particularly associated with a reduced containment-related behavior. Conversely, a stronger belief that the virus originated in the laboratory was

associated with a stronger advocacy of self-centered prepping behaviors. These effects remained stable even when controlling for other relevant variables. Overall, the effects were substantially weaker for the UK than in the US, even if they followed the same patterns. Although the primary function of the other included variables was to critically test the unique variance of conspiracy beliefs, some patterns seem noteworthy. First, feeling threatened by the COVID-19 disease was associated with greater conformity with containment-related behavior, but also more pronounced self-centered prepping behaviors. Pronounced threat thus does not operate as a functional mechanism to enhance (only) containment-related behavior. Its association with self-centered prepping behavior was – at least in the US – particularly pronounced for those endorsing either kind of conspiracy beliefs. As would be expected, greater compliance with official recommendation was also related to conscientiousness, a personality trait associated with rule compliance and orderliness.

General Discussion

We observed similarly problematic correlates of two distinct conspiracy beliefs concerning the coronavirus pandemic. Depending on whether COVID-19 was believed to be a hoax or the SARS-Cov-2 human-made participants indicated less compliance with self-reported infection-reducing containment-related behavior and more engagement in self-reported self-centered prepping behavior targeting not a reduction of the infection rate but personal benefits in the crisis. Although these associations seem relatively straight-forward, it is important to note that previous research has pointed to the danger of conspiracy beliefs but has dedicated less attention to potentially distinct relations of different kinds of conspiracy beliefs. These distinct associations notwithstanding, our results also provide strong support for the general notion that even logically incompatible conspiracy beliefs show a high correlation and are both positively associated with a general mindset of conspiracy mentality.

Adding to the robustness of the findings, another study conducted within the German context (reported in the Supplement) closely replicated this general pattern. This seems noteworthy as another dataset from the German context failed to find strong relations between conspiracy endorsement and hygiene measures (Pummerer & Sassenberg, 2020).

Limitations and further research

As arguably the most important limitation of our research, all findings are cross-sectional correlations and thus mute with regard to causality. Although it seems plausible that people adapt their behavior according to how they see and perceive the world, it is also conceivable that people behave in a certain way (for no or other reasons) and adapt their worldview as a justification after the fact. Another clear limitation is that these studies were conducted in a time of rapidly changing world events and thus might not have undergone the amount of planning and detailed pre-registration as generally desirable for any kind of research question (Scheel, 2020). Applying a stricter alpha level (e.g., p=.005; for a discussion see Benjamin et al., 2018) would yield the negative impact of hoax belief on self-reported containment-related behavior in the UK non-significant after including all control variables. Trusting in the readers' intuition to interpret the results we refrain here from forcing a binary significant- non-significant decision on these data but merely point to the substantially weaker data pattern in the UK compared to the US.

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Supplemental Materials to

Imhoff, R., & Lamberty, P. (2020, April 14). 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*.

Supplement 1: Exploratory Moderation by Perceived Threat

In all three samples, we conducted exploratory analyses to test whether the relation between conspiracy beliefs and (non-recommended) self-centered prepping behavior were generally stronger, the more threatened people felt by the virus. Specifically, in Study 1 adding an interaction term of the endorsement of one of the conspiracy beliefs and the perceived threat by the coronavirus, led to significant interaction terms and increases in explained variance in the extent of non-recommendable behavior, $B = 0.297$, $SE = 0.064$, $p < .001$, $\Delta R^2 = .074$, $p < .001$ for hoax, $B = 0.183$, $SE = 0.068$, $p = .008$, $\Delta R^2 = .027$, $p = .008$ for human-made, in the form that the association between conspiracy belief and self-centered prepping behavior generally became stronger, the more threatened people felt (Figure 1). A higher order model additionally suggested a three-way interaction (see supplement), but we refrained from putting too much interpretative weight on it before replicating these interactions.

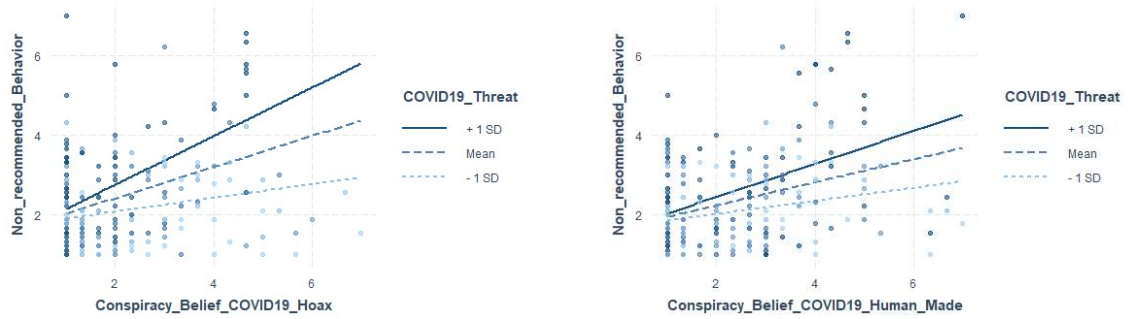

Figure 1. Self-centered prepping behavior as a function of distinct conspiracy beliefs moderated by perceived threat in Study 1.

We tested in Study 2 whether this moderation, with COVID-19 threat amplifying the relation between the respective conspiracy beliefs and self-centered prepping behavior, would replicate. In short, the pattern replicated for both interactions (but not the three-way interaction) in the US sample ($B = 0.275$, $SE = 0.052$, $p < .001$, $\Delta R^2 = .041$, $p < .001$ for hoax; $B = 0.198$, $SE = 0.060$, $p < .001$, $\Delta R^2 = .018$, $p = .001$ for human-made), but not in the UK sample (for both $\Delta R^2 \leq .002$, $ps \geq .490$). Thus, the effect seems to be reliable albeit specific to the context of the USA (Figure 2).

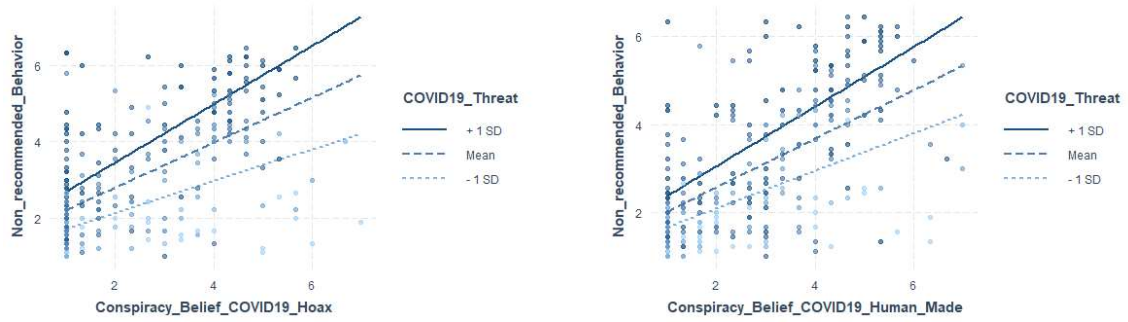

Figure 2. Self-centered prepping behavior as a function of distinct conspiracy beliefs moderated by perceived threat in Study 2a (USA).

Supplement 2: Detailed explanation and deviation from pre-registration in Study 2

Due to the rushed nature of data collection in the given social context our pre-registration for Study 2 was not as detailed enough as desirable. In addition, there have been some (data-independent) changes to the pre-registered plan. Below we thus provide more detail.

Table.S1

WORDING IN PRE-REGISTRATION	***EXPLANATION (+ POTENTIAL DEVIATION)***

2) What's the main question being asked or hypothesis being tested in this study? Testing the relation between two different COVID-19-related conspiracy theories and COVID-related behavior. Conspiracies that COVID is a hoax are expected to be primarily related to refusal ton engage in recommended actions (hygiene, physical distancing). Conspiracy theories that COIVD-19 is a human-manufactured virus are expected to mainly predict non-recommended actions (alternative remedies, hamstering). Despite these divergent predictions (and the logical inconsistency), we expect both CTs to be positively correlated and also correlated with conspiracy mentality.	*At the time of the pre-registration, the most sense we could make of the factor structure in Study 1 was that one factor included all the actions recommended by the WHO and national health agencies at that time, whereas the others mostly included behaviors that were depicted as problematic by these same institutions. It therefore seemed intuitive to think of them as "recommended" and "non-recommended" and this is also the terminology used in the syntax:*
	
	`compute action_reco = mean (COVID_reactions_1, COVID_reactions_2, COVID_reactions_3 , COVID_reactions_5, COVID_reactions_6, COVID_reactions_8).`
	`compute action_non = mean (COVID_reactions_4, COVID_reactions_7, COVID_reactions_9, COVID_reactions_10, COVID_reactions_11, COVID_reactions_12, COVID_reactions_13, COVID_reactions_14, COVID_reactions_15).`
	
	After collecting data for Study 2, however, it dawned on us that there is a deeper, a psychological difference between them that seem much more interesting to us. While the former are mostly solidarity-oriented in the sense of breaking infectious cycles and containing the spread, the latter are just about protecting oneself and getting through the crises as unharmed as possible.
	
	The hypotheses were tested in a regression (see point 5). In addition, we aimed to show the "primary" relation by comparing the respective beta weights of the conspiracy theories and testing whether they

	were significantly different from each other. This was done manually outside of the syntax based on instruction by Cohen et al.
3) Describe the key dependent variable(s) specifying how they will be measured. List of COVID-related actions: never 1 2 3 4 5 6 Always/ strongly 7 washing hands after being outside not touching the face while being outside disinfecting hands after being outside wearing protective face masks out of the house avoiding social contacts staying at home in quarantine stocking up on sanitary items avoiding crowds buying weapons for defense and security purposes using alternative remedies like homeopathy or essential oils buying equipment for water storage and water purification withdrawing available cash from my bank account invest in stock market stocking up on petrol and oil searching information by alternative media online PCA with loadings > .30 on one and < .30 on the other factor will determine which items to keep in which scale.	*Variables were measured as described but instead of Principal Component Analyses we conducted Exploratory Factor Analyses (with promax rotation) as the more adequate method for extracting factors. This decision was not based on the data and both analyses lead to virtually identical results with PCA providing somewhat stronger factor loadings.*

In the UK only, compliance with new lockdown:
comply with the curfew rules +
go out to meet friends from time to time -
go directly home from work/ grocery shopping without seeing anyone +
briefly chat with friends/ neighbours when I meet them on the street -
hang out in groups of friends at private places -
hang out in groups of friends in public places -
Conspiracy theory 1:
The virus is intentionally presented as dangerous in order to mislead the public.
Experts intentionally mislead us for their own benefit, even though the virus is not worse than a flu.
We should believe experts when they say that the virus is dangerous.
Comnspiracy Theory 2:
Corona was intentionally brought into the world to reduce the population.
Dark forces want to use the virus to rule the world.
I think it's nonsense that the virus was created in a laboratory.
	Variables were measured as described:
	
	Compliance with lockdown:
	`compute noncompl = mean(Q23_1r, Q23_3r, Q23_2, Q23_4, Q23_5, Q23_6).`
	
	Conspiracy Theory 1:
	`compute CT_hoax = mean (SpecCTs_1, SpecCTs_2, SpecCTs_3r).`
	
	Conspiracy Theory 2:
	`compute CT_weapon = mean (SpecCTs_4, SpecCTs_5, SpecCTs_6r).`

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis. Prediction of recommended actions (items selected based on PCA; expected to include hygiene and physical distance behavior) and non-recommended actions (same selection criteria; expected to include buying guns and stocking up on petrol and sanitary	*As mentioned above, EFA rather than PCA was used to extract factor structure (but PCA yielded identical results). Simultaneous prediction of behaviors by both CTs refers to Step 1 in the central regression analyses. Based on this step, beta weights of both are also compared.*

items, as well as alternative and homeopathic remedies) by simultaneously including both CTs.	REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA CHANGE /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT action_reco action_non /METHOD=ENTER CT_weapon CT_hoax /METHOD=STEPWISE p1 RWA SDO /METHOD=ENTER B5O B5C B5E B5A B5N AFFECTED_cov age.
6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations. People who recommend their data not be used will be deleted from the sample.	*Followed as planned.* *In Syntax:* select if q80 GT 4. execute.
7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined. N = 300 UK-based paerticipants via Prolifc; N = 300 US-based participants via MTurk.	*Done as planned.*
8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?) As control variables, we will also measure conspiracy mentality, political orientation, SDO, RWA, Big 5, the extent of being affected by COVID-19	*Steps 2 and 3 of the central regressions include these variables as additional control variables to rule out spurious correlations due to overlap with these. Not specified here, political orientation, RWA and SDO were entered in a stepwise procedure to avoid multicollinearity and resulting spurious suppression effects:* REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA CHANGE /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT action_reco action_non /METHOD=ENTER CT_weapon CT_hoax /METHOD=STEPWISE p1 RWA SDO /METHOD=ENTER B5O B5C B5E B5A B5N AFFECTED_cov age.

Supplement 3: Detailed regression tables for Study 2a and 2b

Table.S2

Results of the Stepwise Regression Analysis in Study 2a (US) for recommended pandemic behavior

	Model 1				Model 2				Model 3			
Block of predictors	*B*	*SE*	β	*p*	*B*	*SE*	β	*p*	*B*	*SE*	β	*p*
Block 1: Conspiracy Theories												
COVID-19 Hoax	-.448	.052	-.601	< .001	-.473	.052	-.634	< .001	-.302	.052	-.405	< .001
SARS-Cov-2 Human-Made	.080	.052	.106	.129	.045	.053	.060	.395	-.009	.050	-.011	.863
Block 2: including political orientation												
Political Orientation					.098	.035	.158	.005	.066	.032	.107	.041
Right-Wing Authoritarianism (RWA)												
Social Dominance Orientation (SDO)												
Block 3: control variables												
COVID-19 Threat									.320	.042	.367	< .001
Openness (Big 5)									.031	.061	.025	.611
Conscientiousness (Big 5)									.287	.068	.224	.000
Extraversion (Big 5)									-.122	.058	-.103	.036
Agreeableness (Big 5)									.067	.062	.054	.287
Neuroticism (Big 5)									.019	.059	.017	.753
Age									.008	.005	.072	.131

Note. $N = 288$.

Table.S3

Results of the Stepwise Regression Analysis in Study 2a (US) for non-recommended pandemic behavior

	Model 1				Model 2				Model 3			
Block of predictors	*B*	*SE*	β	*p*	*B*	*SE*	β	*p*	*B*	*SE*	β	*p*
Block 1: Conspiracy Theories												
COVID-19 Hoax	.252	.062	.261	< .001	.188	.056	.195	.001	.254	.053	.263	< .001
SARS-Cov-2 Human-Made	.412	.062	.423	< .001	.282	.058	.290	< .001	.216	.052	.222	< .001
Block 2: including political orientation												
Political Orientation												
Right-Wing Authoritarianism (RWA)					.617	.077	.380	< .001	.318	.075	.196	< .001
Social Dominance Orientation (SDO)												
Block 3: control variables												
COVID-19 Threat									.406	.045	.359	< .001
Openness (Big 5)									-.054	.065	-.034	.408
Conscientiousness (Big 5)									-.211	.070	-.127	.003
Extraversion (Big 5)									.126	.060	.083	.037
Agreeableness (Big 5)									-.026	.065	-.016	.693
Neuroticism (Big 5)									-.063	.060	-.044	.301
Age									-.016	.005	-.118	.002

Note. $N = 288$.

Table.S4

Results of the Stepwise Regression Analysis in Study 2b (UK) for recommended pandemic behavior

	Model 1				Model 2				Model 3			
Block of predictors	*B*	*SE*	β	*p*	*B*	*SE*	β	*p*	*B*	*SE*	β	*p*
Block 1: Conspiracy Theories												
COVID-19 Hoax	-.196	.060	-.218	.001	-.172	.060	-.191	.005	-.082	.060	-.091	.178
SARS-Cov-2 Human-Made	.085	.045	.125	.060	.096	.045	.141	.034	.043	.044	.064	.324
Block 2: including political orientation												
Political Orientation					.148	.043	.239	.001	.149	.044	.240	.001
Right-Wing Authoritarianism (RWA)												
Social Dominance Orientation (SDO)					-.213	.057	-.263	< .001	-.220	.057	-.270	< .001
Block 3: control variables												
COVID-19 Threat									.190	.049	.226	< .001
Openness (Big 5)									.041	.055	.043	.453
Conscientiousness (Big 5)									.157	.069	.140	.023
Extraversion (Big 5)									.069	.055	.072	.206
Agreeableness (Big 5)									-.068	.062	-.064	.275
Neuroticism (Big 5)									-.096	.052	-.108	.067
Age									-.008	.004	-.113	.052

Note. $N = 298$.

Table.S5

Results of the Stepwise Regression Analysis in Study 2b (UK) for non-recommended pandemic behavior

	Model 1				Model 2				Model 3			
Block of predictors	*B*	*SE*	β	*p*	*B*	*SE*	β	*p*	*B*	*SE*	β	*p*
Block 1: Conspiracy Theories												
COVID-19 Hoax	.028	.046	.040	.538	-.004	.046	-.006	.922	.045	.048	.063	.346
SARS-Cov-2 Human-Made	.153	.035	.284	< .001	.138	.034	.256	< .001	.118	.034	.220	.001
Block 2: including political orientation												
Political Orientation												
Right-Wing Authoritarianism (RWA)												
Social Dominance Orientation (SDO)					.143	.037	.221	< .001	.137	.038	.212	< .001
Block 3: control variables												
COVID-19 Threat									.105	.039	.157	.008
Openness (Big 5)									.061	.043	.080	.155
Conscientiousness (Big 5)									.055	.054	.062	.302
Extraversion (Big 5)									.024	.043	.031	.581
Agreeableness (Big 5)									-.067	.049	-.079	.175
Neuroticism (Big 5)									-.075	.041	-.107	.069
Age									-.004	.003	-.075	.183

Note. $N = 298$.

Table.S6

Results of the Stepwise Regression Analysis in Study 2b (UK) for non-compliance with lockdown

	Model 1				Model 2				Model 3			
Block of predictors	*B*	*SE*	β	*p*	*B*	*SE*	β	*P*	*B*	*SE*	β	*p*
Block 1: Conspiracy Theories												
COVID-19 Hoax	.197	.039	.328	< .001	.182	.039	.302	< .001	.134	.041	.223	.001
SARS-Cov-2 Human-Made	-.046	.029	-.101	.120	-.053	.029	-.116	.074	-.028	.030	-.061	.350
Block 2: including political orientation												
Political Orientation												
Right-Wing Authoritarianism (RWA)												
Social Dominance Orientation (SDO)					.066	.032	.121	.037	.073	.033	.135	.026
Block 3: control variables												
COVID-19 Threat									-.099	.034	-.176	.004
Openness (Big 5)									.029	.037	.046	.425
Conscientiousness (Big 5)									-.081	.046	-.107	.083
Extraversion (Big 5)									.012	.037	.018	.750
Agreeableness (Big 5)									.050	.043	.070	.239
Neuroticism (Big 5)									-.047	.036	-.080	.183
Age									.003	.003	.053	.359

Note. $N = 298$.

Supplement 4: Supplemental Study in German context.

We had a chance to replicate our findings in the German context by including our two conspiracy scales as well as a few items related to prepping into the COVID-19 battery of the Social Cognition Center Cologne. Further studies that were run within the battery are reported elsewhere (Dohle et al., 2020; Dorrough et al., 2020; Glöcknet et al., 2020a, 2020b; Schneider & Dorrough, 2020). We pre-registered our analyses at https://aspredicted.org/jt43s.pdf.

Method

Participants

A total of N=301 participants were recruited in representative quotas for the German age distribution over the age of 18 and the gender distribution (see pre-registration for details). The final sample consisted of 143 men, 156 women; M_{age}=50.06, SD_{age}=16.15).

Measures

We translated the two conspiracy beliefs in a dual-forward way and resolved inconsistencies via a joint discussion. As an equivalent to the containment-related behavior we relied on a scale of "adoption of protective measures" already included in the project by other authors (Dohle, Wingen, & Schreiber, 2020). On this scale, participants indicated how frequently (from never to always; 5-points) they engaged in twelve behaviors in the domains of personal hygiene (washing hand with soap; sneeze or cough in the elbow; wear face masks or scarfs in public), and physical distancing (refrain from shaking hands and hugs; keep 6 feet distance in public; stay home as much as possible; work from home whenever possible; avoid rush hours in stores; avoid family gatherings; avoid crowds; avoid public transport; reduce personal meetings with ill or vulnerable people). It should be noted that in between the studies reported in the manuscript and this study, the public and expert opinion on the usefulness of facemasks had shifted considerably, with them now being seen as instrumental

in reducing the spread from an infected person. Prepping behavior was adapted to the German context and completed on the same scale. Specifically, participants indicated how frequent they hoarded emergency supplies, hoarded facemasks, shielded themselves off against 5G radiation, build up defense measures, and hoarded durable foods. These prepping items where embedded in filler items tapping into pro-social behavior (e.g., run errands for vulnerable neighbors) for which we pre-registered no hypotheses. Political orientation was assessed with scale from *left* (1) to *right* (10).

Results and Discussion

All scales proved sufficiently reliable (Table.S7). To test whether the data would support our prediction that hoax beliefs would negatively predict less containment-related behavior, but belief about human origin of SARS-Cov-2 would positively predict prepping behavior, we ran two multiple linear regressions with the two conspiracy beliefs and political orientation as predictors, and the two kinds of behaviors as respective outcomes.

Table.S7
Intercorrelations of the key variables in supplemental study

	M	*SD*	α	1.	2.	3.	4.
8. COVID-19 Hoax	2.10	1.12	.880				
9. SARS-Cov-2 Human-Made	2.24	1.03	.708	**.545**			
10. Containment-related behavior	4.34	0.63	.888	**-.473**	**-.300**		
11. Self-centered prepping behavior	1.92	0.85	.847	**.188**	**.316**	-.047	
12. Political Orientation	4.73	2.09	-	.093	.137	-.121	.110

Note. $N = 301$. Significant Correlations at Bonferroni-corrected .005 (≥ .162) printed in bold.

In line with our predictions, containment-related behavior was solely predicted by hoax beliefs, $B = -0.246$, $SE = 0.034$, $\beta = -.438$, $p < .001$, but neither human-made beliefs, $B = -0.031$, $SE = 0.037$, $\beta = -.051$, $p = .401$, nor political orientation, $B = -0.022$, $SE = 0.015$, $\beta = -.074$, $p = .152$. Specifically, hoax beliefs were stronger predictors than human-made beliefs, $\Delta\beta = .387$, $t(297) = 6.62$, $p < .001$. On the contrary, human-made beliefs predicted prepping behavior, $B = 0.243$, $SE = 0.054$, $\beta = .296$, $p < .001$. Hoax beliefs did not, $B = 0.016$, $SE =$

0.050, β= .021, p = .750, and neither did political orientation, B = 0.027, SE = 0.022, β= .076, p = .227. Human-made belief thus had a significantly stronger prediction than hoax beliefs, Δβ=.275, t(297)=4.35, p<.001.

These analyses thus fully replicated the pattern reported in the paper in yet another context, with differently worded and contextually adapted behavioral indicators. This speaks to the robustness of the observed effect.

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