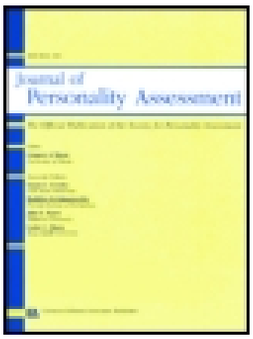

Routledge
Taylor & Francis Group

Journal of Personality Assessment

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/hjpa20

Validating a German Version of the Conspiracy Mentality Scale (CMS)

Ana Stojanov & Annegret Hannawa

To cite this article: Ana Stojanov & Annegret Hannawa (2022): Validating a German Version of the Conspiracy Mentality Scale (CMS), Journal of Personality Assessment, DOI: 10.1080/00223891.2022.2149408

To link to this article: https://doi.org/10.1080/00223891.2022.2149408

JOURNAL OF PERSONALITY ASSESSMENT
https://doi.org/10.1080/00223891.2022.2149408

Validating a German Version of the Conspiracy Mentality Scale (CMS)

Ana Stojanov[1] and Annegret Hannawa[2]

[1]Higher Education Development Centre, University of Otago, Dunedin, New Zealand; [2]Faculty of Communication, Culture & Society, Università della Svizzera italiana (USI), Lugano, Switzerland

ABSTRACT

Increased scientific interest in conspiracy beliefs raises the need for validated individual difference measures in the general tendency to believe in conspiracy theories, otherwise referred to as *conspiracy mentality*. In this article, we present a German language version of the Conspiracy Mentality Scale (CMS). A representative sample of German-speaking Swiss residents ($N = 468$) filled in the scale, along with measures of trust in several sources of information, need for social validation, compliance with Covid-19 preventive measures, perceived severity of the pandemic, loneliness, functional literacy and interpersonal conflict. Confirmatory factor analysis supported the two-dimensional structure of the original scale. Positive correlations between conspiracy theory ideation and trust in friends and the need for social validation on the one hand, and negative correlations with trust in scientific publications and scientific experts, perceived severity of the pandemic and functional literacy on the other hand supported construct validity. We conclude that our German language version of the scale is a valid measure of conspiracy theory ideation and skepticism.

ARTICLE HISTORY
Received 24 May 2022
Accepted 2 November 2022

At the time of this study (May 2022), a Scopus search (in the title, abstract or keyword) for "conspiracy theories" resulted in 1154 entries from 2020 onward. The exact keyword searched for the preceding decade (2010–2019) resulted in 1039 entries, speaking for a sharp rise in academic interest in conspiracy theorizing. With both conspiracy theories and research interest on the rise since the Covid-19 pandemic (Bruns et al., 2020; Douglas, 2021; Jamison et al., 2020; Stein et al., 2021; Stojanov et al., 2021; The Lancet Infectious Diseases, 2020), the need for a valid measure of the general tendency to believe in conspiracy theories is apparent. The majority of developed scales have been validated for use in English-speaking countries, where the literature predominantly comes from (Mahl et al., 2022). However, as conspiracy beliefs are spreading across the globe, the need to adapt and validate respective measurement scales in diverse languages is rising. Currently, there are four scales that measure the general tendency to believe in conspiracy theories. All of them have been validated or developed in English. One of them is the Conspiracy Mentality Scale (CMS; Stojanov & Halberstadt, 2019), which will be validated in the present study using a German-speaking sample.

The idea about a general tendency to believe in conspiracy theories stems from the findings that belief in one conspiracy theory is related to believes in other conspiracy theories (Alper et al., 2021; Freeman et al., 2022; Šrol et al., 2021; Swami et al., 2010), even if they are contradictory (Lukić et al., 2019; Miller, 2020; Petrović & Žeželj, 2022; Wood et al., 2012), or made up by the experimenter (Imhoff & Lamberty, 2017; Swami et al., 2017). A single factor that can account for such correlation is a hypothetical construct, or an individual difference trait, that has been called *conspiracy mentality* (Imhoff, Zimmer, et al., 2022; Imhoff & Bruder, 2014; Milošević et al., 2021; Moscovici, 1987), *conspiracy ideation* (Leone et al., 2018), *conspiratorial mindset* (Imhoff et al., 2018; Sutton & Douglas, 2020) or *conspiracy worldview* (Dagnall et al., 2015; Imhoff et al., 2021; Wood & Douglas, 2015).

As mentioned above, there are currently four validated scales to measure such general tendency to believe in conspiracies. One of these scales consists of a single item and is not a very reliable and valid measure:

> Some political and social events are debated (for example 09/11 attacks, the death of Lady Diana, the assassination of John F. Kennedy). It is suggested that the "official version" of these events could be an attempt to hide the truth to the public. This "official version" could mask the fact that these events have been planned and secretly prepared by a covert alliance of powerful individuals or organizations (for example secret services or government). What do you think? (Lantian et al., 2016, p.10)

This one-item measure stresses one aspect of conspiracy theories - "nothing is as it seems." However, it fails to capture other aspects, that "everything is connected" and "nothing happens by chance", which is a hallmark of conspiracy theories.

CONTACT Ana Stojanov ana.stojanov@otago.ac.nz 65/75 Union Place West, Dunedin, New Zealand.
Supplemental data for this article can be accessed online at https://doi.org/10.1080/00223891.2022.2149408

Two further scales have been criticized for their unreliable factor structure or poor construct validity (Swami et al., 2017). For example, the Generic Conspiracist Beliefs Scale (GCBS, Brotherton et al., 2013) has been reported to have two (Majima & Nakamura, 2020; Stojanov & Douglas, 2022), three (Atari et al., 2019) or five factors (Brotherton et al., 2013; Drinkwater et al., 2020; Siwiak et al., 2019), suggesting not only that the factor structure is unstable, but that the scale is not "generic" at all, as content-specific items cluster together (e.g., those measuring extra-terrestrial cover up). The Conspiracy Mentality Questionnaire (CMQ, Bruder et al., 2013), although consisting of a single factor, has been criticized for tapping into rational beliefs that reflect the current state in the world, in addition to conspiracy theory beliefs (Swami et al., 2017).

These criticisms prompted the development of the Conspiracy Mentality Scale (CMS; Stojanov & Halberstadt, 2019), which differentiates conspiracy beliefs from skepticism, a more mundane form of suspicion (akin to rational beliefs about the current state in the world). By distinguishing rational beliefs about the current state in the world from conspiracy ideation, it features an important improvement over the CMQ, in which these two aspects are confounded. Simultaneously assessing these two aspects is important because each of them predicts different type of conspiracy beliefs (Stojanov & Halberstadt, 2019). In addition, unlike the GCBS, the CMS captures conspiracy ideation with a single factor, consistent with current theorizing.

The CMS has been validated for use in the United States, New Zealand and North Macedonia, and its conspiracy theory ideation subscale has been used as a measure of the general tendency to believe in conspiracy theories in numerous studies (Craig & Sadovykh, 2022; Gligorić et al., 2021; Stojanov et al., 2020). However, as a relatively new addition to the arsenal of measures, further validation studies in other languages are needed. Therefore, in this article, we present a validation of the scale in a German-speaking sample from Switzerland.

To evaluate construct validity, we examined the correlations of both CMS subdimensions with trust in various sources of information, compliance with Covid-19 preventive measures, perceived severity of the Covid-19 pandemic, functional literacy, need for social validation, loneliness, and interpersonal conflict.

There is some indication that those high in the general tendency to believe in conspiracy theories tend to perceive powerful sources as less credible, and powerless sources as more credible (Imhoff et al., 2018). For example, those scoring high on conspiracy mentality are especially likely to believe conspiratorial headlines when they are presented in an unofficial medium (e.g., blog) rather than in mainstream media (Mancosu & Vegetti, 2021). Moreover, conspiracy mentality has been related to science rejection ($r = 0.538$, $N = 1377$; Lewandowsky et al., 2013), and studies have demonstrated a positive correlation between general conspiracy beliefs (Stecula & Pickup, 2021) and the use of social media as a source of information. Further, higher social media use has been associated with a higher number of endorsed conspiracy beliefs (Enders et al., 2021), which could be considered an indicator of the general tendency to believe in conspiracy theories. In contrast, exposure to traditional media such as radio, television or newspapers, or exposure to health experts has been associated with lower belief in COVID-19 conspiracies (De Coninck et al., 2021). Although belief in specific and generic conspiracy beliefs is not equivalent (Imhoff et al., 2022), the pattern of relationship between each of these two operationalizations and different personality correlates is the same (Goreis & Voracek, 2019; Stasielowicz, 2022), and generic and specific conspiracy share a common variance. Thus, the above finding also implies that exposure to traditional media might be associated with lower generic conspiracy beliefs. Indeed, trust in official sources such as the government ($\beta = -.479$, $N = 1013$), public health institutions ($\beta = -.510$, $N = 1013$, Bruder & Kunert, 2022) or science ($r = -0.27$, $N = 529$, Pivetti et al., 2021) has also been negatively related to generic conspiracy beliefs. Therefore, we expected that conspiracy theory ideation would positively relate to trust in "unofficial" sources such as friends, social media, the internet and family members, and negatively to trust in "official" sources such as medical doctors, scientific experts, scientific publications, pharmaceutical companies reports and the Federal Office of Public Health. For skepticism, we predicted that those high in skepticism would recognize that unofficial sources are less reliable than official sources, resulting in the opposite pattern or no linear relationship.

In terms of the perceived severity of the pandemic, we expected a negative correlation with conspiracy theory ideation and a positive correlation or no correlation with skepticism. This prediction was drawn from previous studies, in which generic conspiracy beliefs have been negatively associated with Covid-19 risk perception ($r = -0.16$, $N = 245$, Maftei & Holman, 2022; $r = -0.12$, $N = 525$; Plohl & Musil, 2021) and perceived threat (Romer & Jamieson, 2020).

Consistent with previous studies (Maftei & Holman, 2022; Romer & Jamieson, 2020), we also predicted a positive correlation between conspiracy ideation and noncompliance with Covid-19 preventive measures. In fact, studies with samples from across the world have demonstrated that conspiracy beliefs are associated with lower adherence to the recommended guidelines (Freeman et al., 2022; Karić & Međedović, 2021; Kowalski et al., 2020; Pavela Banai et al., 2021), such as social distancing (Allington et al., 2021; Pummerer et al., 2022) or vaccination (Bertin et al., 2020; Earnshaw et al., 2020; Jennings et al., 2021; Sallam et al., 2021; Soveri et al., 2021; Teovanović et al., 2021; Wirawan et al., 2021). A meta-analytic study also confirmed that conspiracy beliefs tend to come with a general reluctance toward preventive measures (Bierwiaczonek et al., 2022). In our study, we expected no correlation between compliance and skepticism, as those high in skepticism could have conflicting cognitions in terms of compliance (e.g., "there is not enough evidence about the effectiveness of the preventive measures, so why wear a mask/better be cautious and wear a mask"), which would eventually lead to a canceling effect and no correlation.

Furthermore, studies have demonstrated a link between conspiracy mentality and literacy. For example, lower health literacy has been associated with Covid-19 conspiracy beliefs in a Polish sample (Duplaga, 2020). Similarly, news media literacy (Craft et al., 2017) and scientific literacy (Luo & Jia, 2022) have been negatively related to conspiracy beliefs. Thus, we expected to see a negative correlation between conspiracy theory ideation and functional literacy (i.e., the extent to which participants were able to understand and comprehend the messages that were conveyed to them about Covid-19). No association was expected between skepticism and functional literacy.

There are some indications that conspiracy beliefs are related to living in less densely populated areas (Constantinou et al., 2021), and being alone is one of the risk factors for loneliness (Victor et al., 2005). In addition, correlations have been found between conspiracy beliefs and feeling lonely ($r = 0.15$, $N = 790$ in Alsuhibani et al., 2022; $r = 0.19$, $N = 2503$ in Hettich et al., 2022). Therefore, we predicted a positive correlation between loneliness and conspiracy theory ideation. Furthermore, we expected that those high in conspiracy theory ideation would tend to associate with like-minded individuals (Douglas et al., 2017). Therefore, we predicted a positive correlation between conspiracy theory ideation and need for social validation.

Finally, in terms of interpersonal conflict, our hypothesis was based on indirect findings. For example, conspiracy theory beliefs have been associated with higher aggressiveness (Vegetti & Littvay, 2022), anger and hostility ($r = 0.15$, $N = 1024$, Šrol et al., 2021), as well as support for radical political actions and violence (Jolley & Paterson, 2020). Thus, we reasoned that this constellation of variables would make those prone to conspiracy beliefs more prone to interpersonal conflict. As a result, we expected to see a positive correlation between conspiracy theory ideation and interpersonal conflict, but no correlation between skepticism and conflict.

Method

Procedure

The data for this validation study were collected as part of a larger "COM-COVID" survey, which examined Swiss citizens' retrospective perceptions around communication during the Covid-19 pandemic in February 2022. The survey was conducted within a short 10-day time period to prevent context-induced response variations. The survey's measures were operationalized as macro-scales, i.e., asking respondents to reflect on the entire Covid-19 pandemic rather than on specific situations. The survey was conducted one week after the Swiss government had lifted all pandemic control measures, and respondents were asked to rate the pandemic communications of the Swiss government and news media retrospectively, indicating their holistic perceptions over the entire two-year period of Covid-19.

A survey company in Switzerland was tasked with the representative national data collection. By completing the online survey, participants earned points equivalent to 5 Swiss Francs that they could later redeem for rewards. The relevant University ethics committee (Comitato Etico dell'Università della Svizzera italiana) approved the COM-COVID study (approval number CE_2022_1). Participants signed informed consent prior to beginning the survey, being aware that they could withdraw from the study at any time.

The CMS items were translated into German and back-translated into English by freelance interpreters that were involved in the study solely for this purpose. The second author then compared the original and backtranslated versions to resolve any inconsistencies in the translations.

Sample

The German-speaking Swiss participants ($N = 468$, 49.8% female) were randomly recruited from a national Swiss web panel to complete the questionnaire (see Figure 1 for the recruitment process). The panel, consisting of 50'000 Swiss residents, covers all seven geographical regions of Switzerland. Participants were recruited over various channels to prevent heavy online user bias. The respondents reflected the composition of the Swiss population in terms of gender and age. The mean age of the participants was 42.93 years ($SD = 13.80$, range 18–69). The majority had completed vocational or trade school (43.2%), followed by higher technical school or vocational training (22.2%) and college/university (20.5%). The rest had attained high school (8.5%) or compulsory school (5.6%) degrees. The sample size was was set based on by the available budget.

Measures

Conspiracy mentality scale

The German Conspiracy Mentality Scale (available in the Online Supplementary Materials) consisted of 11 items, grouped in two subfactors: Conspiracy theory ideation (7 items) and skepticism (4 items; see Table 1). In the original version (Stojanov & Halberstadt, 2019), participants answered on a 7-point scale anchored at strongly agree/disagree. In the COM-COVID survey, participants answered on a 4-point scale anchored at 1 = untrue and 4 = true. The move from a seven- to four-point scale was based on several considerations, including a planned IRT analysis, the length of the questionnaire (i.e., to prevent respondent fatigue), and the available research budget (i.e., survey expense). Cronbach's alpha for the entire CMS scale was 0.94, and 0.93 (conspiracy theory ideation) and 0.87 (skepticism) for its subscales.

Social validation

Social validation was measured with three items taken from the COM-COVID survey's Pandemic Coping Scale (PANCOPE), which was developed based on Nguyen et al. (2012). The items assessed behavioral responses to the government/news media's communication during the Covid-19 pandemic (i.e., their communication made me want to "… seek support from others to feel better emotionally"; "… seek connection with other people who share my views

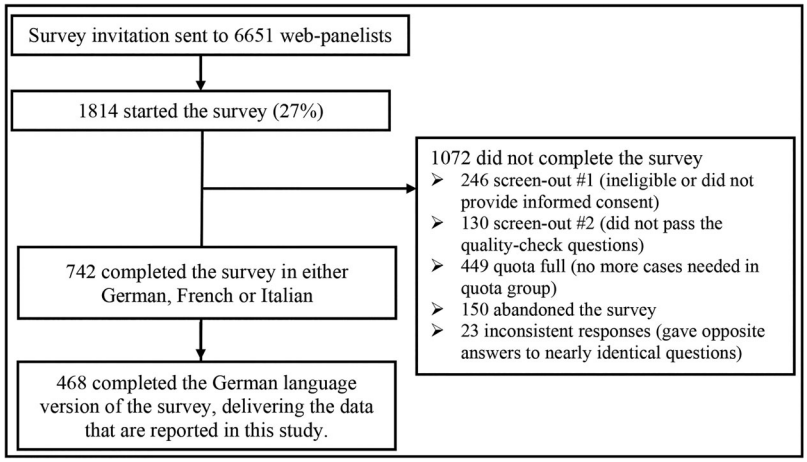

Figure 1. Recruitment process for the COM-COVID survey.

Table 1. Descriptive statistics for the 11 items of the conspiracy mentality scale ($N = 468$).

	Min	*Max*	*Mdn*	*Mean*	*SD*	*Skewness*	*Kurtosis*
CTI 1. The alternative explanations for important societal events are closer to the truth than the official story.	1	4	2	1.99	.946	.505	−.830
CTI 2. The government or covert organizations are responsible for events that are unusual or unexplained.	1	4	2	2.13	.900	.262	−.848
CTI 3. Many situations or events can be explained by illegal or harmful acts by the government or other powerful people.	1	4	2	2.03	.945	.435	−.893
CTI 4. Some things that everyone accepts as true are in fact hoaxes created by people in power.	1	4	2	2.05	.949	.494	−.757
CTI 5. Events on the news may not have actually happened.	1	4	2	2.07	.924	.408	−.781
CTI 6. Many so called "coincidences" are in fact clues as to how things really happened.	1	4	2	2.19	.942	.256	−.910
CTI 7. Events throughout history are carefully planned and orchestrated by individuals for their own betterment.	1	4	2	2.08	.932	.431	−.763
SK 1. Many things happen without the public's knowledge.	1	4	3	2.46	.975	-.031	−.999
SK 2. There are people who don't want the truth to come out.	1	4	2	2.38	1.003	.069	−1.086
SK 3. Some things are not as they seem.	1	4	2	2.39	1.009	-.003	−1.128
SK 4. People will do crazy things to cover up the truth.	1	4	3	2.53	.984	-.123	−1.001

and beliefs, to gain a sense of belonging and companionship" and "… be around people who would validate my positions and beliefs regarding the situation"). Participants indicated their behavioral coping as "(un)true of them" on a 4-point scale (1 = "untrue of me", 4 = true of me"). Cronbach's alpha was 0.83.

Trust in official sources

Participants were presented with a list of six "official" sources of information (healthcare providers, scientific experts, scientific publications, pharmaceutical company reports, the Swiss government and Swiss traditional news media) and were asked to select (coded as 1) those sources they "trusted most" for Covid-19 information. As Cronbach's alpha equated to 0.42, we analyzed each item separately.

Trust in unofficial sources

A list of four "unofficial" sources of information (social media, the internet, friends, and family members) was presented to the participants and they were again asked to select (coded as 1) those they "trusted most" for Covid-19 information. As Cronbach's alpha was 0.55, we analyzed each item separately.

Functional literacy

Five items adapted from Ishikawa et al. (2008) asked participants to rate the extent to which (1 = never, 4 = often) they were able to understand and comprehend Covid-19 related communications from the Swiss government and news media. Example items were: "I found the message contents difficult to follow" and "There were words that I did not know". Cronbach's alpha was 0.87.

Perceived severity

Participants were asked to rate their agreement/disagreement with six items assessing their perceived severity of the Covid-19 pandemic (e.g., "I felt at risk of getting infected with Covid-19" or "I believed that the Coronavirus was a severe public health problem.") on a 4-point scale (1 = strongly disagree, 4 = strongly agree). Cronbach alpha was 0.85.

Loneliness

We used the UCLA 3-item loneliness scale (Hughes et al., 2004). Participants were asked how often they felt left out, isolated from others, or that they lacked companionship

during COVID-19 (1 = hardly ever, 4 = always). Cronbach alpha was 0.85.

Compliance with pandemic control measures

Compliance with pandemic control measures was measured by four items. Participants were asked to indicate to what extent they adhered to (1) prescribed hygiene measures (1= never, 4 = always as prescribed), (2) social distancing behaviors (1 = never, 4 = always as prescribed, whenever possible), (3) wearing a surgical or FFP2 face mask (1= unable for medical reasons, 4 = always as prescribed), and (4) getting vaccinated (1 = I did not get vaccinated, 5 = I got at least one booster shot). Because of the inconsistent response scales, we conducted an exploratory factor analysis using the four items (once the irrelevant response options were removed (i.e., unable for medical reasons), and the items recoded in terms of least to most compliance) and extracted the factor score. In the subsequent analysis, we operationalized compliance with the pandemic measure as the extracted factor score.

Conflict

Four items assessed the extent to which participants' relationships suffered from Covid-19 related conflicts. The questions particularly asked about their (1) friendships (1 = no conflict at all, 4 = friendship ended irreconcilably, 5 = I did not have friends during Covid-19), (2) marriages/romantic relationships (1 = no conflict at all, 4 = marriage ended irreconcilably, 5 = I did not have a marriage/romance during Covid-19), (3) non-spousal family relationships (1 = no conflict at all, 4 = relationship ended irreconcilably, 5 = I did not have a family during Covid-19), or (4) work relationships (1 = no conflict at all, 4 = relationship(s) ended irreconcilably, 5 = I did not have any colleagues during Covid-19) . All "yes" answers for a given question were collapsed into a new category and the "not-applicable" options were treated as missing values. We operationalized conflict as both a dichotomous variable (conflict in none of the above relations = 0, at least one conflict = 1), and as continuous, by summing the interpersonal relationships with conflict and calculating a proportion out of the total opportunities for conflict.

Results

Statistical data

The data and syntax are available at https://osf.io/afws5/?view_only=a46593e5970c4372ae53cffef398298f.

Descriptive statistics

The means, medians, standard deviations, minimum, maximum, kurtosis and skewness for each item are provided in Table 1. As in the original scale development paper (Stojanov & Halberstadt, 2019), the score on the items measuring skepticism was higher than the score on the items measuring conspiracy theory ideation.

Factorial validity

We used the cfa() function in the lavaan package (Rosseel, 2012) in R to fit the original CMS two-factor solution using a MLR (robust maximum likelihood) estimator, and compared the results with a one-factor solution. As can be seen in Table 2, the two-factor model was a better fit to the data as indicated by $\Delta\chi^2(1) = 49.77$, $p < 0.001$, and the lower values for AIC and BIC. Thus, we retained the original two-factor structure and continued validating the two-factor CMS scale. All items loaded on the respective factors as hypothesized, with regression weights ranging from 0.723 to 0.829 (see Table 3).

Table 2. Confirmatory factor analysis results with MLR estimator.

	χ^2 (df)	χ^2/df	CFI	TLI	RMSEA	SRMR	AIC	BIC
One-factor model	134.002 (44)	3.04	0.96	0.95	0.084 (0.068 – 0.100)	0.036	10677.195	10768.461
Two-factor model	84.230 (43)	1.95	0.982	0.977	0.057 (0.039-0.075)	0.029	10597.327	10692.741

Note. χ^2 = Robust χ^2, CFI = Robus Comparative fit index, TLI = Robust Tucker-Lewis index, RMSEA = Robust Root mean square error of approximation, SRMR = Robus standardized root mean squared residual, AIC = Akaike information criterion, BIC = Bayesian information criterion. $N = 468$.

Table 3. Standardized regression coefficients from CFA with MLR estimator.

	CTI	SK
CTI1. The alternative explanations for important societal events are closer to the truth than the official story.	.812	
CTI2. The government or covert organizations are responsible for events that are unusual or unexplained.	.792	
CTI3. Many situations or events can be explained by illegal or harmful acts by the government or other powerful people.	.842	
CTI4. Some things that everyone accepts as true are in fact hoaxes created by people in power.	.822	
CTI5. Events on the news may not have actually happened.	.812	
CTI6. Many so called "coincidences" are in fact clues as to how things really happened.	.755	
CTI7. Events throughout history are carefully planned and orchestrated by individuals for their own betterment.	.788	
SK1. Many things happen without the public's knowledge.		.803
SK2. There are people who don't want the truth to come out.		.811
SK3. Some things are not as they seem.		.761
SK4. People will do crazy things to cover up the truth.		.781

Note. CTI = Conspiracy theory ideation, SK = Skepticism. $N = 468$.

Table 4. Unstandardized coefficients, standard errors, standardized coefficients, and *p*-values from the regression model with conspiracy theory ideation and skepticism as predictors and the variables in the first column as outcome variables.

	Conspiracy theory ideation							Skepticism						
	B	*SE*	*β*	*t*	*p*	Corrected p	Expected	*B*	*SE*	*β*	*t*	*p*	Corrected p	Expected
Functional Literacy	−0.21	0.06	−0.27	−3.45	**0.001**	**0.005**	—	0.12	0.06	0.16	2.09	**0.04**	0.13	+
Social Validation	0.52	0.08	0.51	6.66	***p* < 0.001**	***p* < 0.001**	+	−0.26	0.07	−0.27	−3.60	***p* < 0.001**	***p* < 0.01**	None
Severity	−0.21	0.07	−0.22	−2.79	**0.005**	**0.03**	—	−0.04	0.07	−0.05	−0.63	0.53	0.72	None
Loneliness	0.16	0.08	0.16	2.05	**0.041**	0.13	+	0.03	0.07	0.03	0.41	0.69	0.86	None
Compliance	−0.25	0.10	−0.19	−2.48	**0.013**	**0.05**	—	−0.18	0.09	−0.15	−1.94	0.053	0.15	None
Conflict	0.02	0.03	0.06	0.76	0.44	0.66	+	0.02	0.03	0.06	0.69	0.49	0.90	None

Note. Bold indicates significant results. $N = 468$.

Table 5. Logistic regression results, with conflict as outcome variable.

	B	*S.E.*	*Wald*	*df*	*P*	*BH p*	*Exp(B)*	*Lower 95% CI Exp(B)*	*Hlgher 95% CI Exp(B)*
Conspiracy theory ideation	–.170	.210	0.659	1	.42	0.51	.843	0.56	1.27
Skepticism	.260	.194	1.79	1	.18	0.32	1.29	0.88	1.90

Note. Cox & Snell $R^2 = 0.004$, Nagelkerke $R^2 = 0.006$, BH p = Benjamini-Hochberg corrected *p*. $N = 467$.

Construct validity

For the validation study, we adopted the same approach as in the original CMS development paper, where both factors were entered as simultaneous predictors in multiple regression (SPSS). Table 4 shows the associations between the two CMS subscales and the variables of interest, and summarizes the predicted and observed relationships between the variables. Furthermore, as in the original study, we reported both the uncorrected and Benjamini-Hochberg multiple comparisons corrected *p*-values. Multicollinearity diagnostics suggested that multicollinearity was not an issue (VIF = 3.01, tolerance = 0.33).

As can be seen from Table 4, our hypotheses were mostly confirmed. Conspiracy theory ideation was positively related to seeking social validation. Further, it was negatively related to compliance with the recommended measures, perceived severity of the pandemic and functional literacy. Skepticism was negatively related to seeking social validation and positively related to functional literacy.

Unexpectedly, loneliness did not emerge as a significant predictor, once we controlled for multiple comparisons (albeit the relationship was in the predicted direction and as the equivalence analysis below shows, there is insufficient evidence to infer negligible effects). Also, interpersonal conflict and conspiracy theory ideation were unrelated (see Table 5). We also obtained some surprising findings in terms of correlation with trustworthiness in the different sources of information as only trustworthiness of scientific experts and publications was negatively, and that of friends positively correlated with conspiracy ideation (see Table 6).

We followed up non-significant multiple regression results with equivalence analysis (Lakens, 2017), in which lower and upper bound of a negligible effect were specified. If the effect size falls within the range of the lower and upper bound, the effect is considered so small that it is not worth examining. Although using a benchmark SESOI (smallest effect size of interest) is considered the weakest possible justification (Lakens et al., 2018) for setting the lower and upper bounds, in our particular case, we considered it acceptable, because no prior studies had examined the link between skepticism and other variables of interest, and there were no prior effect sizes we could have based SESOI on. Thus, consistent with Campbell (2020), we decided to consider standardized regression coefficients of +/-0.1 a small effect size, and anything that falls within the +0.1 to − 0.1 range to be a negligible effect. We used the TOST (two one-sided test) in the reg.equiv function in R (Alter & Counsell, 2021). The results indicated that in all cases, there was insufficient evidence for negligible effects, meaning that the true population effect could be larger/smaller than 0.1/-0.1.

Measurement invariance

As a final step in the validation, we examined measurement invariance of the CMS across gender, education level and age. Because the number of participants in a given education level was too small for running measurement invariance tests, we collapsed some of the categories (i.e., "compulsory education" and "vocational school/trade school"). Similarly, age was recoded into a new variable with five levels (18–29; 30–39; 40–49; 50–59 and 60+), and measurement equivalence was examined across these five levels. The fit of the configural model represented the baseline against which we compared the subsequent, more restrictive model.

To test for measurement invariance, we used the lavaan package in R where we constrained the regression weights to be equal across groups and we estimated model fit. We then compared the constrained model fit indexes with those of the configural model. Finally, we constrained the intercepts to be equal across groups, and compared that model fit to the one with constrained regression weights only. As seen in Tables 7–9, $\Delta\chi^2$ was not significant, indicating measurement equivalence. Likewise, ΔCFI and ΔTLI values were lower than 0.01 (Cheung & Rensvold, 2002), and ΔRMSEA values lower than 0.015 (Chen, 2007) indicating measurement invariance. Based on the overall evidence, we conclude that the scale's validity was demonstrated.

Table 6. Logistic regression results, with trust in sources of information as an outcome variable.

	Conspiracy theory ideation								Skepticism							
	B (S.E.)	*Wald*	*df*	*P*	*BH p*	*Exp(B)*	*95% LLCI Exp(B)*	*95% ULCI Exp(B)*	*B*	*Wald*	*df*	*P*	*BH p*	*Exp(B)*	*Lower 95% CI Exp(B)*	*HIgher 95% CI Exp(B)*
Healthcare providers	−0.02 (0.21)	0.01	1	0.92	0.94	0.98	0.65	1.47	−0.14 (0.19)	0.54	1	0.46	0.95	0.87	0.60	1.27
Scientific experts	−0.97 (0.22)	18.64	1	**0.00**	***p* < 0.001**	0.38	0.24	0.59	0.38 (0.21)	3.32	1	0.07	0.17	1.46	0.97	2.18
Scientific publications	−0.47 (0.22)	4.51	1	**0.03**	0.13	0.62	0.40	0.96	0.07 (0.20)	0.12	1	0.73	0.88	1.07	0.72	1.59
Pharmaceutical company reports	0.30 (0.54)	0.32	1	0.57	0.75	1.36	0.47	3.90	−0.53 (0.50)	1.14	1	0.29	0.51	0.59	0.22	1.56
Federal Office of Public Health	−0.36 (0.22)	2.73	1	0.10	0.22	0.70	0.46	1.07	−0.56 (0.21)	7.44	1	**0.01**	**0.03**	0.57	0.38	0.85
Traditional news media	−0.31 (0.24)	1.70	1	0.19	0.39	0.73	0.46	1.17	−0.02 (0.22)	0.01	1	0.92	0.94	0.98	0.64	1.50
Social media	0.52 (0.50)	1.07	1	0.30	0.51	1.68	0.63	4.51	0.10 (0.49)	0.04	1	0.84	0.92	1.11	0.42	2.92
Internet	0.75 (0.39)	3.66	1	0.06	0.14	2.11	0.98	4.55	−0.32 (0.38)	0.70	1	0.40	0.59	0.73	0.35	1.52
Friends	0.97 (0.35)	7.60	1	**0.01**	**0.03**	2.62	1.32	5.21	−0.31 (0.34)	0.87	1	0.35	0.54	0.73	0.38	1.42
Family members	0.36 (0.31)	1.34	1	0.25	0.46	1.43	0.78	2.62	−0.09 (0.29)	0.09	1	0.76	0.89	0.92	0.52	1.62

Note. Bold indicates significant results; $N = 467$.

Discussion

With the rise of academic interest in conspiracy theory beliefs, a validated measure that captures the general tendency to endorse such beliefs is needed. While most of the available measures to date have been developed in English, very few are made available in other languages. In this article, we presented evidence for a German version of the Conspiracy Mentality Scale (CMS), which consists of eleven items and two factors, the first of which (ideation) taps into the general tendency to believe in conspiracy theories, while the second one (skepticism) captures suspiciousness more broadly. Measurement invariance tests evidenced that the CMS operates equivalently across gender, age and education levels. As such, it represents a welcomed addition to generic measures of conspiracy beliefs in German language, in response to other available scales that may have questionable construct validity (Swami et al., 2017).

The German version of the CMS replicated the two-factor structure of the original English scale. In addition to factorial validity, the scale also exhibited construct validity, with the conspiracy theory ideation subscale correlating negatively with compliance with the pandemic measures and trust in scientific publications and scientific experts, and positively with trust in friends and social validation. Skepticism, on the other hand, was only negatively related to social validation and positively to functional literacy.

Not all of our construct validity hypotheses were supported. In particular, we expected higher interpersonal conflict and feelings of loneliness to be related to higher conspiracy beliefs. Correlations between these variables reported in previous studies were rather small, so the effect may be negligible and difficult to detect. We also note that in our survey, the question about interpersonal conflicts was framed in relation to Covid-19. It may be that individuals high on conspiracy theory ideation engaged in more interpersonal conflict unrelated to Covid-19, which was not assessed by the survey. Thus, we see these null findings as an indication of the need for additional research, rather than as evidence against the CMS's validity.

It is also worth noting that the linear relationship between skepticism and social validation was negative. Our initial reasoning was that the need for social validation would be unrelated to skepticism, because the diffused and general suspiciousness, which the skepticism dimension taps, should not be a function of social validation. However, the findings make intuitive sense, in that a higher need for validation would mean that one would appraise a situation less suspiciously and critically and comply with the norm.

Finally, the relationship with the trustworthiness of different sources of information were not always as expected. In some cases, we explain this with the dichotomous nature of the trustworthiness items, which resulted in a rough measure. For instance, only 20 participants (4.3%) selected social media or pharmaceutical companies reports as a trustworthy source, which likely indicates a floor effect. For trust in medical doctors (for which the results were more evenly distributed, i.e., 48% selected this category as trustworthy source), the result may indicate that people's trust in their

Table 7. Configural, metric and scalar invariance across gender.

Model	χ^2 (df)	CFI	TLI	RMSEA	SRMR	Comparison	Δχ2 (df)	Δ CFI	Δ TLI	Δ RMSEA	Δ SRMR	Decision
M1: Configural	119.183 (86)**	0.986	0.982	0.050	0.030	/						
M2: Metric invariance	127.027 (95)**	0.987	0.985	0.045	0.035	M1	7.84 (9)	0.001	0.003	0.005	0.005	Equivalence
M3: Scalar invariance	135.271 (104)**	0.988	0.987	0.042	0.036	M2	8.24(9)	0.001	0.002	0.003	0.001	Equivalence

Note. χ^2 = Robust χ^2, CFI = Robus Comparative fit index, TLI = Robust Tucker-Lewis index, RMSEA = Robust Root mean square error of approximation, SRMR = Robus standardized root mean squared residual, AIC = Akaike information criterion, BIC = Bayesian information criterion. Total $N = 468$.

Table 8. Configural, metric and scalar invariance across education.

Model	χ^2 (df)	CFI	TLI	RMSEA	SRMR	Comparison	Δχ2 (df)	Δ CFI	Δ TLI	Δ RMSEA	Δ SRMR	Decision
M1: Configural	313.009 (172)**	0.950	0.936	0.096	0.041							
M2: Metric invariance	345.051 (199)**	0.951	0.946	0.089	0.055	M1	32.042 (27)	0.001	0.01	0.007	0.014	Equivalence
M3: Scalar invariance	376.655 (226)**	0.942	0.944	0.083	0.058	M2	31.60 (27)	0.009	0.002	0.003	0	Equivalence

Note. χ^2 = Robust χ^2, CFI = Robus Comparative fit index, TLI = Robust Tucker-Lewis index, RMSEA = Robust Root mean square error of approximation, SRMR = Robus standardized root mean squared residual, AIC = Akaike information criterion, BIC = Bayesian information criterion. Total $N = 468$.

Table 9. Configural, metric and scalar invariance across age.

Model	χ^2 (df)	CFI	TLI	RMSEA	SRMR	Comparison	Δχ2 (df)	Δ CFI	Δ TLI	Δ RMSEA	Δ SRMR	Decision
M1: Configural	303.416 (215)	0.968	0.960	0.077	0.043							
M2: Metric invariance	349.915 (251)	0.961	0.958	0.073	0.070	M1	46.499 (36)	0.007	0.002	0.004	0.027	Equivalence
M3: Scalar invariance	385.659 (287)	0.968	0.969	0.067	0.072	M2	35.744 (36)	0.007	0.011	0.006	0.0002	Equivalence

Note. χ^2 = Robust χ^2, CFI = Robus Comparative fit index, TLI = Robust Tucker-Lewis index, RMSEA = Robust Root mean square error of approximation, SRMR = Robus standardized root mean squared residual, AIC = Akaike information criterion, BIC = Bayesian information criterion. Total $N = 468$.

physician is an individual experience that is not affected in the same way across the board by people's tendency to engage in conspiracy theorizing. Indeed, some physicians may communicate about conspiracies more or less skillfully with patients (Marques et al., 2022), thus building trust to a higher or lesser degree. Also noteworthy is the finding that trust in the Federal Office of Public Health (FOPH) was negatively related with both ideation and skepticism, while FOPH was also the most trusted sources (62% of the participants selected this source, followed by 60% who selected scientific experts). Thus, although participants tended to trust FOPH, not having trust in FOPH was predicted by both conspiracy ideation and more general, diffused suspiciousness.

Our study is not without limitations. Although the sample was representative of the German-speaking Swiss population, the cross-sectional nature of the survey meant that we could not estimate test-retest reliability in the current study (the original study reported good test-retest reliability). Further, we relied on self-reported measures, which may have led to common method variance (Podsakoff et al., 2003) that could have increased the correlations among the constructs (although a Harman's single factor test suggested that one-factor can explain 26% of the variance, indicating that shared method variance is not a problem). Further, as conspiracy beliefs are stigmatized beliefs (Lantian et al., 2018; Nera et al., 2022), participants may have responded in a socially desirable way (Krumpal, 2013).

Despite these shortcomings, our findings suggest that the CMS is a valid psychometric tool, which consists of two subscales that operates equivalently across different demographics and in different language versions.

Open Scholarship

This article has earned the Center for Open Science badges for Open Data through Open Practices Disclosure. The data are openly accessible at https://osf.io/afws5/?view_only=a46593e5970c4372ae53cffef398298f.

Disclosure statement

We have no known conflict of interest to declare.

Funding

The COM-COVID data collection was funded by the Swiss Federal Office of Public Health, Health Division of the Bern University of Applied Sciences, Stefan Dräger, and Roche Diagnostics.

ORCID

Ana Stojanov http://orcid.org/0000-0002-8377-4372
Annegret Hannawa http://orcid.org/0000-0001-5036-5065

Data availability

The data associated with this paper is available at https://osf.io/afws5/?view_only=a46593e5970c4372ae53cffef398298f

References

Allington, D., Duffy, B., Wessely, S., Dhavan, N., & Rubin, J. (2021). 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

Alper, S., Bayrak, F., & Yilmaz, O. (2021). Psychological correlates of COVID-19 conspiracy beliefs and preventive measures: Evidence from Turkey. *Current Psychology (New Brunswick, NJ)*, *40*(11), 5708–5717. https://doi.org/10.1007/S12144-020-00903-0/TABLES/3

Alsuhibani, A., Shevlin, M., Freeman, D., Sheaves, B., & Bentall, R. P. (2022). Why conspiracy theorists are not always paranoid: Conspiracy theories and paranoia form separate factors with distinct psychological predictors. *PLOS One*, *17*(4), e0259053. https://doi.org/10.1371/JOURNAL.PONE.0259053

Alter, U., & Counsell, A. (2021). *Equivalence testing for multiple regression*. https://doi.org/10.31234/OSF.IO/UGC9E

Atari, M., Afhami, R., & Swami, V. (2019). Psychometric assessments of Persian translations of three measures of conspiracist beliefs. *PLOS One*, *14*(4), e0215202. https://doi.org/10.1371/JOURNAL.PONE.0215202

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*, 565128. https://doi.org/10.3389/fpsyg.2020.565128

Bierwiaczonek, K., Gundersen, A. B., & Kunst, J. R. (2022). The role of conspiracy beliefs for COVID-19 health responses: A meta-analysis. *Current Opinion in Psychology*, *46*, 101346. https://doi.org/10.1016/J.COPSYC.2022.101346

Brotherton, R., French, C. C., & Pickering, A. D. (2013). Measuring belief in conspiracy theories: The generic conspiracist beliefs scale. *Frontiers in Psychology*, *4*, 279. https://doi.org/10.3389/FPSYG.2013.00279/BIBTEX

Bruder, M., Haffke, P., Neave, N., Nouripanah, N., & Imhoff, R. (2013). Measuring individual differences in generic beliefs in conspiracy theories across cultures: Conspiracy mentality questionnaire. *Frontiers in Psychology*, *4*, 225. https://doi.org/10.3389/FPSYG.2013.00225

Bruder, M., & Kunert, L. (2022). The conspiracy hoax? Testing key hypotheses about the correlates of generic beliefs in conspiracy theories during the COVID-19 pandemic. *International Journal of Psychology : Journal International de Psychologie*, *57*(1), 43–48. https://doi.org/10.1002/IJOP.12769

Bruns, A., Harrington, S., & Hurcombe, E. (2020). Corona? 5G? or both?': The dynamics of COVID-19/5G conspiracy theories on Facebook. *Media International Australia*, *177*(1), 12–29. https://doi.org/10.1177/1329878X20946113

Campbell, H. (2020). *Equivalence testing for standardized effect sizes in linear regression*. https://doi.org/10.48550/arxiv.2004.01757

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*, 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Constantinou, M., Kagialis, A., Karekla, M., Ferrara, P., Albano, L., Tomaselli, V., Berrigan, D., & Efird, J. T. (2021). COVID-19 scientific facts vs. conspiracy theories: Is science failing to pass its message? *International Journal of Environmental Research and Public Health*, *18*(12), 6343. https://doi.org/10.3390/ijerph18126343

Craft, S., Ashley, S., & Maksl, A. (2017). News media literacy and conspiracy theory endorsement. *Communication and the Public*, *2*(4), 388–401. https://doi.org/10.1177/2057047317725539

Craig, K., & Sadovykh, V. (2022). Perceived social media bias, social identity threat, and conspiracy theory ideation during the COVID-19 pandemic. In *Proceedings of the 55th Hawaii International Conference on System Sciences* (pp. 5975–5984). https://doi.org/10.24251/HICSS.2022.726

Dagnall, N., Drinkwater, K., Parker, A., Denovan, A., & Parton, M. (2015). Conspiracy theory and cognitive style: A worldview. *Frontiers in Psychology*, *6*, 206. https://doi.org/10.3389/FPSYG.2015.00206/BIBTEX

De Coninck, D., Frissen, T., Matthijs, K., d'Haenens, L., Lits, G., Champagne-Poirier, O., Carignan, M.-E., David, M. D., Pignard-Cheynel, N., Salerno, S., & Généreux, M. (2021). Beliefs in conspiracy theories and misinformation about COVID-19: Comparative perspectives on the role of anxiety, depression and exposure to and trust in information sources. *Frontiers in Psychology*, *12*, 646394. https://doi.org/10.3389/FPSYG.2021.646394/FULL

Douglas, K. M. (2021). COVID-19 conspiracy theories. *Group Processes & Intergroup Relations*, *24*(2), 270–275. https://doi.org/10.1177/1368430220982068

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

Drinkwater, K. G., Dagnall, N., Denovan, A., & Neave, N. (2020). Psychometric assessment of the Generic Conspiracist Beliefs Scale. *PLOS One*, *15*(3), e0230365. https://doi.org/10.1371/JOURNAL.PONE.0230365

Duplaga, M. (2020). The determinants of conspiracy beliefs related to the COVID-19 pandemic in a nationally representative sample of internet users. *International Journal of Environmental Research and Public Health*, *17*(21), 7818. https://doi.org/10.3390/ijerph17217818

Earnshaw, V. A., Eaton, L. A., Kalichman, S. C., Brousseau, N. M., Hill, E. C., & Fox, A. B. (2020). COVID-19 conspiracy beliefs, health behaviors, and policy support. *Translational Behavioral Medicine*, *10*(4), 850–856. https://doi.org/10.1093/TBM/IBAA090

Enders, A. M., Uscinski, J. E., Seelig, M. I., Klofstad, C. A., Wuchty, S., Funchion, J. R., Murthi, M. N., Premaratne, K., & Stoler, J. (2021). The relationship between social media use and beliefs in conspiracy theories and misinformation. *Political Behavior*, 1–24. Advance online publication. https://doi.org/10.1007/s11109-021-09734-6

Freeman, D., Waite, F., Rosebrock, L., Petit, A., Causier, C., East, A., Jenner, L., Teale, A. L., Carr, L., Mulhall, S., Bold, E., & Lambe, S. (2022). Coronavirus conspiracy beliefs, mistrust, and compliance with government guidelines in England. *Psychological Medicine*, *52*(2), 251–263. https://doi.org/10.1017/S0033291720001890

Gligorić, V., da Silva, M. M., Eker, S., van Hoek, N., Nieuwenhuijzen, E., Popova, U., & Zeighami, G. (2021). The usual suspects: How psychological motives and thinking styles predict the endorsement of well-known and COVID-19 conspiracy beliefs. *Applied Cognitive Psychology*, *35*(5), 1171–1181. https://doi.org/10.1002/ACP.3844

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*, 205. https://doi.org/10.3389/FPSYG.2019.00205/BIBTEX

Hettich, N., Beutel, M. E., Ernst, M., Schliessler, C., Kampling, H., Kruse, J., & Braehler, E. (2022). Conspiracy endorsement and its associations with personality functioning, anxiety, loneliness, and sociodemographic characteristics during the COVID-19 pandemic in a representative sample of the German population. *PLOS One*, *17*(1), e0263301. https://doi.org/10.1371/JOURNAL.PONE.0263301

Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on Aging*, *26*(6), 655–672. https://doi.org/10.1177/0164027504268574

Imhoff, R., Bertlich, T., & Frenken, M. (2022). Tearing apart the "evil" twins: A general conspiracy mentality is not the same as specific conspiracy beliefs. *Current Opinion in Psychology*, *46*, 101349. https://doi.org/10.1016/J.COPSYC.2022.101349

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., Dieterle, L., & Lamberty, P. (2021). Resolving the puzzle of conspiracy worldview and political activism: Belief in secret plots decreases normative but increases nonnormative political engagement. *Social Psychological and Personality Science*, *12*(1), 71–79. https://doi.org/10.1177/1948550619896491

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., & Klein, O. (2018). Using power as a negative cue: How conspiracy mentality affects epistemic trust in sources of historical knowledge. *Personality & Social Psychology Bulletin*, *44*(9), 1364–1379. https://doi.org/10.1177/0146167218768779

Imhoff, R., Zimmer, F., Klein, O., António, J. H. C., Babinska, M., Bangerter, A., Bilewicz, M., Blanuša, N., Bovan, K., Bužarovska, R., Cichocka, A., Delouvée, S., Douglas, K. M., Dyrendal, A., Etienne,

T., Gjoneska, B., Graf, S., Gualda, E., Hirschberger, G., … van Prooijen, J.-W. (2022). Conspiracy mentality and political orientation across 26 countries. *Nature Human Behaviour*, *6*(3), 392–403. https://doi.org/10.1038/s41562-021-01258-7

Ishikawa, H., Takeuchi, T., & Yano, E. (2008). Measuring functional, communicative, and critical health literacy among diabetic patients. *Diabetes Care*, *31*(5), 874–879. https://doi.org/10.2337/DC07-1932

Jamison, A. M., Broniatowski, D. A., Dredze, M., Sangraula, A., Smith, M. C., & Quinn, S. C. (2020). Not just conspiracy theories: Vaccine opponents and proponents add to the COVID-19 'infodemic' on Twitter. *Harvard Kennedy School Misinformation Review*, *1*. https://doi.org/10.37016/mr-2020-38

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), 593. https://doi.org/10.3390/vaccines9060593

Jolley, D., & Paterson, J. L. (2020). Pylons ablaze: Examining the role of 5G COVID-19 conspiracy beliefs and support for violence. *The British Journal of Social Psychology*, *59*(3), 628–640. https://doi.org/10.1111/BJSO.12394

Karić, T., & Međedović, J. (2021). Covid-19 conspiracy beliefs and containment-related behaviour: The role of political trust. *Personality and Individual Differences*, *175*, 110697. https://doi.org/10.1016/J.PAID.2021.110697

Kowalski, J., Marchlewska, M., Molenda, Z., Górska, P., & Gawęda, Ł. (2020). Adherence to safety and self-isolation guidelines, conspiracy and paranoia-like beliefs during COVID-19 pandemic in Poland - associations and moderators. *Psychiatry Research*, *294*, 113540. https://doi.org/10.1016/J.PSYCHRES.2020.113540

Krumpal, I. (2013). Determinants of social desirability bias in sensitive surveys: A literature review. *Quality & Quantity*, *47*(4), 2025–2047. https://doi.org/10.1007/s11135-011-9640-9

Lakens, D. (2017). Equivalence tests: A practical primer for t tests, correlations, and meta-analyses. *Social Psychological and Personality Science*, *8*(4), 355–362. https://doi.org/10.1177/1948550617697177

Lakens, D., Scheel, A. M., & Isager, P. M. (2018). Equivalence testing for psychological research: A tutorial. *Advances in Methods and Practices in Psychological Science*, *1*(2), 259–269. https://doi.org/10.1177/2515245918770963

Lantian, A., Muller, D., Nurra, C., & Douglas, K. M. (2016). Measuring belief in conspiracy theories: Validation of a French and English single-item scale. *International Review of Social Psychology*, *29*(1), 1–14. https://doi.org/10.5334/IRSP.8/

Lantian, A., Muller, D., Nurra, C., Klein, O., Berjot, S., & Pantazi, M. (2018). Stigmatized beliefs: Conspiracy theories, anticipated negative evaluation of the self, and fear of social exclusion. *European Journal of Social Psychology*, *48*(7), 939–954. https://doi.org/10.1002/ejsp.2498

Leone, L., Giacomantonio, M., Williams, R., & Michetti, D. (2018). Avoidant attachment style and conspiracy ideation. *Personality and Individual Differences*, *134*, 329–336. https://doi.org/10.1016/j.paid.2018.06.043

Lewandowsky, S., Oberauer, K., & Gignac, G. E. (2013). NASA faked the moon landing–therefore, (climate) science is a hoax: An anatomy of the motivated rejection of science. *Psychological Science*, *24*(5), 622–633. https://doi.org/10.1177/0956797612457686

Lukić, P., Žeželj, I., & Stanković, B. (2019). How (ir)rational is it to believe in contradictory conspiracy theories? *Europe's Journal of Psychology*, *15*(1), 94–107. https://doi.org/10.5964/EJOP.V15I1.1690

Luo, X., & Jia, H. (2022). When scientific literacy meets nationalism: Exploring the underlying factors in the Chinese public's belief in COVID-19 conspiracy theories. *Chinese Journal of Communication*, *15*(2), 227–249. https://doi.org/10.1080/17544750.2021.1954963

Maftei, A., & Holman, A. C. (2022). Beliefs in conspiracy theories, intolerance of uncertainty, and moral disengagement during the coronavirus crisis. *Ethics & Behavior*, *32*(1), 1–11. https://doi.org/10.1080/10508422.2020.1843171

Mahl, D., Schäfer, M. S., & Zeng, J. (2022). Conspiracy theories in online environments: An interdisciplinary literature review and agenda for future research. *New Media & Society*, 146144482210757. https://doi.org/10.1177/14614448221075759

Majima, Y., & Nakamura, H. (2020). Development of the Japanese version of the Generic Conspiracist Beliefs scale (GCBS-J). *Japanese Psychological Research*, *62*(4), 254–267. https://doi.org/10.1111/jpr.12267

Mancosu, M., & Vegetti, F. (2021). "Is it the message or the messenger?": Conspiracy endorsement and media sources. *Social Science Computer Review*, *39*(6), 1203–1217. https://doi.org/10.1177/0894439320965107

Marques, M. D., Douglas, K. M., & Jolley, D. (2022). Practical recommendations to communicate with patients about health-related conspiracy theories. *The Medical Journal of Australia*, *216*(8), 381–384. https://doi.org/10.5694/mja2.51475

Miller, J. M. (2020). 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

Milošević, J., Ab, Đ., Žeželj, I., Đurić, Ž., Mari, S., & Đorđević, J. M. (2021). Beyond general political attitudes: Conspiracy mentality as a global belief system predicts endorsement of international and local conspiracy theories. *Journal of Social and Political Psychology*, *9*(1), 144–158. https://doi.org/10.5964/jspp.5609

Moscovici, S. (1987). The conspiracy mentality. In C. F. Graumann & S. Moscovici (Eds.), *Changing conceptions of conspiracy* (pp. 151–169). Springer-Verlag. https://doi.org/10.1007/978-1-4612-4618-3_9

Nera, K., Jetten, J., Biddlestone, M., & Klein, O. (2022). Who wants to silence us'? Perceived discrimination of conspiracy theory believers increases 'conspiracy theorist' identification when it comes from powerholders – But not from the general public. *British Journal of Social Psychology*, *61*(4), 1263–1285. https://doi.org/10.1111/bjso.12536

Nguyen, L. K., Spitzberg, B. H., & Lee, C. M. (2012). Coping with obsessive relational intrusion and stalking: The role of social support and coping strategies. *Violence and Victims*, *27*(3), 414–433. https://doi.org/10.1891/0886-6708.27.3.414

Pavela Banai, I., Banai, B., & Mikloušić, I. (2021). Beliefs in COVID-19 conspiracy theories, compliance with the preventive measures, and trust in government medical officials. *Current Psychology*, *41*(10), 7448–7458. https://doi.org/10.1007/S12144-021-01898-Y/FIGURES/1

Petrović, M., & Žeželj, I. (2022). Both a bioweapon and a hoax: The curious case of contradictory conspiracy theories about COVID-19. *Thinking & Reasoning*, 1–32. https://doi.org/10.1080/13546783.2022.2088618

Pivetti, M., Di Battista, S., Paleari, F. G., & Hakoköngäs, E. (2021). Conspiracy beliefs and attitudes toward COVID-19 vaccinations: A conceptual replication study in Finland. *Journal of Pacific Rim Psychology*, *15*, 183449092110398. https://doi.org/10.1177/18344909211039893

Plohl, N., & Musil, B. (2021). Modeling compliance with COVID-19 prevention guidelines: the critical role of trust in science. *Psychology, Health & Medicine*, *26*(1), 1–12. https://doi.org/10.1080/13548506.2020.1772988

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, *88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Pummerer, L., Böhm, R., Lilleholt, L., Winter, K., Zettler, I., & Sassenberg, K. (2022). 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

Romer, D., & Jamieson, K. H. (2020). Conspiracy theories as barriers to controlling the spread of COVID-19 in the U.S. *Social Science & Medicine (1982)*, *263*, 113356. https://doi.org/10.1016/J.SOCSCIMED.2020.113356

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*(2), 1–36. https://doi.org/10.18637/jss.v048.i02

Sallam, M., Dababseh, D., Eid, H., Hasan, H., Taim, D., Al-Mahzoum, K., Al-Haidar, A., Yaseen, A., Ababneh, N. A., Assaf, A., Bakri, F. G., Matar, S., & Mahafzah, A. (2021). Low COVID-19 vaccine acceptance is correlated with conspiracy beliefs among university students in Jordan. *International Journal of Environmental Research and Public Health*, *18*(5), 2407. https://doi.org/10.3390/ijerph18052407

Siwiak, A., Szpitalak, M., & Polczyk, R. (2019). Generic Conspiracist Beliefs Scale - Polish adaptation of the method. *Polish Psychological Bulletin*, *50*(3), 259–269. https://doi.org/10.24425/ppb.2019.130699

Soveri, A., Karlsson, L. C., Antfolk, J., Lindfelt, M., & Lewandowsky, S. (2021). Unwillingness to engage in behaviors that protect against COVID-19: the role of conspiracy beliefs, trust, and endorsement of complementary and alternative medicine. *BMC Public Health*, *21*(1), 1–12. https://doi.org/10.1186/S12889-021-10643-W/TABLES/4

Šrol, J., Ballová Mikušková, E., & Čavojová, V. (2021). When we are worried, what are we thinking? Anxiety, lack of control, and conspiracy beliefs amidst the COVID-19 pandemic. *Applied Cognitive Psychology*, *35*(3), 720–729. https://doi.org/10.1002/ACP.3798

Šrol, J., Čavojová, V., & Ballová Mikušková, E. (2021). Finding someone to blame: The link between COVID-19 conspiracy beliefs, prejudice, support for violence, and other negative social outcomes. *Frontiers in Psychology*, *12*, 726076. https://doi.org/10.3389/FPSYG.2021.726076/BIBTEX

Stasielowicz, L. (2022). Who believes in conspiracy theories? A meta-analysis on personality correlates. *Journal of Research in Personality*, *98*, 104229. https://doi.org/10.1016/j.jrp.2022.104229

Stecula, D. A., & Pickup, M. (2021). Social media, cognitive reflection, and conspiracy beliefs. *Frontiers in Political Science*, *3*, 62. https://doi.org/10.3389/FPOS.2021.647957/BIBTEX

Stein, R. A., Ometa, O., Pachtman Shetty, S., Katz, A., Popitiu, M. I., & Brotherton, R. (2021). Conspiracy theories in the era of COVID-19: A tale of two pandemics. *International Journal of Clinical Practice*, *75*(2), e13778. https://doi.org/10.1111/IJCP.13778

Stojanov, A., Bering, J. M., & Halberstadt, J. (2020). Does perceived lack of control lead to conspiracy theory beliefs? Findings from an online MTurk sample. *PLOS One*, *15*(8), e0237771. https://doi.org/10.1371/JOURNAL.PONE.0237771

Stojanov, A., & Douglas, K. (2022). Conspiracy beliefs in Britain and North Macedonia: A comparative study. *International Journal of Psychology : Journal International de Psychologie*, *57*(2), 209–217. https://doi.org/10.1002/ijop.12801

Stojanov, A., & Halberstadt, J. (2019). The Conspiracy Mentality Scale: Distinguishing between irrational and rational suspicion. *Social Psychology*, *50*(4), 215–232. https://doi.org/10.1007/s12144-021-01977-0

Stojanov, A., Halberstadt, J., Bering, J. M., & Kenig, N. (2021). Examining a domain-specific link between perceived control and conspiracy beliefs: A brief report in the context of COVID-19. *Current Psychology*, 1–10. https://doi.org/10.1007/S12144-021-01977-0/TABLES/10

Sutton, R. M., & Douglas, K. M. (2020). Conspiracy theories and the conspiracy mindset: Implications for political ideology. *Current Opinion in Behavioral Sciences*, *34*, 118–122. https://doi.org/10.1016/j.cobeha.2020.02.015

Swami, V., Barron, D., Weis, L., Voracek, M., Stieger, S., & Furnham, A. (2017). An examination of the factorial and convergent validity of four measures of conspiracist ideation, with recommendations for researchers. *PLOS One*, *12*(2), e0172617. https://doi.org/10.1371/JOURNAL.PONE.0172617

Swami, V., Chamorro-Premuzic, T., & Furnham, A. (2010). Unanswered questions: A preliminary investigation of personality and individual difference predictors of 9/11 conspiracist beliefs. *Applied Cognitive Psychology*, *24*(6), 749–761. https://doi.org/10.1002/acp.1583

Teovanović, P., Lukić, P., Zupan, Z., Lazić, A., Ninković, M., & Žeželj, I. (2021). 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

The Lancet Infectious Diseases. (2020). The COVID-19 infodemic. *The Lancet. Infectious Diseases*, *20*(8), 875. https://doi.org/10.1016/S1473-3099(20)30565-X

Vegetti, F., & Littvay, L. (2022). Belief in conspiracy theories and attitudes toward political violence. *Italian Political Science Review/Rivista Italiana di Scienza Politica*, *52*(1), 18–32. https://doi.org/10.1017/ipo.2021.17

Victor, C. R., Scambler, S. J., Bowling, A., & Bond, J. (2005). The prevalence of, and risk factors for, loneliness in later life: A survey of older people in Great Britain. *Ageing and Society*, *25*(6), 357–375. https://doi.org/10.1017/S0144686X04003332

Wirawan, G. B. S., Mahardani, P. N. T. Y., Cahyani, M. R. K., Laksmi, N. L. P. S. P., & Januraga, P. P. (2021). Conspiracy beliefs and trust as determinants of COVID-19 vaccine acceptance in Bali, Indonesia: Cross-sectional study. *Personality and Individual Differences*, *180*, 110995. https://doi.org/10.1016/J.PAID.2021.110995

Wood, M. J., & Douglas, K. M. (2015). Online communication as a window to conspiracist worldviews. *Frontiers in Psychology*, *6*, 836. https://doi.org/10.3389/FPSYG.2015.00836/BIBTEX

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