Analysing the Psychological Needs Satisfied by Conspiracy Theories: Exploring Affiliation in Germany during the COVID-19 pandemic.

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Abstract

Background:
This research aimed to investigate the psychological attributes that drive individuals to seek compensatory explanations through conspiracy theories during the COVID-19 pandemic. It explores the insufficient fulfilment of psychological needs, such as the need for certainty, security, autonomy, mental well-being, and examines how these needs may be satisfied through conspiratorial beliefs.

Methods:
A survey-based study was conducted, with a sample size of 224 participants. The survey included measures to assess psychological needs for certainty, security, autonomy, and well-being. Further, sub-scales for rebelliousness and conspiratorial affiliation were included. The survey was distributed through QR codes and social media platforms. Data collected from the survey were analysed in "R" using multiple linear regression. The constructs were examined for internal consistency and correlations among variables were explored.

Results:
The findings indicate that the sub-scale measuring conspiratorial affiliations is significantly correlated to three incorporated sub-scales. Thus, individuals with high scores on conspiratorial affiliation also scored high on epistemic inconsistencies. Further high scores in conspiratorial affiliation are associated with low scores in lacks of safety and high scores in rebelliousness. Other included sub-scales did not show a significant relation with conspiratorial affiliation.

Conclusion:
The study highlights the prevalence of psychological needs that are insufficiently met by public information are compensatory fulfilled by conspiratorial explanations. Hence, this studies findings lead to the assumption that individuals adhere conspiracy theories to be able to make sense of the world, feel more secured within the socio-economic situation, or fulfil needs for resistance and defiance against established explanations. Thus, conspiracy theories seem to offer a sense of understanding, security, and resistance against public narratives. Future research should address the limitations and explore interventions targeting psychological motives to reduce the prevalence of conspiracy beliefs in society.

Contents

1. Introduction

Humanity has forever been challenged by uncertainties. Yet, at the end of 2019, the COVID-19 pandemic confronted the world with a challenge that was characterised by uncertainties, as modern society had never experienced a global epidemic since the "Spanish flu" in 1918 (Center for Disease Control and Prevention [CDC], 2018). Although the WHO has recently reclassified COVID-19 as no longer a global emergency, this pandemic has challenged the way we live in every aspect (United Nations News [UN News], 2023). Suddenly, new norms emerged, dictating and restricting social interaction at all levels of society. As a result, countries had to consider how to effectively protect their citizens while maintaining essential societal, industrial, and institutional processes. Simultaneously, each citizen was compelled to accept restrictions that reduced individual freedom, diminished quality of life, and hindered self-determination (Corpus et al., 2022; Camilleri, 2021). Ultimately, COVID-19 represented more than just a threat to physical health. In multiple ways, the virus embodied a danger that caused society to falter and profoundly challenged people's understanding of societal principles (Pietrocola, 2021).

While everyone was equally exposed to the threatening potential that the virus bore, the perception of how and for which reasons the virus affected our lives greatly varied, with multiple narratives about truth and untruth, whether the government was knowledgeable in its actions, and which legislative limitations were justified or not (Luengo & García-Marín, 2020; Darius & Urquhart, 2021). Despite the scientific community working tirelessly to provide accurate information and effective measures to curb the spread of the virus, there has been a concurrent rise in conspiratorial beliefs surrounding the COVID-19 pandemic (Douglas, 2021). These conspiracies ranged from the idea that the virus was a hoax or artificially created to suspicious beliefs about the vaccine, its safety, and its efficiency (Darius & Urquhart, 2021). The increasing prevalence of endorsement of such theories throughout the pandemic is quantitatively well-determined and has led to consequences like the disregard of public health measures and increased vaccine hesitancy (Bruder

& Kunert, 2022). A cross-sectional online study by Cambridge University showed that 30 percent of German-speaking participants endorsed conspiracy theories to some extent (Sak et al., 2021). However, existing research has not thoroughly elaborated on the psychological motives that cause individuals to affiliate with conspiracy theories (Douglas et al., 2017).

Accordingly, this research is conducted to empirically test whether individuals who believed in conspiracy theories throughout the COVID-19 pandemic, showed differences in measures of psychological needs like certainty, safety, belongingness, and mental well-being. The main hypotheses of this research study claim that individuals find additional satisfaction on various psychological levels through additional, simpler, self-maintaining, yet artificial and conspiratorial evidence or explanations of the socio-political circumstances during the COVID-19 pandemic. To test this assumption, an online survey was conducted. The included psychological inconsistencies (epistemic, existential, and social) are conceptually based on a review by Douglas et al. (2017) on motives behind conspiratorial thinking. The contextual focus of this research is the COVID-19 pandemic that had profound global impact in the years 2020, 2021, and the beginning of 2022.

Existing literature suggests that conspiracy theories may be adhered to because conspirators understand their environment better, and in a way that preserves their self-image, after adopting such belief constructs (Goreis & Voracek, 2019). In that case, conspiracy theories are utilised to, for example, offer alternative truths that can be easier to explain, reason present circumstances in a straightforward way, or provide a clear scapegoat. Hence, individuals can make sense of their environment under this conspiratorial frame of reference, whereas the real causalities are often too complex, timely intertwined, and difficult to comprehend. Furthermore, conspiracy theories may provide evidence contradictory to an objective, rational narrative, which makes individuals perceive themselves as safer and more in control of their lives. Lastly, conspiracy theories might be adhered

to due to a social motive, either to experience in-group membership or to protect one's self-concept as part of an existing in-group (Douglas et al., 2017).

In addition to the psychological motives for conspiratorial affiliation distinguished by Douglas et al. (2017), the trait facet of rebelliousness is hypothesised to impact an individual's likelihood to adhere to conspiracy theories. While the aforementioned psychological inconsistencies are not necessarily inherently prevalent, some individuals are expected to be affiliated with conspiracy theories due to their persistent rebellious personalities. Such individuals are hypothesised to show affiliations to conspiracy theories beyond the context of COVID-19. Lastly, perceived mental well-being and its effect on conspiratorial thinking are subjects of this research study. While there is an established negative relation between both constructs, the primary objective is to identify whether the effects of the psychological inconsistencies (see Theoretical Framework) on conspiracy affiliation are mediated by the subjective mental well-being of individuals. (Bruder & Haffke et al., 2013; Imhoff & Bruder, 2014; Swami & Barron, 2019).

Ultimately, this research study attempts to elaborate on the relation between psychological needs, fulfilled in individuals to varying extends and adherence to conspiracy theories. Therefore, the five introduced psychological attributes and conspiratorial beliefs are quantitatively measured. The objective of this research approach is to determine specific psychological attributes as empirical predictors for conspiratorial thinking. Consequently, the research question states:

RQ: Which psychological constructs increase an individual's tendency to adhere conspiracy theories?

2. Theoretical framework

2.1 Conspiratorial Beliefs

In order to address and combat conspiratorial beliefs, the review by Douglas et al. (2017) has identified three psychological motives relevant for an individual's responsiveness to conspiracy theories. Accordingly, individuals adhere to conspiracies, shifting from a rational perspective on socio-political events because they:

- Find the causalities, explanations, and references existing within their socio-economic environment confusing or are unable to make sense of them.
- Feel threatened, unsafe, or being subjugated by the changing circumstances.
- Feel socially isolated due to the present socio-economic circumstances.

Thus, the construct constituting the dependent variable, representing the core of this research is the conspiratorial beliefs of individuals. Such beliefs are based on theories which "appear to provide broad, internally consistent explanations that allow people to preserve beliefs, convictions, or their self-image in the face of uncertainty and contradiction" (Douglas et al., 2017). The COVID-19 pandemic represented such an uncertainty. Additionally, partially contradicting information on COVID-19 or on implemented safety measures throughout the pandemic reinforced the demand for alternative and conspiratorial, yet straightforward, broad, and internally consistent explanations.

Leman and Cinnirella (2013) found that the desire for conspiratorial explanations is heightened when events are of considerable magnitude or significance and when individuals are dissatisfied with conventional or public explanations that fail to account for extraordinary circumstances. Given that the COVID-19 pandemic was of global magnitude and significantly impacted and disrupted life socially, financially, economically, and physiologically, it is hypothesised that individuals had an increased tendency to adopt beliefs that are based on conspiracy theories during this pandemic

(Torales et al., 2020). Hence, the exceptional circumstances throughout COVID-19 may prompt individuals who have not previously been inclined towards conspiracy theories to seek alternative, conspiratorial explanations on the socio-political situation.

On the other hand, there is a prevalence of people who have been adhering to conspiracy theories aside from the context of COVID-19. Those individuals draw facts about all kinds of meaningful events, societal patterns, or even scientific insights from conspiracy theories (Goreis & Voracek, 2019). Since the COVID-19 pandemic posed such a threat to civilisation and freedom, it has to be distinguished between two populations within this study's research survey. Consequently, the construct "conspiratorial affiliation" (Figure 1) is split into two sub-scales: conspiratorial beliefs on COVID-19 (e.g., "COVID-19 was artificially created") and conspiratorial beliefs on society (e.g., "The government fakes evidence relating to significant world events to deceive citizens") (Appendix 4).

2.2 Psychological Inconsistencies

The three motives for conspiracy affiliation introduced by Douglas et al. (2017) can be categorised into three psychological inconsistencies:

- Epistemic inconsistencies.
- Existential inconsistencies.
- Social inconsistencies.

These psychological inconsistencies theoretically draw back to "Maslow's Hierarchy of Needs" theory first introduced in 1943 (McLeod, 2007). Although the initial theory of hierarchy of needs remains influential, it has been revised and extended numerous times since its publication. "Cognitive needs", added by Maslow in 1970, are conceptually familiar with the proposed research

construct of epistemic inconsistencies, constituting an individual's desire for knowledge, understanding, and meaning (Douglas et al., 2017). "Epistemic beliefs" precede the concept of epistemic inconsistencies and describe how individuals think about their knowledge in a metacognitive effort (DeBacker et al., 2008). However, this research considers epistemic inconsistencies, which are conceptualised as addressing the mere inability of individuals to make sense of their environment throughout the COVID-19 pandemic. People with epistemic inconsistencies thus failed to comprehend information on COVID-19, failed to understand causal relations throughout the pandemic, or perceived the time as generally confusing (Douglas et al., 2017). Hence, they are unable to comprehend the information given on COVID-19 in such a way that it can be structured as retrievable knowledge.

In the context of the research question, the hypothesis regarding epistemic inconsistencies claims that epistemic inconsistencies are a reason why a rising amount of people opposed the restrictions made during the COVID-19 pandemic and affiliated with conspiracy theories (Figure 1). Accordingly, individuals could not cognitively grasp the impact the COVID-19 virus has had and thus refused to accept restrictions made to protect all citizens. In order to measure to what extent participants were able to make sense of and comprehend information on the COVID-19 pandemic, the subscale of epistemic inconsistencies was established (e.g., "I felt that the information on COVID-19 was confusing").

Hypothesis 1: Adhering to conspiracy theories is positively related with prevalent epistemic inconsistencies.

Existential inconsistencies, hypothesised to potentially predict conspiratorial affiliation, are conceptually tightly connected to the need for safety. Constituting a "basic need" in his proposed motivational theory, Maslow stated that individuals have an inherent "safety need", urging to feel

safe, secure, healthy, and stable (McLeod, 2007). Hence, existential inconsistencies are conceptualised as an individual's beliefs about threats to its perceived safety and control. The latter addresses a perceived lack of empowerment, meaning the individual experiences "feelings of incompetence, lack of self-determination, or feelings of disconnection from the present sociopolitical situation" (Spreitzer, 1995). However, since the concept of empowerment has primarily been discussed in the context of gender comparisons in workplace settings in recent social studies, the term "perceived lack of control" will be utilised to describe the individual's aforementioned experiences regarding its autonomy and ability to make decisions during the COVID-19 pandemic.

Hypothesis 2: Adhering to conspiracy theories is positively related to prevalent perceived lack of control.

The term "perceived lack of safety" related to existential concerns throughout the COVID-19 pandemic primarily refers to physiological safety within this research study. Thus, it is operationalised to measure an individual's beliefs about its physical integrity and the perceived danger emanating from the COVID-19 virus. Early research on the COVID-19 pandemic by Ahorsu et al. (2020) found that higher perceived threat of the COVID-19 virus was associated with increased future anxiety levels of individuals. Brewer et al. (2004) examined to what extent the perceived risk of an event is related to trust in health authorities. Accordingly, individuals who perceive the COVID-19 virus as excessively threatening are more likely to engage in health-protective behaviours. Contrary to the finding by Brewer et al. (2004), this study hypothesises that a prevalent lack of safety, perceiving the COVID-19 virus as a fundamental threat, is related to an increased likelihood to affiliate with conspiracy theories.

Hypothesis 3: Adhering to conspiracy theories is positively related to prevalent perceived lack of safety.

Further, "belongingness and love needs", part of what Maslow declared "psychological needs", directly relate to social inconsistencies and depict an individual's desire for social relationships, friendships, and intimacy. In addition to psychological needs that focus on the individual independent of their social context, social needs might prompt individuals to engage in conspiratorial thinking. First, humans have an inherent desire to belong (Malone et al., 2012). Yet, the COVID-19 pandemic profoundly restricted social interaction and interpersonal exchange for nearly two and a half years (Pietrocola, 2021). Accordingly, individuals were forced to accept life with limited social activities. Conspiracy theories may provide a frame of reference that represented those social limitations as, for example, artificially created or intentionally implemented. Thus, individuals might have adopted conspiratorial thought constructs and obliviously followed the mindset of significant others just to fulfil their desire for belongingness and in-group membership (Douglas et al., 2017). Within the research model "lack of belongingness" constitutes one sub-scale within the construct Social Inconsistencies (Figure 1). "Lack of belongingness" is operationalised to measure the extent to which individuals felt either socially involved or isolated throughout the COVID-19 pandemic (e.g., "COVID-19 isolated me socially").

Hypothesis 4: Adhering to conspiracy theories is positively related to a prevalent perceived lack of belongingness.

Second, established in-groups and their members may be threatened in their self-concept due to changing environmental, societal, or political conditions that inevitably occurred during the COVID-19 pandemic. However, instead of adjusting their conception of themselves to those changed circumstances, it is hypothesised that they choose to comply with conspiracy theories that

create artificial beliefs about reality, preserving the established identity of the group. Hence, individuals may adopt conspiracy beliefs as a whole group, e.g., labelling COVID-19 as artificially created, in order to "maintain a positive image of the self and the in-group" (Douglas et al., 2019). For example, a lot of people feel threatened by the idea that profound behavioural changes are necessary to prevent excessive amounts of additional emissions so that global warming above 1.5 degrees Celsius can be avoided (Goreis & Voracek, 2019). Thus, instead of reconsidering their personal behavioral habits, some individuals simply declare climate change as a conspiracy itself, thereby justifying their inaction while maintaining a positive self-concept (Leiserowitz et al., 2013). Those individuals are hypothesised to be especially prone to the presence of like-minded people in order to receive confirming and self-preserving feedback. Consequently, the sub-scale "likemindedness" is established to measure the extent to which individuals exclusively favour the presence of people who share the same opinion (e.g., "I felt secure among individuals sharing the same opinion on COVID-19"). It is assumed that those individuals show significantly more affiliation with conspiratorial thinking.

Hypothesis 5: Adhering to conspiracy theories is positively related to likemindedness.

The core objective of this empirical research study is to determine the extent to which the proposed psychological inconsistencies (epistemic, existential, and social) show a correlation with an individual's adherence to conspiracy theories as depicted in Figure 1.

2.3 Rebelliousness

This study incorporates the trait facet rebelliousness as an inherent factor prevalent in individuals, potentially affecting affiliation with conspiracy theories. Existing research suggests a positive relationship between both constructs, indicating high conspiracy affiliation in individuals with an inherent rebellious trait facet (Swami & Coles, 2010; Imhoff & Lamberty, 2018). This research will

focus on the extent to which this empirically established relationship has been reinforced throughout the COVID-19 pandemic. Instead of adhering to conspiratorial thought due to situational, emotional, or epistemic circumstances, people might adopt conspiracy theories due to more intuitive, "learned dispositional, and socially facilitated" motives (McDermott, 1988). Here, the hypothesis claims that some individuals might be inherently prone to conspiratorial thinking because of an internal motivation to resist, defy, or challenge any information perceived as publicly established or conventional. Thus, an additional sub-scale for individual rebelliousness is included to control for a correlation between the trait facet rebelliousness and proneness to conspiracy theories (e.g., "I usually do things differently than I was instructed to") (Figure 1).

Rebelliousness has been conceptualised and defined in a variety of ways. While personality psychologists declare it a disposition, social psychologists have examined it as a situational variable (McDermott, 1988). The term has been interchangeably used with synonyms like negativism, disobedience, or non-conformity. Furthermore, some researchers view rebelliousness as a subordinate concept to one of the aforementioned. Yet, within this study, rebelliousness will be conceptualized according to Apter's working definition of rebelliousness as a self-conscious act, resisting both authority and social influence (McDermott, 1988).

Hypothesis 6: Adhering to conspiracy theories is positively related to the trait facet rebelliousness .

2.4 Mental Wellbeing

While the formerly introduced constructs, conceptualised as psychological inconsistencies, have not been subject to conspiratorial research yet, there is a number of studies suggesting that high levels of conspiratorial thinking are related to low levels of subjective mental well-being (Bruder & Haffke et al., 2013; Imhoff & Bruder, 2014; Swami & Barron, 2019). Although this negative relationship is established by existing literature, the conducted study attempts to replicate those

findings while simultaneously hypothesising that perceived mental well-being might represent a mediation factor between other psychological attributes and conspiratorial thinking. Hence, besides the immediate impact of epistemic, existential, and social inconsistencies on the dependent variable, the hypothesis states that those effects are exaggerated by perceived low mental well-being (Figure 1). To measure the perceived well-being of the participants during the COVID-19 pandemic, the Warwick-Edinburgh Mental Well-Being scale (WEMWBS) is implemented within this research study and adjusted by adding the context of the COVID-19 pandemic (e.g., "During the COVID-19 pandemic, I have been cheerful," "During the COVID-19 pandemic, I have been feeling useful") (Tennant et al., 2007).

Hypothesis 7: Adhering to conspiracy theories is negatively related to perceived mental well-being.

Hypothesis 8: Perceived mental well-being mediates the relation between epistemic inconsistencies and adherence to conspiracy theories.

Hypothesis 9: Perceived mental well-being mediates the relation between existential inconsistencies (lack of control and lack of safety) and adherence to conspiracy theories.

Hypothesis 10: Perceived mental well-being mediates the relation between belongingness and adherence to conspiracy theories.
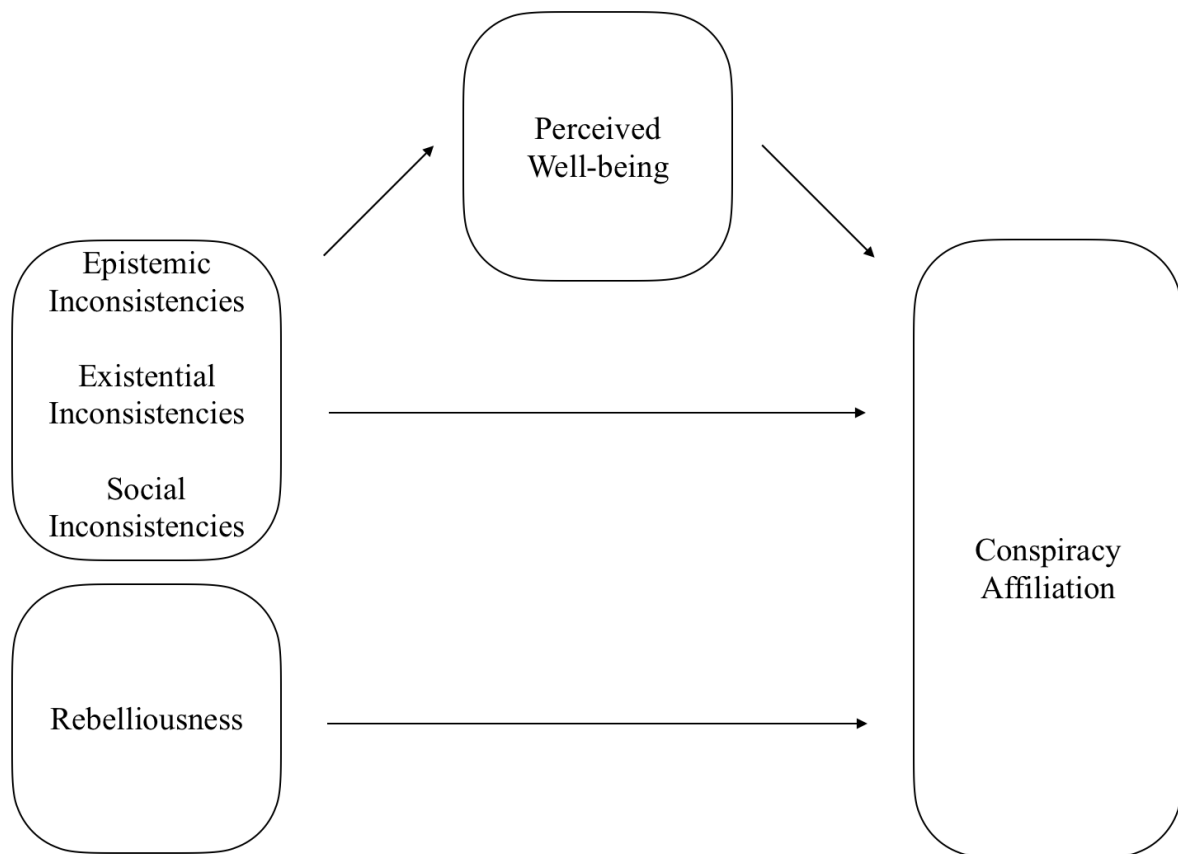
Figure 1: Research Model describing the impact of the psychological constructs on conspiracy affiliation

3. Methods

3.1 Research design

This cross-sectional quantitative study will use a correlational research design, utilising an anonymous, self-administered online survey consisting of nine sub-scales (Appendix 4). Before data collection, the survey was approved by the ethical committee of the Behavioral, Management, and Social Science (BMS) department of the University of Twente. The survey is distributed via QR code in two German public facilities. Moreover, the survey is shared on the social media

platform "Instagram" via an online link. Participants were required to give their informed consent before answering the survey.

3.2 Instruments

Recent studies did not conducted surveys measuring the introduced psychological constructs within a socio-political context like the COVID-19 pandemic (Douglas et al., 2017). Moreover, existing scales on rebelliousness are primarily applied in organisational or educational settings and did not seem applicable for measuring a prevalent rebellious trait facet within the context of COVID-19 (Gagne & Deci, 2005). Thus, each construct measured had to be conceptualised exhaustively before establishing a sub-scale of six to ten items per construct. The conceptualisation of the respective constructs was theoretically tightly bonded to existing literature reviews (see Theoretical Framework) before operationalising it within an iterative process. Ultimately, participants were asked to complete nine sub-scales relating to the introduced psychological constructs.

The sub-scale measuring *epistemic inconsistencies* consists of nine items and was operationalised to control whether individuals were able to comprehend information of the COVID-19 pandemic or measures against it (e.g. I was unable to comprehend the COVID-19 situation). The sub-scales measuring *existential inconsistencies* were *lack of control* and *lack of safety*. The *lack of control* sub-scale consists of six items and is established to measure to what extent an individual feels restricted in its autonomy and decision-making (e.g. When COVID-19 broke out, I lost control over my life.) *Lack of safety* consists of six items and measures to what extent an individual feels threatened by the COVID-19 virus (e.g. I felt that COVID-19 could seriously affect my physical health). The construct *social inconsistencies* is measured by the sub-scales *lack of belongingness* and *likemindedness*. *Lack of belongingness* is measured by seven items and controls whether an individual felt socially isolated throughout the COVID-19 pandemic (e.g. I spent more time alone than I would have liked during COVID-19.). The *likemindedness* sub-scale is composed of seven

items and controls the extent to which an individual favours in-group opinions over contradicting arguments. The trait facet *rebelliousness* is measured by an eight item scale and controls for an individuals attitude to resist and defy established opinions or narratives. Finally, the construct *conspiratorial beliefs* is measured by two independent sub-scales of ten items each. *Conspiratorial beliefs about COVID-19* measures an individuals affiliation towards conspiracy theories during the COVID-19 pandemic, whereas *conspiratorial beliefs on society measures an individuals general affiliation towards conspiracy theories.* In addition to the sub-scales originally created for the purpose of this study, the existing WEMWB scale was incorporated and modified by adding the COVID-19 pandemic as context (Appendix 3). The WEMWBS showed satisfactory internal consistency in existing reviews (Steward-Brown et al., 2009).

3.3 Procedure

Before and after finishing the survey, it has not been declared to participants that the core objective of this research is identifying psychological motives behind the adoption of conspiratorial beliefs. Rather, individuals' "experiences throughout the COVID-19 pandemic" were communicated as the primary research purpose because it is assumed that the targeted population, individuals believing in conspiracy theories, may reject participation or refuse to submit the survey if they were debriefed on the authentic research purpose before or after participation. The survey was answered exclusively online; paper versions have not been distributed. The sub-scales were answered (see Appendix 3). Each sub-scale was introduced with a short descriptive heading (e.g., "Your experiences with the dissemination of information regarding the course of the pandemic and the COVID-19 healthcare measures").

3.4 Scale construction

A collective factor analysis was conducted, including all sub-scales (Appendix 2). The factor loadings of each item and Cronbach's alpha were obtained for each sub-scale to ensure sustainable

and replicable results within the regression analysis. The factor loadings of each item indicate the extent to which the items within each sub-scale measure the same construct factor. Items with factor loadings below 0.4 will be excluded from the subsequent regression analysis. Before examining the correlations between sub-scales, Cronbach's alpha will be calculated for each sub-scale to assess its internal consistency and reliability. Sub-scales with Cronbach's Alpha below 0.6 will be excluded from further analysis to ensure the suitability of each sub-scale for regression analysis.

The factor analysis suggested seven factors in the proposed research model. Perceived control and belongingness had the highest factor loadings on a common factor. However, the factor loadings of perceived control were on average .38 lower than the loadings of belongingness. Cronbach's Alpha has been between .75 and .89 for all sub-scales except for perceived lack of control (.60) and rebelliousness (.60). Due to its moderate Alpha and the results of the factor analysis, perceived control was excluded from further exploratory analysis. In addition, conspiratorial beliefs about COVID-19 and conspiratorial beliefs about society showed the highest loadings on the same factor (Appendix 2). Thus, both variables were merged into one variable (conspiratorial beliefs about COVID-19 and society), which then constituted the dependent variable within the multiple linear regression model. Appendix 2 shows which items are excluded due to insufficient factor loadings or reversed scores due to negative wording of the item.

3.5 Participants

Individuals aged 18 or older were able to participate in this research. Before starting the survey, participants were required to give their consent and answer demographic questions on gender, age, and education. Appendix 1 summarises the demographic information obtained from all participants. In total, 212 individuals participated (M = 94, F = 117, D = 1), and 157 participants completed the survey, answering all questions. The mean age of all participants has been 35. 19 percent of the participants completed primary education, 56 percent completed secondary education ("Abitur"),

and 26 percent graduated academically. The survey was solely distributed in Germany, meaning that the population and thus the application of this study's results are restricted to German citizens.

3.6 Analysis

The collected survey data is analysed using the statistical software 'R' for data processing and analysis. Additionally, an online "Sobel" test statistic calculator was utilised for mediation analysis (https://www.analyticscalculators.com/calculator.aspx?id=31). In order to run a multiple linear regression model, the sub-scale items are merged into a single construct variable. The multiple linear regression model will be established to control for the influence of independent variables on the dependent variable, which represents conspiratorial beliefs about COVID-19 and society. Potential mediating effects of the independent variable perceived mental well-being are controlled using the Sobel test statistic and its respective p-value. This analysis will help determine the significance of the mediating role of perceived mental well-being in the relationship between the independent variables and the dependent variable.

Table 1 below, presents the results of the multiple linear model establish to draw assumptions about the relations between the incorporated psychological constructs (psychological inconsistencies, rebelliousness, and mental well-being) and conspiracy affiliation. Accordingly, each row constitutes one mentioned construct with the intercept being the dependent variable (conspiracy affiliation). The adjusted R-squared and F-statistics give an estimate about the model's validity.

Table 1

Effects of the involved psychological attributes on conspiracy affiliation

	Estimate	Standard error	t-value	p-value
Intercept	21.91	11.05	1.98	< 0.05
Rebelliousness	1.07	0.36	2.99	< 0.01
Epistemic inconsistencies	0.97	0.2	4.75	< 0.01
Lack of Safety	-0.85	0.22	-3.85	< 0.01
Perceived well-being	-0.13	0.17	-0.73	0.48
Lack of Belongingness	0.07	0.19	0.34	0.73
Likemindedness	-0.14	0.17	-0.79	0.43
Adjusted R-squared	0.35			
F-statistics	14.08 on 6 and 140 DF			< 0.01

4. Results

The adjusted R-squared of the multiple linear model (Table 1) indicates that 34.9 percent of the intercept's variance is explained by the independent variables significantly correlated to the dependent variable (Table 1). The F-statistic suggests a collective statistical significance of the model and its regression coefficients in explaining the variation of the dependent variable.

The first predictor, epistemic inconsistencies, is significantly positively related to the dependent variable, meaning that high scores in epistemic inconsistencies predict high scores in conspiracy affiliation. Contrarily, the predictor for existential inconsistencies ("lack of safety") is negatively related to the outcome variable and statistically significant, indicating that high scores in lack of safety predict low scores in conspiracy affiliation. The trait facet rebelliousness is significantly positively related to the outcome variable, with the highest obtained coefficient estimate, indicating that for each unit increase in rebelliousness, the predicted value of the outcome variable increases by 1.069.

The predictor variables for social inconsistencies, lack of belongingness and likemindedness, did not show a statistically significant relationship with the outcome variable. The coefficient estimates suggest a negligible impact of belongingness and likemindedness on the outcome variable. Both p-values indicate that any observed association between predictor and outcome variable might be due to chance. Finally, the assumed mediator perceived mental wellbeing did not show a statistically significant relationship with the outcome variable. Again, the p-value suggests that any observed prediction is likely to be due to chance.

To summarise the multiple linear model (Table 1), epistemic inconsistencies and rebelliousness are positively related with conspiracy afflictions, while lack of safety is negatively associated with the outcome variable. These findings give assumptions about the direction and strength of relationships between the significantly related predictor variables and the dependent variable. Simultaneously, belongingness, likemindedness, and mental wellbeing did not significantly predict variation in the outcome variable.

Table 2 and 3 summarise the relationships between mental well-being and the other constructs involved in this study. First, table 2 presents the multiple linear model with mental well-being as the intercept (dependent variable). Second, table 3 shows the mediation estimates between the involved independent variables and conspiracy affiliation.

Table 2

Effects of the involved psychological attributes on Mental Well-Being

	Estimate	Standard error	t-value	p-value
Intercept	37. 91	4.86	7.8	< 0.01
Conspiracy affiliation	-0.02	0.05	-0.49	0.62
Epistemic inconsistencies	-0.07	0.12	-0.59	0.55
Lack of Safety	-0.01	0.14	-0.06	0.95
Lack of Belongingness	-0.31	0.09	-3.25	< 0.01
Likemindedness	0.14	0.12	1.22	0.23
Rebelliousness	0.10	0.27	0.39	0.69
Adjusted R-squared	0.04			
F-statistics	2.008 on 6 and 150 DF			0.07

Table 3

Mediation effects of Mental Well-Being

Independent variable	Dependent variable	Mediator variable	Sobel test statistic	P-value
Epistemic inconsistencies	Conspiracy affiliation	Mental Well-Being	0.46	0.33
Perceived lack of safety	Conspiracy affiliation	Mental Well-Being	0.06	0.48
Perceived lack of belongingness	Conspiracy affiliation	Mental Well-Being	0.71	0.24
Likemindedness	Conspiracy affiliation	Mental Well-Being	-0.63	0.27
Rebelliousness	Conspiracy affiliation	Mental Well-Being	-0.34	0.37

Because of the overall predicting value of perceived well-being being insignificant (Table 1), its proposed role as a mediating factor between the independent and dependent variables was likely to be empirically insignificant. Tables 2 and 3 support this assumption. With only 3.7 percent variance of the outcome variable explained, the independent variables do not seem to be corrected with perceived mental well-being (Table 2). Accordingly, almost all regression coefficients are

statistically insignificant; only the lack of belongingness shows a significantly negative relation with the dependent variable. The coefficient indicates that high scores in lack of belongingness are related to low scores in perceived mental well-being. Table 3 shows that perceived mental well-being's impact as a mediating variable is negligible. Each Sobel test statistic is related to insignificant p-values, indicating that any correlation effects of the independent variables on conspiratorial affiliation are not mediated by perceived mental well-being.

5. Discussion

This research was conducted to empirically determine what underlying psychological needs lead individuals to believe in conspiracy theories. Therefore, 220 individuals voluntarily participated by filling out a survey answering 78 questions on nine sub-scales. Factor analysis showed that seven of nine sub-scales were significant thus incorporated in the multiple linear model. The sub-scale *lack of control* had to be excluded since it measured a common factor with belongingness and showed insufficient internal consistency coefficients. Further, both sub-scales measuring conspiracy affiliation were merged into one scale since factor analysis showed that they measure a common factor. Hence, the multiple linear regression model (Table 1) ultimately possessed the merged construct of both sub-scales as the dependent variable. To empirically examine the proposed model (Model 1) and simultaneously test the hypotheses articulated, all statistically significant sub-scale constructs were incorporated in one multiple linear regression model (Table 1).

5.1 Main findings

Epistemic inconsistencies predict an individual's adherence to conspiratorial beliefs. The model showed that for one value increase of the predictor, the dependent variable increases by 0.968. Thus, *hypothesis 1* can be accepted. Without assuming a causal relation, this estimate indicates that people who believe in conspiracies tended to be less able to make sense of information given on the COVID-19 pandemic, the research data suggests. Hence, individuals may indeed find alternative,

substitutional explanations in conspiracy theories when they fail to comprehend information on the rapidly changing circumstances throughout the pandemic. COVID-19 forced the government to quickly adopt policies to the evolving pandemic situation, including public health measures, healthcare system reinforcements, economic support, education, and remote learning. Existing research by Beasley (2010) suggests that people who have a clear understanding of the rationale behind political decisions are more likely to accept them as legitimate. In turn, the evidence obtained within this study suggests that people not understanding the rationale behind governmental measures are inclined to seek understanding in alternative, perhaps simpler and more convenient explanations. Referring to the research study by Leman & Cinnirella (2013), the scale of impact the COVID-19 pandemic had might have been a reinforcing factor for individuals' adherence to conspiratorial explanations of the pandemic circumstances. The established sub-scale for lack of control did not measure an exclusive construct factor and was not suitable for exploratory analysis due to internal inconsistency. Thus, *hypothesis 2* has to be rejected.

The third predictor variable was lack of safety, part of the construct existential inconsistencies. The relationship between both constructs showed to be significantly negative. Thus, *hypothesis 3* is accepted, signifying that people believing in conspiracy theories were inclined to feel more secure throughout the COVID-19 pandemic. Thus, those individuals did not perceive the COVID-19 virus as profoundly threatening. To what extent conspiratorial beliefs make individuals susceptible to narratives estimating the threatening potential of COVID-19 as insignificant or not relevant for them is not causally determinable with the data collected. However, it is likely that conspiracy theories draw attention away from the scientific narratives, which rationally depicted the virus as generally endangering health, especially for vulnerable populations like the elderly and individuals with chronic conditions. Instead, conspiratorial narratives provided a compensatory sense of safety by rejecting scientific reasoning and representing the COVID-19 virus as e.g. artificially created and spread for superficial reasons (Douglas, 2021).

The constructs controlling for social inconsistencies prevalent throughout the COVID-19 pandemic, lack of belongingness and likemindedness, both showed to be insignificantly correlated with the dependent variable, leading to a rejection of *hypotheses 4* and *5*. Accordingly, this study did not achieve to empirically establish a relation between either perceived lack of belongingness or likemindedness and conspiratorial beliefs. Although both constructs showed to account for exclusive factors within the dataset collected, they did not explain the variation in the dependent variable of conspiratorial beliefs.

Rebelliousness, incorporated as a trait facet hypothesised to constitute a conspiratorial predisposition, predicts affiliation to conspiracy theories. Rebellious individuals were identified by their disobedient, resisting, and nonconforming attitude towards rules and authorities (e.g., "I don't respect authorities and their instructions"). In support of *hypothesis 6, t*his finding suggests that individuals who exhibit a strong inclination to resist rules, information, or authority figures are more likely to be receptive to conspiratorial narratives. Whether people scored high on the rebelliousness sub-scale due to an inherent predisposition factor or because of personal reactance prevalent throughout COVID-19 cannot be distinguished by the data obtained. Reactance theory has been introduced earlier (see theoretical framework) and describes that individuals are more likely to respond in resisting or defying manners if they see their autonomy and freedom of choice threatened. Since both autonomy and freedom of choice have been profoundly diminished during the late pandemic, it is reasonable to assume that people showed non-confirming reactions to governmental decisions on COVID-19 without bearing an inherently rebellious trait facet (Pietrocola, 2021). Yet, the established sub-scale on rebelliousness was rather superficially operationalised, exclusively measuring to what extent individuals are generally inclined to resist, non-confirm, or disobey. Future research may incorporate two different sub-scales on this attribute, one measuring persistent rebellious patterns prevalent in individuals, and a second measuring reactance attitudes exclusively exhibited in the face of the COVID-19 pandemic.

Whereas the former was intended to measure to what extent individuals felt socially isolated throughout the COVID-19 pandemic (e.g., "During the COVID-19 pandemic, I felt lonely"), the likemindedness sub-scale was established to measure whether individuals perceived the presence of people having the same beliefs about COVID-19 as evidently more pleasant (e.g., "During the COVID-19 pandemic, I felt most comfortable when surrounded by people who shared my opinion").

Lastly, the mental well-being sub-scale did not show to have the hypothesised mediating role on the assumed interrelation between the independent constructs (epistemic, existential, and social inconsistencies) and the dependent variable conspiratorial affiliation. Since the WEMWBS was adjusted to specifically measure mental well-being throughout the COVID-19 pandemic, this suggests that the established points of reference for measuring mental well-being in the WEMWBS scale also account for the same psychological construct during this pandemic (e.g., "During the COVID-19 pandemic, I have been dealing with problems well"). Yet, it did not show to significantly explain variation of the intercept variable of conspiratorial beliefs, rejecting *hypothesis 7*. Accordingly, contradictory to previous research findings, this study suggests that individuals adhere to conspiracy theories independent of their mental health condition (Bruder & Haffke et al., 2013; Imhoff & Bruder, 2014; Swami & Barron, 2019). Further, mental well-being does not mediate any assumed relationship (Model 1), leading to a rejection of *hypotheses 8, 9,* and *10*. It was assumed that an individual's mental health has a significant impact on the individual's demand for compensatory explanation of the COVID-19 pandemic. However, regardless of the underlying psychological motive (epistemic, existential, or social) hypothesized to cause an individual's affiliation towards conspiracy theories, this relation is neither reinforced nor diminished by the individual's mental health condition, this study suggests.

5.2 Theoretical contribution

In a theoretical context, the primary objective of this study is to sensitise social research to the underlying psychological demands that have been prevalent in individuals who showed an affiliation for conspiracy theories throughout the COVID-19 pandemic, That implies that people use conspiracy theories for compensatory purposes. According to this study, either to compensate for their inability to make sense of the circumstances during the late pandemic or to feel less threatened by those circumstances. Hence, other than people who are inherently prompt to adhere to conspiracy beliefs due to their rebellious character and resisting attitude towards established narratives, some conspiratorial believers might exhibit such patterns because they were overwhelmed or excessively threatened by rational explanations of the present socio-economic situation during COVID-19. Thus, individuals may deny scientific facts about the COVID-19 pandemic because it threatened their inherent need for safety, whereas conspiratorial explanations were able to provide compensatory safety in the face of the uncertain circumstances. On the other hand, conspiracy theories might offer more straightforward explanations that are easy to comprehend.

5.3 Practical implications

If further empirical research supports these assumptions made in this report, implementations of educational interventions might contribute to decreasing the prevalence of conspiratorial believers in society. Those interventions might incorporate clarifying explanations on current, potentially exhausting, and uncertain situational circumstances, just like the COVID-19 pandemic. However, it is crucial to reflect the specific needs of individuals who feel uncertain or threatened by present sociopolitical events. Rational narratives might be comprehendible for educated and informed citizens, yet the COVID-19 pandemic showed that situational, emotional states of individuals make them inaccessible for rational true arguments on the respective circumstances. Thus, explanatory intervention must consider personal and emotional components that are inevitable linked to political

decisions on events of magnitude similar to the COVID-19 pandemic. Independent of how these problems are addressed, empirical societal research can demonstrate that conspiracy theories are believed due to unfulfilled psychological needs of epistemic and existential nature.

5.4 Limitations

Throughout the data collection and analysis phase of this study, several limitations of the research conducted came to light, potentially diminishing this study's results and their applicability for social science. Resolving these limitations leads to more qualitative results and thus a more probable empirical estimate of the causes for individuals' affiliation with conspiracy theories. The first prevalent weakness is that only about 71 percent of the participants finished the survey, answering every question, indicating that a profound number of participants quit the survey. Future research is advised to improve the sub-scale by deleting those items that did not significantly contribute to the measurement of the respective construct. The second limitation is the sampling method. Although the survey was distributed in two public facilities (a medical facility and a fitness center) via QR code, most of the responses were gathered on social media (Instagram) (QR-Code: 35 participants; social media: 189). Social media participants are likely to be younger than 40. The participants' mean age of 35 underlines this assumption. In future research settings, researchers might consider actively distributing the survey and encouraging individuals personally to participate, fostering a randomised sampling method.

Future study replications are advised to measure "in-group favouritism" of individuals within the construct *social inconsistencies,* assuming an 'us versus them' mentality in people adhering to conspiracy theories. The likemindedness sub-scale did not achieve to measure whether individuals perceive out-groups as threatening, are selective in their information processing, or biased in their line of reasoning regarding negative events (Balliet et al., 2014). Likemindedness (e.g., "I felt

protected by people sharing my beliefs") seems to be too broad conceptually to be exclusively attributed to conspiratorial individuals.

Second, the construct lack of control within the social inconsistencies dimension did not achieve to measure to what extent individuals felt their autonomy or self-determination endangered. The created construct items showed to be too trivial and arbitrary in their wording (e.g., "During COVID-19, I have not lived the life I wanted to live"). Future research settings should reformulate each item to make it more specific with regards to the individual's autonomy and freedom of choice throughout the COVID-19 pandemic. Aside from reframing lack of control operationally, further investigations on conspiratorial beliefs should draw on *reactance theory* to establish an additional psychological construct to be measured. Within the conceptualisation of rebelliousness, it is elaborated on how diminished autonomy leads to the resistance of governmental mandates through the effect described by psychological reactance. Instead of merely providing theoretical background, empirical research on reactance as a construct variable could demonstrate to what extent compensatory explanations provided by a conspiracy theoretic frame of reference are adopted due to resistance of established public narratives. Such attitudes are then hypothesised to be motivated by restricted self-autonomy, as reactance theory suggests.

5.5 Conclusion

The findings of this research underline the suggestion that conspiracy theories offer broad and internally consistent narratives that preserve an individual's self-image in the face of uncertainty. Moreover, the study shows that there exist a prevalence of people who seemingly adhere conspiratorial beliefs due to an inherit psychological need to persist. Ultimately, this study depicts an excerpt of how individuals were motivated to affiliate to conspiracy theories throughout the COVID-19 pandemic.

To conclude, future research should account for the limitations addressed in this study, further refine the measurement of the constructs established, and incorporate reactance theory and "in-group favouritism" respectively to deepen the understanding of why people adopt conspiratorial explanations. Additionally, interventions addressing the psychological motives of adhering to conspiracy theories might contribute to reducing the prevalence of such beliefs in society. These interventions should provide clear and understandable explanations of complex socio-economic situations while acknowledging and addressing individuals' psychological needs for certainty, security, and autonomy.

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Appendix

Appendix 1 - Demographic Information

Demographic Information

	Male	Female	Other	Total
Participants (%)	94 (44.3%)	117 (55.2%)	1 (0.5%)	112
Mean age	44.1	28.3	24	35
Educational degree				
"Hauptschulabschluss"	3	1		4
"Realschulabschluss"	22	13		35
"Abitur"	66	49		115
"Akademischer Abschluss"	31	21	1	53

Appendix 2 - Factor Loadings and Cronbach's Alpha

Scale / Factor Loadings	Cronbachs Alpha	Factor 8	Factor 2	Factor 5	Factor 3	Factor 6	Factor 9	Factor 1
Epistemic inconsistencies	0.78							
Q6		0.55						
Q9		0.55						
Q10		0.6						
Q11		0.48						
Q12		0.49						
Q13		0.71						
Control (existential inconsistencies)	0.6							
Q15			0.43					
Q16			0.44					
Q17			0.43					
Safety (existential inconsistencies)	0.75							
Q20				0.71				
Q22				0.74				
Q23				0.67				
Q24				0.81				
Belongingness (social inconsistencies)	0.84							
Q27			0.6					
Q28			0.79					
Q29			0.79					
Q30			0.72					
Q31			0.8					
Q32			0.78					
Likemindedness (social inconsistencies)	0.82							
Q33					0.42			
Q34					0.64			
Q35					0.47			
Q37					0.63			
Q38					0.76			
Q39					0.69			
Q40					0.73			
Rebelliousness	0.6							
Q43						0.44		
Q46						0.54		
Q47						0.46		
Q91						0.57		
Well-Being	0.81							
Q50							0.40	
Q51							0.51	
Q54							0.61	
Q55							0.54	
Q56							0.69	
Q57							0.67	
Q58							0.43	
Q59							0.52	
Q60							0.52	
Q61							0.57	
COVID-19 conspiracies	0.85							
Q65								0.63
Q66								0.59
Q67								0.68
Q69								0.62
Q70								0.78
Q73								0.52
Q74								0.57
Societal conspiracies	0,89							
Q76								0.66
Q77								0.72
Q78								0.81
Q79								0.70
Q80								0.81
Q81								0.67
Q82								0.80
Q83								0.81

Appendix 3 - Survey (German)

Erfahrungen während COVID-19: Wie hat die Pandemie unser Leben beeinflusst?

Vielen Dank für Ihr Interesse und Ihrer Teilnahme an meiner Studie über Erfahrungen und Eindrücke während der COVID-19 Pandemie. Diese Studie führe ich, Simon Landwehr, im Rahmen meiner Bachelor-Arbeit für Psychologie an der Universität Twente in Enschede (NL) durch.

In dieser Umfrage möchte ich herausfinden welche Erfahrungen Sie und andere während der COVID-19 Pandemie gemacht haben. Insbesondere interessiert mich, wie Sie die Pandemie betroffen hat und welche emotionalen Eindrücke Sie wahrgenommen haben.

Im folgenden bitte ich Sie, ungefähr 70 Fragen zu beantworten. Sie werden bei jeder Frage/Aussage aufgefordert einzuschätzen, inwiefern Sie zu- oder dagegen stimmen. Dabei können Sie auf einer Skala von eins, ich stimme überhaupt nicht zu, bis fünf, ich stimme vollständig zu, antworten.

Ihnen ist freigestellt, die Beantwortung dieses Fragebogens zu jedem Zeitpunkt abzubrechen. Es werden keine sensiblen Informationen von Ihnen aufgenommen oder gespeichert. Ihre Antworten bleiben anonym und sind nicht zurückzuverfolgen. Sie werden ungefähr 15 Minuten für die Beantwortung des Fragebogens brauchen. Im Interesse dieser Studie bitte ich Sie, die Fragen ehrlich zu beantworten. Indem Sie die unten stehende Box anklicken, stimmen Sie der Teilnahme an dieser Studie auf eigenes Risiko zu.

Q1: O   Hiermit bestätige ich, an der Studie teilzunehmen und über mein Recht auf frühzeitigen Abbruch aufgeklärt worden zu sein. Außerdem, wurde ich über Datenschutz und den Zeitaufwand der Umfrage informiert.

Sollten Sie nach Teilnahme an der Studie noch Fragen zur Umfrage selber, dem Verlauf der Studie, oder zukünftige Ergebnisse haben, können Sie mich gerne via eMail kontaktieren:
Simon Landwehr
s.landwehr@student.utwente.nl

Demographische Informationen
Q2: Welches Geschlecht haben Sie?   O weiblich O männlich O diverse
Q3: Wie alt sind Sie:
Q4: Was ist Ihr höchste Bildungsabschluss?   O Hauptschule O Realschule O Fach-/Abitur
                                             O akademischer Abschluss

Ihre Erfahrungen mit der Informationsweitergabe zum Pandemie-Verlauf und den COVID-19 Schutzmaßnahmen.

Q5: Ich habe die COVID-19 Schutzmaßnahmen verstanden.

Q6: Ich hatte Schwierigkeiten den Verlauf der COVID-19 Pandemie nachzuvollziehen.

Q7: Ich habe die Intention hinter allen COVID-19 Schutzmaßnahmen verstanden.

Q8: Ich habe die Regierung während COVID-19 als kompetent und sachkundig wahrgenommen.

Q9: Ich habe die Informationen zu COVID-19 als verwirrend wahrgenommen.

Q10: Manchmal war ich nicht sicher welche COVID-19 Schutzmaßnahmen aktiv waren.

Q11: Ich war nicht in der Lage, die COVID-19 Situation zu verstehen

Q12: Manchmal habe ich mich während COVID-19 überfordert gefühlt.

Q13: Die Informationen über COVID-19 haben mich verwirrt.

Ihr Eindruck zum Grad der Unabhängigkeit, Freiheit und Selbstbestimmung während COVID-19.

Q14: Ich hatte Kontrolle über mein Leben während COVID-19.

Q15: Als COVID-19 ausbrach, habe ich Kontrolle über mein Leben verloren.

Q16: Während COVID-19 habe ich nicht das Leben gelebt, was ich leben wollte.

Q17: COVID-19 und die Maßnahmen der Regierung haben mein Leben wesentlich bestimmt.

Q18: Ich konnte meine eigenen Entscheidungen treffen, obwohl ich mich an die COVID-19 Maßnahmen halten musste.

Q19: Ich habe mich während COVID-19 unabhängig und nicht fremdbestimmt gefühlt.

Ihre Erfahrungen mit dem COVID-19 Virus als potenzielle, persönliche Gefahr.

Q20: Ich habe mich vom COVID-19 Virus bedroht gefühlt.

Q21: COVID-19 war nicht gefährlicher als eine normale Grippe.

Q22: Ich hatte das Gefühl, dass COVID-19 meine körperliche Gesundheit ernsthaft beeinträchtigen könnte.

Q23: Ich habe mich während der COVID-19 Pandemie unsicher gefühlt.

Q24: Ich hatte Angst davor, was COVID meinem Körper antun würde.

Q25: Ich habe COVID-19 nicht als Bedrohung empfunden.

Ihre Erfahrungen mit COVID-19 auf sozialer, gemeinschaftlicher Ebene.

Q27: Während COVID-19 ist es mir schwer gefallen, in Kontakt mit Freunden und Familie zu bleiben.

Q28: Während COVID-19 hatte ich zu wenig soziale Kontakte.

Q29: Während COVID-19 habe ich mehr Zeit alleine verbracht als mir lieb war.

Q30: Während COVID-19 habe ich mich einsam gefühlt.

Q31: Meine Sozial-Leben hat während COVID-19 gelitten.

Q32: COVID-19 hat mich sozial isoliert.

Q90: COVID-19 hat mein Leben auf sozial, gemeinschaftlicher Ebene nicht beeinträchtigt.

Ihre Erfahrungen mit dem Meinungsaustausch und Meinungsverschiedenheiten während COVID-19.

Q33: Der Kontakt zu gleichgesinnten Menschen hat mir während COVID-19 getröstet, beruhigt oder ermutigt.

Q34: Ich habe mich während COVID-19 zu Personen mit ähnlichen Meinungen hingezogen gefühlt.

Q35: Während COVID-19 habe ich keine Zeit mit Personen verbracht die anderen Meinung als ich waren.

Q37: Während COVID-19 habe ich mich von Personen die anderer Meinung als ich waren, bedroht gefühlt.

Q38: Während COVID-19 habe ich mich mit Leuten, die gleicher Meinung sind, am wohlsten gefühlt.

Q39: Die Anwesenheit von gleichgesinnten war während COVID-19 angenehm.

Q40: Während COVID-19 habe ich mich um Personen mit gleicher Meinung beschützt gefühlt.

Ihr Umgang mit Informationen, Regeln und Vorschriften.

Q42: Ich halte mich normalerweise an Anweisungen von anderen, besonders von Autoritäten.

Q43: Ich bin offen für Ratschläge von meinem sozialen Umfeld.

Q44: Ich habe kein Problem damit Regeln von Vorsetzten zu befolgen.

Q45: Ich tue Dinge normalerweise anders als sie mir erklärt wurden.

Q46: Ich verweigere es, blind Anweisungen anderer zu befolgen.

Q47: Ich mache nichts wie es gemacht werden sollte.

Q48: Ich kann selbst entscheiden ob ich Regeln befolge oder nicht.

Q91: Ich habe keinen Respekt vor Autoritäten oder deren Anweisungen.

Ihre Erfahrungen, wie Sie sich während der COVID-19 Pandemie gefühlt haben.

Q50: Während COVID-19 habe ich positive über die Zukunft nachgedacht.

Q51: Während COVID-19 habe ich mich produktiv gefühlt.

Q52: Während COVID-19 viel es mir schwer, mich zu entspannen.

Q53: Während COVID-19 habe ich das Gefühl gehabt überschüssige Energie zu haben

Q54: Während COVID-19 war ich in der Lage mit persönlichen Problemen umzugehen.

Q55: Während COVID-19 war ich der Lage klar und logisch zu denken.

Q56: Während COVID-19 habe ich positiv über mich selber gedacht.

Q57: Während COVID-19 habe ich mich selbstbewusst gefühlt.

Q58: Während COVID-19 war ich in der Lage mir meine eigene Meinung zu bilden.

Q59: Während COVID-19 habe ich mich geliebt/geborgen gefühlt.

Q60: Während COVID-19 war ich an neuen Ideen interessiert

Q61: Während COVID-19 war ich begeisterungsfähig.

Q62: Während COVID-19 hatte ich Probleme einzuschlafen, durchzuschlafen oder damit, zu viel zu schlafen.

Q63: Während COVID-19 hatte ich Schwierigkeiten mich zu konzentrieren.

Q64: Während COVID-19 hatte ich wenig Interesse oder Freunde an Aktivitäten.

Ihre Meinungen über COVID-19

Q65: Die Regierung hat Wissen über COVID-19 vorsätzlich zurückgehalten.

Q66: Die Nachrichten zu COVID-19 waren meistens zweifelhaft.

Q67: Immunisierung war nicht der einzige Absicht hinter der COVID-19 Impfung.

Q68: Wir mussten uns an COVID-19 Maßnahmen halten um gefährdete Gruppen zu schützen.

Q69: COVID-19 ist künstlich erschaffen worden.

Q70: Die COVID-19 Pandemie wurde von denen die davon profitiert haben, verlängert.

Q71: Die Regierung war bemüht, dass Leben der Bürger und Bürgerinnen so wenig wie möglich einzuschränken.

Q72: Wissenschaftler haben rationale und sachkundige Einschätzungen zur pandemischen Lage gegeben.

Q73: Die COVID-19 Impfung wurde injiziert um Personen mit einem Chip zu markieren.

Q74: Wir wurden während der COVID-19 Pandemie von der Regierung belogen.

Ihre Ansichten und Meinungen zur deutschen Gesellschaft

Q76: Die Regierung hält Informationen vor der Gesellschaft geheim.

Q77: Es existieren Heilungsmethoden für tödliche Krankheiten, die der Gesellschaft absichtlich vorenthalten werden.

Q78: Die Gesellschaft wird von einer kleinen, geheimen Gruppierung kontrolliert.

Q79: Manche bedeutsamen globalen Ereignisse waren das Ergebnis von Aktivitäten einer kleinen, geheimen Gruppierung.

Q80: Die Regierung lässt terroristische Aktivitäten bewusst zu, um die Öffentlichkeit in Angst zu versetzen.

Q81: Die Regierung hat große Mengen an vertraulichen Informationen über jeden Bürger, jede Bürgerin, ohne deren Wissen oder Einverständnis.

Q82: Es gibt viele Informationen über Krankheiten und deren Heilung die zurückgehalten werden.

Q83: Die Regierung fälscht Nachweise zu bedeutsamen Ereignissen um die Gesellschaft zu täuschen.

Q84: Die deutsche Regierung ist transparent und gewissenhaft in ihrer Entscheidungsfindung.

Q85: Der Klimawandel ist eine reale Gefahr.

Ich danke Ihnen für Ihre Teilnahme und die Zeit die Sie sich hierfür genommen haben. Ich möchte erneut betonen, dass Ihre Antworten anonym bleiben. Des Weiteren, bin ich gerne bereit Ihnen Ihre Fragen zu meiner Studie via eMail zu beantworten: s.landwehr@student.utwente.nl

Appendix 4 - Questionnaire (English)

Introductory Note

Thanks for participating in my research on your experiences during the COVID-19 pandemic. I'm doing this research for my bachelor thesis in psychology. In this questionnaire I investigate how people experienced and perceived the COVID-19 pandemic. I am particularly interested in how the COVID-19 pandemic affected you.

In the following you will answer roughly 70 questions. You are asked to give a score on each question, 1 indicating that you completely disagree, 5 indicating that you completely agree with the statement within each question.

You are free to discontinue answering this questionnaire at any time. No sensitive information will be collected or stored from you. Your responses will remain anonymous and cannot be traced back to you. It will not take you longer than 10 minutes to complete the questionnaire. In the interest of this study, please answer the questions honestly. By clicking the box below, you agree to participate in this study at your own risk.

O   I hereby confirm that I will participate in the study and that I have been informed about my right to discontinue participation, data protection, and the required time.

If you have any questions regarding the survey itself, the progress of the study, or future results after participating in the study, please feel free to contact me via email:

Simon Landwehr
s.landwehr@student.utwente.nl

Demographic Questions

What is your Gender: O male   O female   O diverse (formal german
                                                              formulation)

What is your Age:

What is your highest level of education:

O Hauptschule   O Realschule   O Fach-/Abitur

O akademischer Abschluss

Your experiences with the dissemination of information regarding the course of the pandemic and the COVID-19 health care measures.

Q5: I understood the COVID-19 protective measures.

Q6: I had difficulty understanding the course of the COVID-19 pandemic.

Q7: I understood the intention behind all COVID-19 protective measures.

Q8: I perceived the government as competent and knowledgeable during COVID-19.

Q9: I found the information about COVID-19 confusing.

Q10: Sometimes I was unsure which COVID-19 protective measures were in effect.

Q11: I was unable to comprehend the COVID-19 situation.

Q12: Sometimes I felt overwhelmed during COVID-19.

Q13: The information about COVID-19 confused me.

Your impression of the degree of independence, freedom, and self-determination during COVID-19.

Q14: I had control over my life during COVID-19.

Q15: When COVID-19 broke out, I lost control over my life.

Q16: During COVID-19, I didn't live the life I wanted to live.

Q17: COVID-19 and government measures significantly influenced my life.

Q18: I was able to make my own decisions, although I had to adhere to COVID-19 measures.

Q19: I felt independent and not dictated during COVID-19.

Your experiences with the COVID-19 virus as a potential personal threat.

Q20: I felt threatened by the COVID-19 virus.

Q21: COVID-19 was not more dangerous than a regular flu.

Q22: I felt that COVID-19 could seriously affect my physical health.

Q23: I felt uncertain during the COVID-19 pandemic.

Q24: I was afraid of what COVID-19 would do to my body.

Q25: I did not perceive COVID-19 as a threat.

Your experiences with COVID-19 on a social and communal level.

Q27: It was difficult for me to stay in touch with friends and family during COVID-19.

Q28: I had too few social contacts during COVID-19.

Q29: I spent more time alone than I would have liked during COVID-19.

Q30: I felt lonely during COVID-19.
Q31: My social life suffered during COVID-19.

Q32: COVID-19 isolated me socially.

Q90: COVID-19 did not affect my life on a social and communal level.

Your experiences with exchanging opinions and disagreements during COVID-19.

Q33: Contact with like-minded people comforted, reassured, or encouraged me during COVID-19.

Q34: During COVID-19, I felt drawn to people with similar opinions.

Q35: During COVID-19, I did not spend time with people who had different opinions than mine.

Q37: During COVID-19, I felt threatened by people who had different opinions than mine.

Q38: During COVID-19, I felt most comfortable with people who had the same opinion as mine.

Q39: The presence of like-minded people was pleasant during COVID-19.

Q40: During COVID-19, I felt protected by people with the same opinion as mine.

Your approach to information, rules, and regulations.

Q42: I usually follow instructions from others, especially authorities.

Q43: I am open to advice from my social circle.

Q44: I have no problem following rules from superiors.

Q45: I usually do things differently than they were explained to me.

Q46: I refuse to blindly follow instructions from others.

Q47: I don't do things the way they are supposed to be done.

Q48: I can decide for myself whether I follow rules or not.

Q91: I have no respect for authorities or their instructions.

Your experiences of how you felt during the COVID-19 pandemic.

Q50: During COVID-19, I thought positively about the future.

Q51: During COVID-19, I felt productive.

Q52: During COVID-19, it was difficult for me to relax.

Q53: During COVID-19, I felt like I had excess energy.

Q54: During COVID-19, I was able to cope with personal problems.

Q55: During COVID-19, I was able to think clearly and logically.

Q56: During COVID-19, I thought positively about myself.

Q57: During COVID-19, I felt confident.

Q58: During COVID-19, I was able to form my own opinion.

Q59: During COVID-19, I felt loved and secure.

Q60: During COVID-19, I was interested in new ideas.

Q61: During COVID-19, I was enthusiastic.

Q62: During COVID-19, I had trouble falling asleep, staying asleep, or sleeping too much.

Q63: During COVID-19, I had difficulty concentrating.

Q64: During COVID-19, I had little interest or pleasure in activities.

Your opinions about COVID-19.

Q65: The government deliberately withheld knowledge about COVID-19.

Q66: The news about COVID-19 was mostly questionable.

Q67: Immunization was not the only intention behind the COVID-19 vaccination.

Q68: We had to adhere to COVID-19 measures to protect vulnerable groups.

Q69: COVID-19 was artificially created.

Q70: Those who benefited from it extended the COVID-19 pandemic.

Q71: The government made efforts to minimize the impact on the lives of citizens.

Q72: Scientists provided rational and knowledgeable assessments of the pandemic situation.

Q73: The COVID-19 vaccine was injected to mark people with a chip.

Q74: We were lied to by the government during the COVID-19 pandemic.

Your views and opinions about German society.

Q76: The government keeps information secret from society.

Q77: There are cures for deadly diseases that are intentionally withheld from society.

Q78: Society is controlled by a small, secret group.

Q79: Some significant global events were the result of activities by a small, secret group.

Q80: The government allows terrorist activities intentionally to instill fear in the public.

Q81: The government has large amounts of confidential information about every citizen without their knowledge or consent.

Q82: There is a lot of information about diseases and their cures that are being withheld.

Q83: The government falsifies evidence of significant events to deceive society.

Q84: The German government is transparent and conscientious in its decision-making.

Q85: Climate change is a real threat.

Word of appreciation