Pandemic Personality.

Emotional Reactions, Political and Social Preferences Across Personality Traits in Times of Corona

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Abstract

The Coronavirus pandemic undoubtedly represents a global health threat unprecedented in living memory. However, the behavioural, cognitive, and psychological responses to the crisis vary significantly among people. We argue that the different ways of responding to the pandemic are rooted in personal dispositions and provide evidence regarding the function and value of the Big Five framework for understanding the pandemic personality. Using data of more than 12,000 respondents in six European countries most hit at the onset of the pandemic, we show how personality affects pandemic threat perception, emotional responses to the Covid-19 pandemic, exposure to the pandemic hazard, political preferences regarding non-pharmaceutical measurements as well as the tolerance of epidemiologically undesirable behaviour. We add new insights to the role of dispositional differences in a strong situation of a pandemic, which are rich in implications for public health politics, policy-makers and social cohesion.

Introduction

The world is in a crisis unprecedented in living memory, considered by many to be the greatest challenge in modern history since World War II (Müller & Rau, 2021; Weible et al., 2020). The source of this crisis is the so-called SARS-CoV-2, a severe and acute respiratory syndrome, and the "Covid-19" disease associated with contracting the new virus. According to Johns-Hopkins-University, early May 2021 around 155 million people have been infected with Coronavirus (John Hopkins University, 2021). While the Coronavirus pandemic undoubtedly represents a global health threat, the behavioral, cognitive, and psychological responses to the crisis vary widely. On the one hand, there are people who adhere strictly to the containment rules and put issues of security above those of freedom. On the other hand, we observe individuals who don't want to be told what to do. Why do people behave differently despite the rules that apply to everyone? How is it possible that they perceive a crisis situation so differently and respond to it in such a variety of ways? Why are some people fearful or angry, while others are hopeful and sometimes even see the sunny side of the crisis?

It is here that our investigation finds its starting point. Research in psychology suggests that individuals can differ considerably in their ways of handling new and challenging situations, and that these individual differences can be partially explained by the individual's personality (cf. Agbaria & Mokh, 2021; Asselmann et al., 2020, p. 2; Carver & Connor-Smith, 2010; Chen & Bonanno, 2020; Riolli et al., 2002). Against this background, we expect that the different ways of responding to the pandemic are rooted in personal dispositions (Aschwanden et al., 2020, p. 51; Y. Han et al., 2021). The purpose of our endeavor is not to question the importance of socioeconomic factors in forming Covid-19 related emotions, preferences, and behavior, but rather to highlight how personality traits may contribute to the explanation (Aschwanden et al., 2020, p. 51). Personality traits are an appealing explanation of emotional states, preferences, and behaviors because they are enduring and stable dispositions, existing to a large extent prior to adult socialization experiences and holding roots in our genetic make-up (McCrae & Costa, 2008). Hitherto, several studies focus on the consequences of personality, regarding for example the compliance with Covid-19 containment measures, the development of depressive symptoms, or toilet paper stockpiling (Aschwanden et al., 2020; Asselmann et al., 2020; Blagov, 2020; Carvalho et al., 2020; Chan et al., 2020; Garbe et al., 2020; Götz et al., 2020; H. Han, 2021; Kroencke et al., 2020; Modersitzki et

al., 2020; Nikčević et al., 2021; Qian & Yahara, 2020; Zacher & Rudolph, 2021; Zajenkowski et al., 2020).

We enrich this relevant literature in three important ways. First, we challenge the notion of the "strong situation hypothesis". According to this view, personality is likely to matter most when situations are weak. Strong situations such as the Covid-19 pandemic threat constrain options and provide uniform expectancies, which limits observed relations between personality and behavior (Cooper & Withey, 2009, p. 62). Second, whereas previous studies have focused primarily on the link between personality traits and compliance with rules and recommendations to contain the pandemic spread – our research interest lies primarily on emotional responses and social and political preferences. So far, little is known about how personality shapes the evaluation of Covid-19 measures or attitudes toward people who do not comply with them. However, these aspects have seminal implications for policy makers as well as for social integration and cohesion. Third, to the best of our knowledge, there is hardly any empirical evidence on whether and how personality is related to exposure to the viral hazard. However, such information can help to identify people who are particularly at risk of infection and to target them with specific measures and appeals that resonate with their personalities. Third, previous findings on personality differences in the Covid-19 context are characterized by a substantial lack of external validity. To date, the bulk of studies uses student and other convenience samples. Moreover, the few studies using more representative data are almost exclusively single-country studies.[1] In the present study, we significantly expand the empirical basis for examining personality effects on Covid-19-relevant outcomes, using data on more than 12,000 respondents, collected in six European countries during the first two Corona waves (April/May 2020 and late November 2020 to January 2021).[2] Taking into account the situation at the onset of the crisis at the end of March/beginning of April 2020, our surveys include respondents from Italy, France, Germany, Spain, the United Kingdom and Switzerland. These six countries were the most severely hit countries in Europe until mid-April 2020, representing a strong situation (for Covid-19 relevant data see WHO, 2020a, 2020b).

[1] The studies by Chan et al. (2020) and Götz et al. (2020) are two notable exceptions, working with a broad empirical data base encompassing several countries.

[2] The terms "first and second Corona wave" refer to a very general European trend and is not intended to deny that European countries were affected by the pandemic to different degrees at different times. This overall trend is illustrated, for example, by the New York Times, which uses average deaths and hospitalizations in Europe to speak of a spring wave (peak: April 9, 2020) and an autumn wave (peak: November 28, 2020) (Holder et al., 2020).

In our data, we identify the pandemic personality arriving at following main findings: First, those who are conscientious and agreeable feel their health is particularly threatened by the pandemic, develop anxiety, and shift their political as well as social preferences to containment of the contagious disease at the expense of personal freedoms. Conscientiousness, which also activates aversion, forms these preferences even more strongly and makes infection less likely. Second, those who are extroverts see the pandemic primarily as a threat to their social lives, prioritize economic freedoms at the expense of health, and tolerate deviant behavior associated with Covid-19. Extroverts pay for these preferences with more likely contagion. Third, neurotic people associate various aspects of threat (health threat, financial threat, and social threat) with the pandemic and experience feelings of fear and aversion. These different threat aspects lead to fragmented political and social preferences when it comes to fighting the spread of the disease. Fourth, the degree of openness shows almost no systematic relationship to the behavioral, cognitive and psychological aspects examined here. However, quite startling, open-minded people become more intolerant of people who break the rules during the course of the pandemic.

Emotional Reactions, Pandemic Exposure, and Political and Social Preferences Across Personality Traits

According to the trait paradigm, an individual's personality can be described as the entirety of all characteristics reflecting “relatively stable patterns of feeling, thinking, striving, and behaving and by which a person is more or less distinguished from others [...]” (Kandler & Riemann, 2015, p. 51). Personality traits are thereby understood as the core components of a relatively enduring and multifaceted internal personality system, shaping how individuals respond to the vast array of stimuli they encounter in the world (Caprara & Vecchione, 2013, p. 24; Gerber et al., 2011, p. 266; Mondak et al., 2010, p. 86). Traits cannot be observed directly but are inferred from behaviour, they are found to be considerably stable over the life course and situations, and are at least party determined by genetic dispositions (K. Ackermann, Ackermann, et al., 2018, p. 416; Bouchard, 2004, p. 149; Freitag, 2017, p. 30; McCrae & Costa, 2008, p. 162 f. Mondak, 2010, p. 7). In order to comprehensively conceptualise and reliably measure personality traits, the Big Five or Five Factor Model respectively has emerged as the dominant framework in psychology in recent years (Caprara & Vecchione, 2013; Freitag & Rapp, 2015; Gerber

et al., 2011; Mondak et al., 2010; Mondak & Halperin, 2008). As a "general taxonomy of personality traits" (John et al., 2008, p. 116), the model comprises five superior and abstract personality dimensions, the so-called Big Five – openness to experience, conscientiousness, extraversion, agreeableness and neuroticism – that emerge across different cultural and linguistic contexts (K. Ackermann, Ackermann, et al., 2018; K. Ackermann, Zampieri, et al., 2018; Gallego & Oberski, 2012; Gallego & Pardos-Prado, 2014; Schmitt et al., 2007). As these personality traits relate to attitudinal and behavioural tendencies in all spheres of life (K. Ackermann, Zampieri, et al., 2018; McCrae & Costa, 2008), we also expect them to influence pandemic exposure as well as to shape the way individuals emotionally and cognitively respond to the current Covid-19 pandemic. In many cases, specific hypotheses are made about the likely relationships between the Big Five factors and certain dependent variables. In other cases, however, where previous research provides only rough indications, our expectations are admittedly less concrete and more exploratory in nature.

Openness to experience generally reflects the breadth and depth of awareness and reflection; the receptivity to experiential possibilities of any kind, intellectual curiosity, imagination, and aesthetic sensitivity (M. Ackermann et al., 2019; Christensen, 2020; Gerber et al., 2010, 2011; Schwaba et al., 2017; Soto & John, 2017). Open-minded individuals show themselves to be imaginative, diversely interested, original and nonconforming and constantly seek new experiences, ideas and actions (K. Ackermann, Ackermann, et al., 2018; K. Ackermann, Zampieri, et al., 2018; Freitag, 2017; Mondak & Halperin, 2008; Novikova, 2013). We can expect open individuals to be curious, interested and informed in what is going on, and generally coping fairly well regarding the adjustment to the new situation (Aschwanden et al., 2020, p. 52; Asselmann et al., 2020). In other words: We may assume that acquired knowledge about the pandemic limits the feelings of uncertainty and insecurity of open-minded people and therefore reduces their feelings of threat and anxiety. Moreover, since open individuals are critical citizens (Freitag & Ackermann, 2016), they should be more prone to reject far-reaching and restrictive non-pharmaceutical measures. In this vein, the relevant literature also indicates that open-minded people tend to reject state intervention (Fatke, 2017, p. 884) and to hold (socially) liberal values and ideologies (Cooper et al., 2013; Freitag, 2017, p. 100 f. Freitag & Rapp, 2015, p. 355; Gerber et al., 2010, 2011; Jonason, 2014; Mondak & Halperin, 2008). Open-mindedness implies a general receptiveness to new opinions, values, beliefs as well as alternative lifestyles and choices, regardless of whether these

are seen as opposing or whether they are stated by disliked groups (Christensen, 2020, p. 4; Cooper et al., 2013, p. 71; Fatke, 2017, p. 884; Freitag & Rapp, 2015, p. 356). With this in mind, we also expect open-minded people to be tolerant of people who disregard Covid-19 measures.

Conscientiousness characterizes efficient, organized, impulse-controlled and goal-oriented as well as disciplined, rule-consistent, dutiful, responsible and reliable individuals (Freitag, 2017; Gerber et al., 2010, 2011; Mondak, 2010; Mondak & Halperin, 2008; Novikova, 2013). Conscientious people are in need for structure and to adhere to norms, laws and authorities, and their behaviour is characterized by prudence and caution (K. Ackermann, Ackermann, et al., 2018; K. Ackermann, Zampieri, et al., 2018; Freitag, 2017; Freitag & Rapp, 2015; Rapp et al., 2019). Thus, one could expect highly conscientious individuals to strictly support far-reaching policy measures, governmental rules, and recommendations to fight the viral spread and change their behaviour accordingly (Asselmann et al., 2020, p. 2; Blagov, 2020; Brouard et al., 2020; Carvalho et al., 2020; H. Han, 2021; Nofal et al., 2020, p. 5). Accordingly, the rule-abiding behaviour of conscientious individuals should tend to be associated with a lower risk of exposure or infection. However, the highly extraordinary and partly confusing situation of the Coronavirus crisis is likely to evoke negative emotions and to be perceived as threatening by consciousness individuals, who seek to retain control over any given situation (cf. Asselmann et al., 2020). Moreover, due to their pronounced demand for conformity (Freitag, 2017; Kunst et al., 2021; Mondak & Halperin, 2008; Olver & Mooradian, 2003; Wolfradt & Dalbert, 2003), conscientious people should not tolerate any non-compliance with the enacted social rules and norms to prevent the spread of the Coronavirus disease.

Individuals scoring high on *extraversion* are gregarious, talkative, lively, cheerful and active (McCrae and Costa 2008). They enjoy being around others and prefer stimulating environments, are optimist and generally high in positive affect (Gerber et al., 2010; John et al., 2008; Mondak, 2010; Novikova, 2013). While extraverts are sociable on the one hand, they are also very assertive and strive for power, what makes them somewhat prone to social dominance (K. Ackermann, Zampieri, et al., 2018; Freitag & Rapp, 2015; Schoen & Schumann, 2007, p. 479). Thus, favouring hierarchical structures and strong political leadership, extraverts are expected to support far-reaching containment policies like the closure of international borders or economic shutdowns. However, because of their outgoing nature, extraverted individuals should have particular difficulties

eliminating social contacts and activities during the Covid-19 pandemic, and thus to engage less strictly in social distancing measures or ‘stay-home’-recommendations (Asselmann et al., 2020, p. 2). This is strongly supported by current findings, which indicate that extroverts do not comply with containment measures (Brouard et al., 2020; Chan et al., 2020; Götz et al., 2020; H. Han, 2021; Nofal et al., 2020). Therefore, it is likely that extraverted people are particularly exposed to the pandemic, as they do not protect themselves properly and probably will also tend to know or meet more infected people due to their large social networks. In addition, these individuals are less critical and instead rather tolerant of others who exhibit deviant behaviour regarding the rules to mitigate the pandemic threat. Considering the emotional experiences of extraverts, it is rather unlikely that they are plagued by great fear, anger, or other negative feelings in light of the pandemic (cf. Nikčević et al., 2021). Instead, people high in extraversion are generally characterized by positive emotionality, thus found to be highly upbeat, optimistic and enthusiastic (Agbaria & Mokh, 2021).

Agreeableness describes how a person behaves in social interactions (Mondak, 2010). Individuals with a high degree of agreeableness are generally characterized by their caring, helpful, cooperative, as well as conflict-averse approach to others, which is due in no small part to their strong interest in functioning and harmonious relationships (M. Ackermann et al., 2019; Freitag & Ackermann, 2016; Freitag & Rapp, 2015; Gerber et al., 2011; McCrae & Costa, 2008; Mondak & Halperin, 2008). Given their inclination for cooperation, solidarity, and concern for the well-being of society as a whole (Freitag, 2017, p. 107; Gerber et al., 2011, p. 267), agreeable people are expected to comply more strictly with rules and recommendations (Asselmann et al., 2020, p. 2). Recent empirical studies do indeed report that people scoring high on agreeableness are particularly accommodating with containment measures and behave in a socially desirable manner (Asselmann et al., 2020; Blagov, 2020; Chan et al., 2020; Götz et al., 2020; H. Han, 2021; Nofal et al., 2020; Zajenkowski et al., 2020), which could make them less prone to infection. In general, agreeable people should prefer collective security to individual freedom. Thus, measures to contain the pandemic could hardly go far enough for them. We might also suspect that agreeable individuals will reject behaviour that runs counter to the collective goals and efforts, and be correspondingly intolerant of those who do not comply with the prescribed measures (Asselmann et al., 2020, p. 2). Agreeable people should perceive the pandemic as a threat to community life, inducing fear. Other negative emotions, such as anger or disgust, however, do not seem to fit the conciliatory nature of these individuals.

Finally, *neuroticism* implies a tendency toward hyper-concern, low self-esteem, emotional vulnerability, and negative emotionality (M. Ackermann et al., 2019; Asendorpf & Neyer, 2012; Freitag & Rapp, 2015; Gerber et al., 2011; John et al., 2008). Emotionally unstable, i.e. neurotic, people are typically experienced as tense, nervous, frustrated, embarrassed, insecure, and lacking in affect control (Freitag, 2017; Novikova, 2013). Quite obviously, this goes hand in hand with the expectation that neurotics will react emotionally in a markedly negative way to the current pandemic (cf. Agbaria & Mokh, 2021; Kroencke et al., 2020; Nikčević et al., 2021). We could therefore assume that these people feel particularly threatened in the context of Covid-19 (cf. Aschwanden et al., 2020; Asselmann et al., 2020; Garbe et al., 2020). Moreover, recent studies show that the generally risk-averse neurotics protect themselves from infection in many ways, sometimes even going beyond governmental measures and recommendations (Asselmann et al., 2020; Blagov, 2020; Chan et al., 2020; Garbe et al., 2020; Götz et al., 2020; H. Han, 2021; Qian & Yahara, 2020).[3] Because of their high need for security, neurotic individuals should furthermore be more likely to support policies that limit the risk of infection. The social isolation accompanying this behaviour should reduce their exposure to the pandemic threat accordingly. Finally, due to one's own integrity and fears, individuals scoring high on neuroticism should prove to be strict and uncompromising, thus being less tolerant towards those exhibiting socially undesirable behaviour.

Data and Methods

To test the various expectations outlined above, we rely on original survey data of 12,000 West European respondents during the first two Corona waves (April/May 2020 and late November 2020 to January 2021).[4] Taking into account the epidemiological situation at the onset of the pandemic in Europe in spring 2020, individuals from Italy, France, Germany, Spain, the United Kingdom and Switzerland were polled, as these countries were among the most severely hit in Europe until mid-April 2020 (WHO, 2020a, 2020b). Two large online surveys were conducted by Qualtrics and SurveyEngine, using quota on age, gender and education for each country (including language for Switzerland) to mirror

[3] However, Aschwanden et al. (2020) find higher neuroticism associated with fewer precautions and unrelated to preparatory behaviours related to Covid-19. Brouard et al. (2020) were surprised to find a negative association between neuroticism and compliance with the Covid-19 public health measures in France, once emotions were taken into account.

[4] Since not all variables used are included in both data sets, the data potential cannot be fully exploited in all analyses.

the distribution of these variables representative for the entire population. The description of the surveys and descriptive statistics are presented in the appendix (tables A1 and A2).

While we will discuss the measurement of our broad set of dependent variables (e.g., perceived threat, emotional reactions) in each of the corresponding sections, the Big Five personality traits are considered as explanatory variables in all subsequent analyses. They were assessed using the Ten-Item Personality Inventory (TIPI) (Gosling et al. 2003). The ten items can be assigned to the five superordinate personality traits (two items per trait) and each consists of two character-describing adjectives (e.g. "sympathetic, warm" for the personality dimension of agreeableness). Using a 5-point scale, respondents were asked to indicate how much each pair of adjectives applied to them (1 "strongly disagree" to 5 "strongly agree"). The items were then all coded to run in the same direction, with high values consistently signalling a strong expression of the respective personality trait. Subsequently, arithmetic indices were created from the related items, which are used to operationalize the five basic dimensions of personality for subsequent analyses.

With regard to the distribution of the Big Five personality traits in our combined dataset (including data from both survey periods), about one third (32.5 percent) of our respondents can be classified as open-minded, 61.2 percent as conscientious and 42.1 percent as agreeable.[5] Furthermore, 15 percent describe themselves as extroverted and less than one in ten (8.8 percent) expresses emotional instability (see table A3 in the appendix for the distribution of the Big Five at the country level).[6]

Depending on the scale level of the outcome variables of interest, we either estimate linear, logistic or ordered logistic models on the individual level. In accordance with previous research, in all our analyses, we control for a range of socio-demographic variables that could affect our outcomes, such as age, gender, educational attainment, income situation, residential area, health status, and left-right self-placement. Furthermore, we include country-dummies in all our models.

[5] The reported proportions equal the share of respondents who achieve a value of at least 4 on the arithmetic index (index-range: [1:5]) for the respective personality dimension.
[6] Comparing the two surveys, the proportions for all personality dimensions lie within an interval of ± 2 percentage points.

Empirical Analysis

Question 1: Who feels particularly threatened by the Covid-19 pandemic?

To assess the perceived threat from Covid-19, we use three different items referring to potentially threatening aspects of the pandemic. Asking the respondents how worried they are that themselves, a family member or someone from their immediate circle could become infected with the Coronavirus indicates their perceived level of *health threat*. Furthermore, we asked respondents how they perceive the Coronavirus pandemic as a threat to their own financial situation (*financial threat*) as well as to their social relationships (*social threat*). Answer scales range from 1 "not very worried" to 4 "very worried". About half of the respondents rated the Coronavirus pandemic as a major or very major health threat (51 percent). A slightly smaller proportion of respondents (45.3 percent) finds their financial situation as somewhat or very threatened. The threat potential of Covid-19 for social relationships is considered to be (rather) low by 60.4 percent of the respondents.[7]

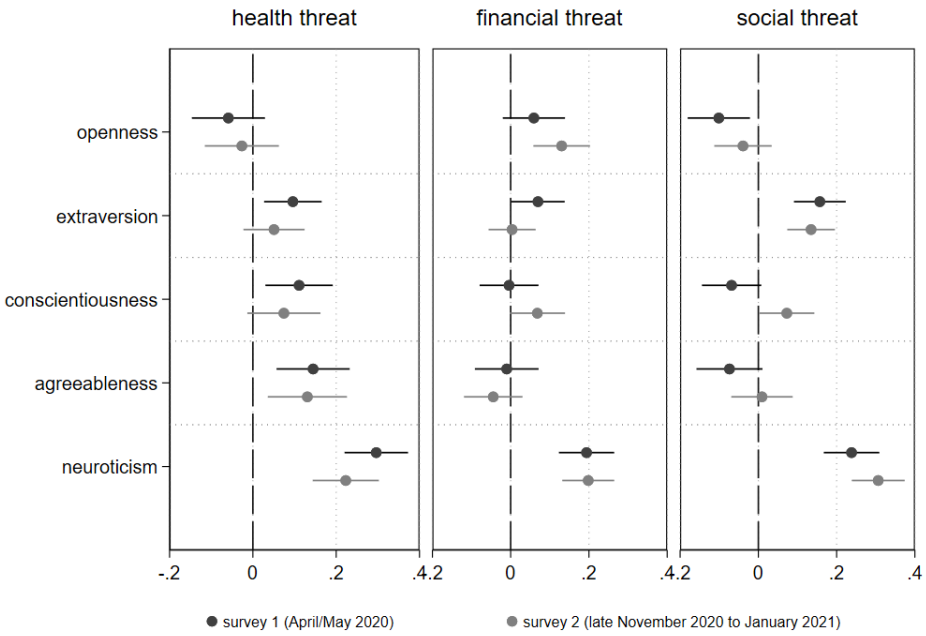
Conducting ordered logit regressions, we find evidence that neuroticism consistently emerges as the most important predictor of the different threat aspects (see figure 1).[8] The more neurotic a person, the more she perceives the pandemic as threatening regarding its health, financial and social consequences. Not surprisingly, the sociable nature of extraverts makes them perceive the current crisis as a social threat in particular, while the findings based on the survey conducted in April/May 2020 further suggest that these people also feel threatened in terms of health and finances. Agreeable people feel a strong health threat from Covid-19. Due to their caring nature, as well as the fact that the corresponding item referred to the concern about an infection of the own or close persons, this is not very surprising. As for conscientious people, we find indications of perceived health and social threats. Finally, open-minded people do not associate systematically feelings of health threat with the pandemic. However, at least in the survey during the

[7] The proportion of respondents who perceive Covid-19 as a (very) major health threat is highest in Spain and Italy (63.5 and 63 percent respectively) and lowest in Switzerland (16 percent). Regarding perceived financial threat, Spain and Italy again top the list with 65.9 and 62.2 percent of respondents considering the Coronavirus pandemic as a (very) major financial threat. In contrast, this is true for only one third of Swiss respondents (33.2 percent). Finally, Covid-19 is also seen as a (very) major social threat in Spain (48 percent), while the corresponding proportion is lowest in the UK (29.5 percent).

[8] In general, ordered logistic models should fulfil the parallel regression assumption. However, Brant-tests reveal that this assumption is violated in our model. The recommended calculation of generalized ordered logit models (GOLMs) (Williams, 2005) did not change our results. Accordingly, we decided to present the ordered logistic models to discuss or findings, which are easier to interpret. Findings from the GOLMs are available upon request.

second wave of the pandemic (late November 2020 to January 2021), open individuals also proved to be systematically more concerned about financial matters than their less open-minded counterparts. Yet, they see no threat to their social activities at the onset of the Coronavirus pandemic.

Figure 1: Personality Traits and Perceived Covid-19 Threat



Note: Displayed are the ordered logit regression coefficients (markers) with their 95 percent confidence intervals (horizontal lines). If the confidence intervals do not cross the vertical 0-line, the effect is statistically significant; coefficients are based on the values in table A4 in the appendix with all control variables but for legibility we only display the effects of the relevant personality traits.

Question 2: Who feels what emotional states in response to Covid-19?

According to Affective Intelligence Theory (AIT) (Marcus et al., 2000, 2002), three dynamic preconscious neural systems of affective appraisal operate constantly and routinely to sort information we confront.[9] Once activated, these systems either respond with the broad emotional states of enthusiasm, fear or aversion (Brader & Marcus, 2013; Marcus et al., 2019; Vasilopoulos et al., 2019). AIT holds that all relevant appraisals are executed simultaneously and largely independently. Which appraisal dimension is the

[9] AIT follows the key insights of the functional neuroscience approach grounded in the neuroscience literature. These perspectives locate emotional responses in parts of the brain that are differentially linked to approach or avoidance motives. Thus, fear and aversion are situated in different parts of the brain that are connected with varying degrees to approach or avoidance behaviour (Carver & White, 1994; Gray, 1987; Huddy et al., 2007, p. 211 f.). While aversion signals that a threat is harmful to familiar norms and practices of thought, anxiety (fear) signifies the extent to which the threat is novel or uncertain.

more robust, at any given moment, will determine the course taken (Brader et al., 2010; Marcus et al., 2019; Vasilopoulos et al., 2019).

To measure the main dimensions of emotions, we rely on the well-known Positive and Negative Affect Schedule (PANAS) scale in its short version (Crawford & Henry, 2004; Watson et al., 1988). However, we slightly adapted this (originally stimuli-independent) scale to the current context by asking respondents to indicate how often in the last weeks and months they have felt a list of different emotions and feelings in relation to a possible infection with the Coronavirus (ranging from 1 "never" to 5 "very often"). To measure Covid-19 induced fear, we combined the frequencies of feeling "anxious" and "worried", while for aversion, the cognitive terms "upset", "hostile" and "disgusted" were used. Finally, enthusiasm is measured by the sense of being "enthusiastic", "proud" and "hopeful". We built arithmetic indices to operationalize these emotional appraisals. A CFA was run and supported the proposed three-factor solution for the items used.[10] We find that the primary reaction to the current pandemic is fear: During the second survey period (late November 2020 to January 2021), about one in five respondents indicated feeling anxious and worried about Covid-19 (very) often.[11] At least sometimes 31.7 of the respondents experience enthusiasm and 27 percent the emotional state of aversion.[12]

We find conscientiousness, agreeableness and neuroticism to be related with Covid-19 induced fear (see figure 2). Moreover, both people scoring high on agreeableness as well as extraverts are inclined to emotionally experience enthusiasm with regard to the pandemic, whereas conscientiousness and neuroticism appear to prevent optimistic feelings. However, people scoring high on neuroticism and conscientiousness seem to

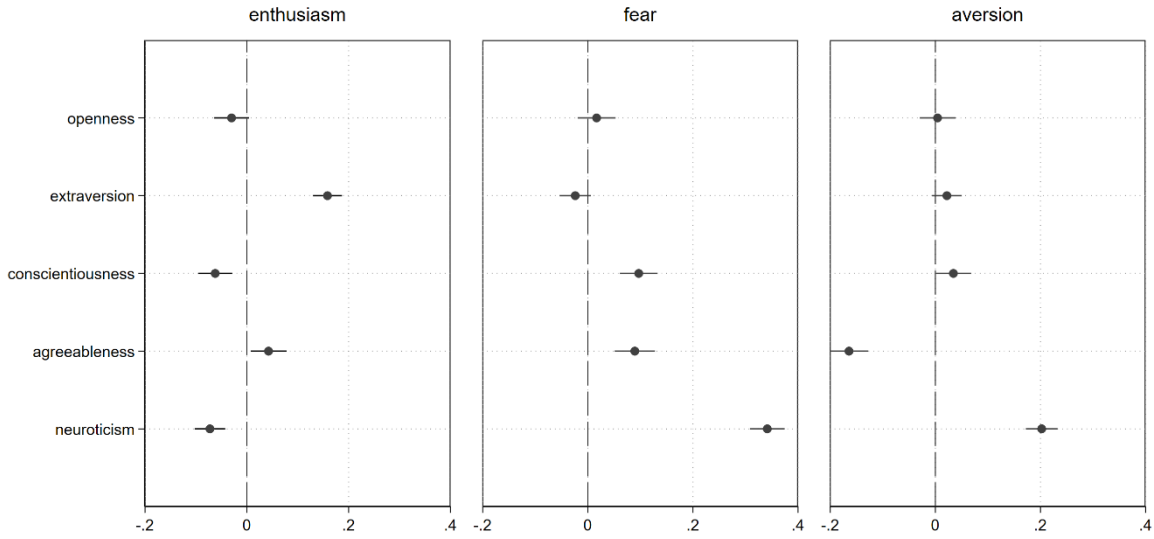
[10] Comparing the fit statistics, our results indicate that the three-factor solution is superior to a one-factor solution including all items and a two-factor solution with one factor for negative emotional states and one factor for positive emotional states. Model fit one-factor solution: model vs. saturated $\chi 2[20]= 6744.776$; CFI = 0.590; TLI = 0.426; SRMR = 0.160; RMSEA = 0.233, 90%- CI = 0.228:0.237; CD = 0.829. Model fit two-factor solution: model vs. saturated $\chi 2[19]= 1669.013$; CFI = 0.899; TLI = 0.852; SRMR = 0.056; RMSEA = 0.118, 90%- CI = 0.113:0.123; CD = 0.965. Model fit three-factor solution: model vs. saturated $\chi 2[17]= 372.841$; CFI = 0.978; TLI = 0.964; SRMR = 0.030; RMSEA = 0.058, 90%- CI = 0.053:0.063; CD = 0.988.

[11] The proportions reported in this section equal the share of respondents who achieve a value of at least 4 ((very) often) or 3 (at least sometimes) on our arithmetic index for the respective emotional reaction.

[12] The emotional reaction of fear is most frequently experienced in Italy (with 33.7 percent of Italian respondents experiencing fear (very) often), and least frequently in Switzerland (corresponding proportion: 12.3 percent). In Germany, only 19.4 percent report responding at least sometimes with enthusiasm to the pandemic, while the corresponding proportion in the UK is almost twice as high (38 percent). In addition, emotional reactions that can be assigned to the construct of aversion are comparatively rare in Germany (with 16.3 percent of German respondents experiencing aversion at least sometimes), but they seem to be experienced much more frequently in Italy (36.8 percent).

experience aversion, while agreeableness is negatively related to feelings of disgust, hostility and anger in response to the Corona pandemic.

Figure 2: Personality Traits and Emotional Reactions to Covid-19



Note: Displayed are OLS-regression coefficients (markers) with their 95 percent confidence intervals (horizontal lines). If the confidence intervals do not cross the vertical 0-line, the effect is statistically significant; coefficients are based on the values in table A5 in the appendix with all control variables but for legibility we only display the effects of the relevant personality traits.

Question 3: Who is particularly exposed to the Covid-19 pandemic?

In a next step, we are interested in whether our personality pre-spurs exposure to the pandemic. As a first indicator of exposure, we use self-infection. Respondents indicating that they already have been diagnosed with the Coronavirus were coded "1", those who did not report an infection "0". During our first survey (April/May 2020), 267 respondents or 4.4 percent of our participants respectively, reported that they had already been infected with Covid-19. In the second survey (late November 2020 to January 2021), a total of 463 persons or 7.5 percent respectively indicated a self-experienced infection.[13]

Moreover, we create an additional dummy variable nearby-infection, whereby "1" indicates that the respondent him-/herself, someone of his/her familiar, and/or immediate circle has been diagnosed with the Coronavirus disease, while "0" means that neither the respondent nor anyone in the respondent's close social environment has been contracted. Taken both surveys together, nearly one quarter of our respondents (n= 2719) reported

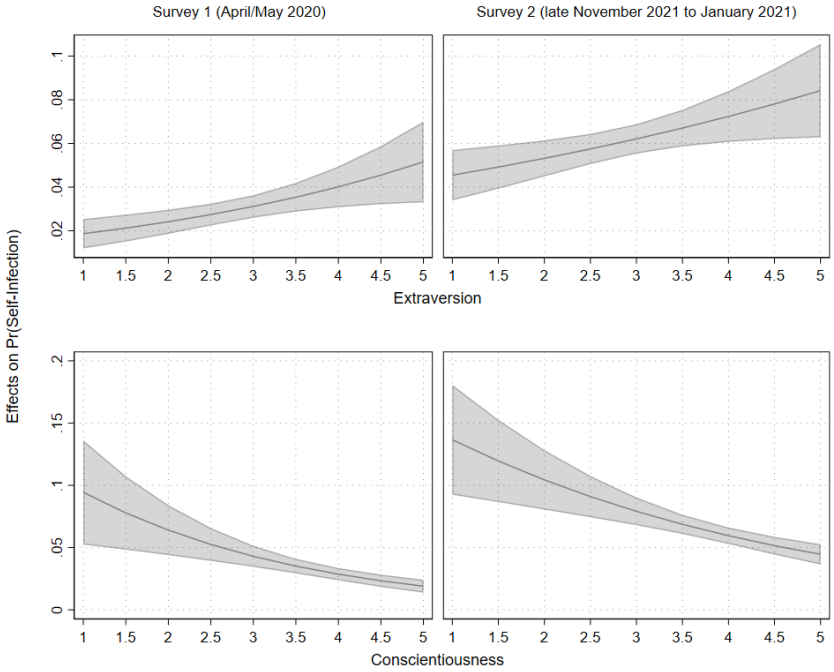
[13] Combining both surveys, most self-infections were reported in Italy (n=155, 7.8 percent of Italian respondents), the fewest in Germany (n= 82, 4.1 percent of German respondents).

such a nearby-infection (14.5 percent in April/May 2020; 29.8 percent from late November 2020 to January 2021).[14]

Logistic regression results clearly indicate that neither openness to experience, agreeableness nor neuroticism influence how exposed one actually is to the Covid-19 infection risk (see table A6). However, we find evidence that extraverts, in particular, are exposed to the pandemic hazard. They exhibit more nearby-infections and are more prone to self-infection. Figure 3 visualizes this "exposure-promoting effect" of extraversion for self-infection. Not surprisingly, the probability of being or already have been infected with the Coronavirus became somewhat higher in the second survey period (late November 2020 to January 2021 compared to April/May 2020). What is more, and clearly indicated in both waves, scoring high on extraversion increases this probability. The estimated probability of self-infection for individuals with the lowest extraversion score is about 1.9 and 4.5 percent, respectively, while for individuals with the highest scale score it is 5.2 and 8.4 percent. Put differently, every additional point on the extraversion scale increases the odds of suffering infection by 30 (April/May 2020) and 18 percent (late November 2020 to January 2021), respectively. With respect to consciousness, we observe the opposite: The more conscientious somebody is, the less exposed he is to the infectious hazard (see table A6).[15] Here, a one-unit increase in the score of conscientiousness leads to a decrease in the odds of self-infection by 35 (April/May 2020) and 26 percent (late November 2020 to January 2021), respectively. The comparison of the change in the odds of self-infection between the two survey periods indicates that personality had a stronger influence on the risk of infection during the first Corona wave in Europe.

[14] Combining both surveys, most nearby-infections were reported in Spain (n=629, 31.3 percent of Spanish respondents), the fewest in in Germany (n= 261, 13 percent of German respondents).
[15] The negatively directed effect of conscientiousness on nearby-infections reaches statistical significance only in the model based on data from the first survey (April/May 2020, see table A6).

Figure 3: Extraversion, Conscientiousness and Covid-19 Self-Infection



Note: Displayed are the predicted probabilities of Covid-19 self-infection (solid line) over the whole scale range of extraversion and conscientiousness (all other variables on their means). The more transparent areas represent the 95 percent confidence interval. Figure is based on the values in table A6 in the appendix.

Question 4: Who favors which non-pharmaceutical measures to contain the pandemic?

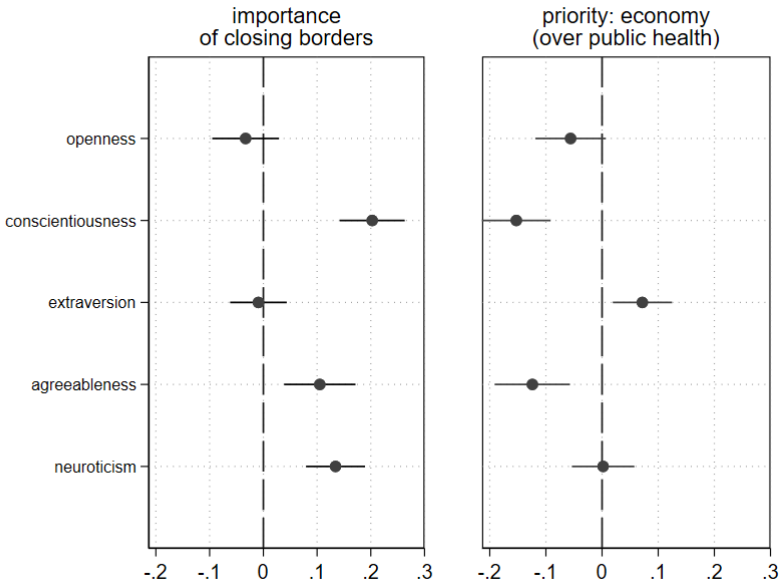
To gain insight into the dispositional shaping of preferences for non-pharmaceutical measures to contain the spread of the infectious disease, we rely on two indicators from our survey during the second Corona wave (late November 2020 to January 2021). A first item referring to the trade-off between collective security and individual liberty asked respondents about the perceived importance of closing borders to fight against the pandemic (1 "completely unimportant" to 7 "extremely important"). In addition, respondents were also asked about their opinion on whether public health or economic activity should take priority in times of the pandemic (1 "prioritize public health" to 7 "prioritize economic activity"). 71.5 percent of respondents consider the closure of borders as (extremely) important in the fight against the pandemic (scale mean: 5.3).[16] A majority of respondents (55 percent, scale mean: 3.1) further believe that public health should take priority over economic activities in times of the pandemic, although as many as 27.1 percent think that public health and economic activities should be prioritized

[16] The proportion reported equals the share of respondents who chose a value of at least 5 on the corresponding answer scale.

equally. Only 17.9 percent, on the other hand, are in favor of giving the economy priority over public health.[17]

Figure 4 shows our results regarding the dispositional rooted preferences of pandemic control. As expected, individuals scoring high on the conscientiousness, agreeableness and neuroticism consider the closure of international borders as an important measure to fight the pandemic. The corresponding positive effects are highly significant. Extraversion and openness to experience are not systematically related to this question. Finally, since public health measures are often related to a slowing of social life and economic activities promise exchange, extroverts place economic well-being above public health issues. In contrast, people scoring high on consciousness and agreeableness prioritize public health. We do not find very clear indications for openness to experience.

Figure 4: Personality Traits and Preferences Regarding Pandemic Control



Note: Displayed are OLS-regression coefficients (markers) with their 95 percent confidence intervals (horizontal lines). If the confidence intervals do not cross the vertical 0-line, the effect is statistically significant; coefficients are based on the values in table A7 in the appendix with all control variables but for legibility we only display the effects of the relevant personality traits.

[17] The proportions reported equal the share of respondents who chose a value of no more than 3 (priority for public health), a value of 4 (equal priority) or a value of at least 5 (priority for economic activities) on the corresponding answer scale.
Border closures seem to be perceived as particularly important in the United Kingdom (proportion indicating (extremely) important: 83 percent; scale mean: 5.8), whereas Swiss respondents are most hesitant about this policy measure (proportion indicating (extremely) important: 52.2 percent; scale mean: 4.5). The clearest prioritization in favour of public health is found in Germany (proportion choosing scale values of no more than 3: 62.9 percent, scale mean: 2.9), while in Italy, somewhat surprisingly, economic activities are prioritized comparatively most often (proportion choosing scale values of at least 5: 24.9 percent; scale mean: 3.4).

Question 5: Who tolerates deviant behavior associated with Covid-19?

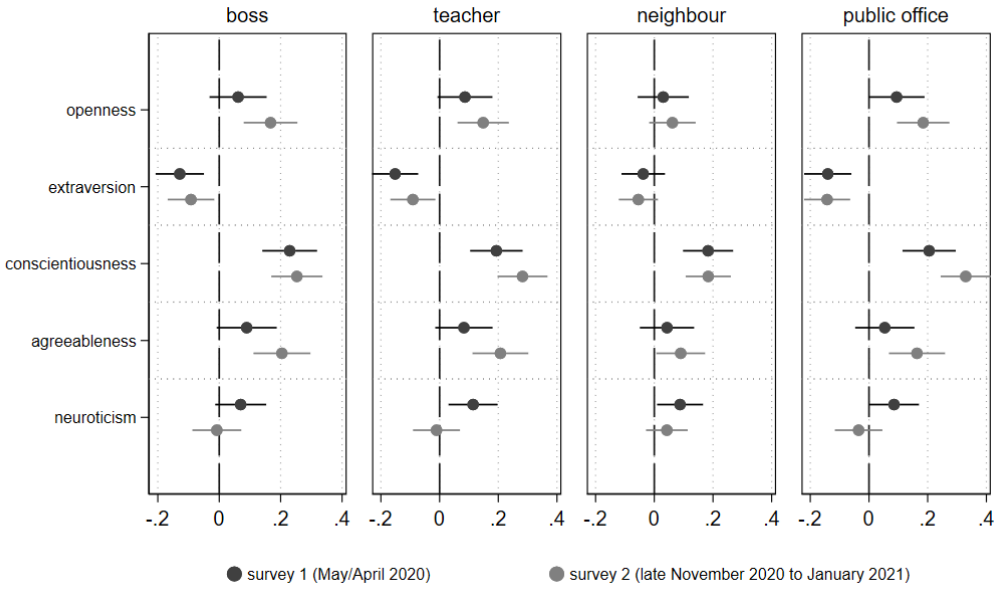
We define the term of tolerance as the willingness to allow "ideas and opinions that one dislikes or disagrees" (Orlenius, 2008, p. 469). We measure Covid-19 related social (in-)tolerance based on an adapted instrument used in the General Social Survey (The General Social Survey (GSS), 2021) and asked respondents whether they would mind if someone who ignores measures against the spread of the Coronavirus (e.g., social distancing, mask-wearing, or quarantine requirements) would be a) a teacher at a school, b) their neighbour, c) their boss at work, or d) hold a public office (1 "yes", 0 "no") (cf. Schafer & Shaw, 2009, p. 415ff.). Overall, Covid-19 intolerance is relatively high and stable when comparing the two survey periods: a clear majority of respondents (in each case around 59 percent) reject people with deviant behaviour as bosses, teachers, neighbours, as well as public office holders. Looking at the proportion of people intolerant in at least two of the cases surveyed, the respective share is as high as 78.2 percent (April/May 2020: 77.3 percent; late November 2020 to January 2021: 79.1) percent).[18]

We find evidence that conscientiousness consistently emerges as the most important predictor of social intolerance in the context of Covid-19 (see Figure 5). During both observed periods, people scoring high on this trait reject to accept violators of Corona-relevant norms and rules as their bosses, teachers at a school, their neighbours or as holding public office. Extraverted individuals, in contrast, show high levels of tolerance for deviant behaviour in all our models, albeit no significant effect can be found regarding the acceptance of measurement-ignoring neighbours. As extraverts are shown to overlook such measures by themselves, this is hardly surprising. Moreover, we find empirical evidence that agreeableness is associated with intolerance of undesirable or noncompliant behaviour during the second pandemic wave (late November 2020 to January 2021). Thus, in the already advanced course of the crisis, concern for the general well-being seems to trump the pronounced tolerance of these people. Furthermore, intolerant orientations by people scoring high on neuroticism are empirically indicated during the initial phase of the pandemic (April/May 2020) only, and not statistically significant in

[18] Taking together both surveys, this very share is highest in Italy (81.9 percent) and lowest in the UK (73.5 percent). Overall, respondents are particularly intolerant of individuals with Covid-19 relevant deviant behavior who (want to) occupy a public office (76.1 percent of all respondents), while neighbours with undesirable behavior related to Covid-19 are still most likely to be tolerated (by at least 43 percent of all respondents).

the case of employer preferences. As individuals who are generally characterized as particularly tolerant and embracing nonconformity, we expected open-minded people to be tolerant of people who disregard Covid-19 measures. Notably, our findings indicate the opposite during the second pandemic escalation in Europe (late November 2020 to January 2021): The higher the score on this trait scale, the more pronounced the social intolerance (although not statistically significant regarding the social grant to be accepted as a neighbour).

Figure 5: Personality Traits and Covid-19 Intolerance



Note: Displayed are logistic regression coefficients (markers) with their 95 percent confidence intervals (horizontal lines). If the confidence intervals do not cross the vertical 0-line, the effect is statistically significant; coefficients are based on the values in table A8 in the appendix with all control variables but for legibility we only display the effects of the relevant personality traits.

The Pandemic Personality: Summary and Discussion

Summing up our empirical findings regarding the consequences of personality differences on Covid-19 related outcomes, we arrive at the following conclusions: First, we find little evidence that openness to experience plays a vital role in times of pandemics. Although our data demonstrates that open individuals perceive a stronger financial threat from Covid-19 (late November 2020 to January 2021) and see their social relationships less at risk than more closed-minded individuals (April/May 2020), openness neither affects how exposed someone is to the pandemic hazard, nor what emotional reactions she experiences in response to the Coronavirus pandemic. With regard to political preferences, there exist no systematic relationships. Yet, people scoring high on openness to experience are systematically more intolerant of deviant behavior as the pandemic

progresses (late November 2020 to January 2021). Given that open-minded people are lauded for their high tolerance in other research contexts, this result comes as rather a surprise. This might be explained by selfish motives of open-minded individuals, who could see their novelty-striving lifestyle delayed by the continuation of the pandemic and therefore reject epidemiologically undesirable behavior.

Conscientiousness, in turn, emerges as a very salient trait in the context of the current pandemic. For example, our analyses indicate that conscientiousness is linked to increased levels of perceived threat regarding health (April/May 2020) and social relationships (late November 2020 to January 2021). In addition, conscientious people are more likely to experience the emotional states of fear and aversion, while less conscientious individuals more often feel enthusiastic, hopeful, and proud in relation to Covid-19. Furthermore, conscientious individuals are less exposed to the risk of infection. Moreover, their preferences for non-pharmaceutical pandemic control seems to reflect the high need for security of these people, as we find conscientiousness to relate to a clear priority for collective security over individual freedom. Finally, this trait consistently appears as the most important predictor of social intolerance in the context of Covid-19: People scoring high on conscientiousness reject to accept violators of Corona-relevant norms and rules as their bosses, teachers at a school, their neighbors or as holding public office.

In addition to conscientiousness, extraversion also decisively sets the path through the pandemic. We find this trait to be related with stronger perceived threat in terms of social relationships. Moreover, our analyses confirm that extroverts are more exposed to the risk of contagion, probably resulting from their aversion towards social distancing. Moreover, our analyses indicate that individuals scoring high on extraversion are hardly plagued by negative emotional states and even react with more enthusiasm to the current pandemic-related challenges. While extraversion is not systematically related with the importance attached to the closure of borders to contain the pandemic, this trait proves to be the only one associated with prioritizing economic activities over public health. An ongoing economic life seems to promise (social) exchange to them, while public health measures are often related with a slowing of social life. Finally, our finding that extroverts are tolerant of others who exhibit deviant behavior fits well with previous research showing that extraversion is negatively related to compliance with pandemic containment measures (cf. Brouard et al., 2020; Chan et al., 2020; Götz et al., 2020; H. Han, 2021; Nofal et al., 2020).

Agreeableness is systematically related to higher levels of perceived threat with respect to a potential infection of the own or close persons, probably reflecting the caring nature, compassion and concern for others characteristic for highly agreeable people. While we do not find any evidence that this trait affects pandemic exposure, agreeableness is associated with a broad set of emotional reactions to Covid-19: In contrast to more quarrelsome people, people scoring high on this trait are more likely to feel enthusiastic, hopeful and proud in times of the pandemic. This finding could be understood in the context of Covid-19's call for societal solidarity and the opportunities the pandemic offers for supporting affected people, e.g. by infection, quarantine or isolation. Nonetheless, the current pandemic also causes fears in agreeable individuals. Experiencing aversion, however, is prevented by the conciliatory nature of these individuals. Fully in line with their community orientation and a prioritizing of collective security over individual freedom, agreeable people attach greater importance to the closure of national borders, and prioritize health issues over economics in the fight against the pandemic. Moreover, during the second survey period (late November 2020 to January 2021), agreeable persons consistently prove to be intolerant of others who ignore, for example, rules of social distancing, mask-wearing, or quarantine requirements. Agreeable individuals seem to reject behaviour that runs against the collective goals and efforts, and thus be intolerant of those who do not comply with the prescribed measures.

Finally, regarding the consequences of neuroticism, we empirically substantiate that emotionally instable individuals feel particularly threatened by Covid-19, whether in in terms of health, finances or social relationships. Feeling that threatened, people scoring high on neuroticism also experience the negatively valenced emotions of fear and aversion, while failing to access feelings of enthusiasm, hope, and pride. According to the perceived health threat, neurotic people consider the closure of borders to be of high importance to control the pandemic containment. However, the equally perceived financial threat does not allow for a clear prioritization of preserving public health at the expense of economic activity. Regarding the social tolerance towards others exhibiting socially undesirable behaviour related to Covid-19, intolerance is empirically indicated during the initial phase of the pandemic (April/May 2020), tough not during our second survey period (late November 2020 to January 2021). That is, their social intolerance blurs as the pandemic progresses.

Conclusion

How to explain the variety and diversity of behavioral, cognitive and psychological reactions to the current global health crisis triggered by Covid-19? In this paper, we explore whether personal dispositions can help explain the different ways of responding to the current Coronavirus pandemic and find ample evidence for the relevance of personality differences even in this extreme situation characterized by relatively strong and unambiguous behavioral demands. Focusing on the consequences of personality differences on hitherto neglected variables such as pandemic exposure, different emotional reactions as well as social and political preferences, we provide evidence regarding the function and value of the Big Five framework for understanding the pandemic personality in six countries that were among the most severely affected in Europe at the onset of the crisis. Using data of more than 12,000 respondents from Italy, Germany, Spain, the United Kingdom and Switzerland, polled during the first two peak periods of the Coronavirus pandemic (April/May 2020 and late November 2020 to January 2021), we significantly expand our understanding of the personality psychology imprint of individual pandemic experiences and responses.

First, in addition to neurotic people, extraverts feel threatened by Covid-19, too. Second, neuroticism and conscientiousness are linked to experience Covid-19 induced fear and aversion, whereas agreeableness and extraversion are positively related to optimistic feelings regarding the pandemic. Third, individuals scoring low on consciousness as well as extraverts are more exposed to the infectious hazard. Fourth, while conscientious as well as agreeable individuals advocate far-reaching non-pharmaceutical measures, extraverts rank economic activity over public health. Fifth, particularly conscientiousness leads to intolerance of non-conforming activities, while extraversion fosters tolerance of deviant behaviour. Most notably, open-minded and agreeable individuals do not tolerate deviant behaviour in times of the Coronavirus pandemic.

These findings have rich implications for public health politics, policy-makers and social cohesion. For example, more than sixty percent in our sample describes themselves as conscientious. This implies that a clear majority of West Europeans carries personality-based preferences for far-reaching containment measures by being psychologically predisposed to consider the closure of borders to be very important and to prioritize public health over economic activities in the fight against the pandemic. In addition, the relatively large group of agreeable people (42.1 percent) shows clear preferences for

emphasizing public health over individual freedom in times of the pandemic. Furthermore, we find surprisingly high levels of intolerance towards people who ignore containment-relevant rules of social distancing, mask-wearing, or quarantine requirements. In particular, conscientiousness consistently promotes this kind of intolerance, whereas, depending on the survey period, agreeableness, neuroticism, and, rather surprisingly, also openness to experience seem to reveal tolerance-inhibiting effects. Extraversion is the only trait that is relatively consistently associated with tolerance of deviant behavior. In sum, West European societies see themselves confronted with high proportions of people who are, due to their personality traits, inclined to reject deviant behavior associated with Covid-19. While this implies a relatively high level of social control – and thus may be beneficial for pandemic containment –, it also indicates a rather high potential for social conflict, which could significantly challenge societal solidarity and cohesion in times of a pandemic. Finally, regarding our findings on pandemic exposure, public health authorities and policy makers can use our findings to directly target the vulnerable groups of extroverts, by taking into account their patterns of thoughts, feelings, and behavior (cf. Michels et al., 2021).

Comparing the two survey periods under study (April/May 2020 and late November 2020 to January 2021), the probably most striking change is found with regard to tolerance. While extraversion and conscientiousness appear as consistent predictors of Covid-19 tolerance and intolerance respectively, both open-minded as well and agreeable individuals seem to become more intolerant as the crisis progresses. In contrast, we find indications for neuroticism to relate to intolerance in April/May 2020, while in winter 2020/2021, neurotic persons are no longer more intolerant than their emotionally more stable counterparts are. The former finding could reflect the generally high tolerance associated with openness to experience and agreeableness, which only diminishes when an undesirable behavior is maintained over time and is clearly (and increasingly) connected with negative collective outcomes. With regard to neuroticism, it is conceivable that this trait had greater predictive power for Covid-19 intolerance at the onset of the global health crisis because there was much greater uncertainty about the disease, its transmission and health consequences at that time. Since neurotics are particularly vulnerable to uncertainty and insecurity, they may accordingly have reacted particularly strongly to any violation and disregard of preventive and protective measures.

Yet, our study also has its limitations that require further attention. First, as we use cross-sectional data, strictly speaking, we cannot make causal claims. It has to be noted, however, that the genetic anchoring of personality and its high stability over the life course, both proven by previous research, support the causal link of the relationship that we have assumed (McCrae & Costa, 2008; Mondak et al., 2010). Furthermore, our data include respondents from six West European countries, which we take into account using country dummies and robust standard errors in all our analyses. While this represents a relatively broad data basis for our empirical investigation, comprising around 12,000 individual-level observations, studies in other countries and cultural contexts have yet to prove the generalizability of our findings outside these countries. In addition, it should be noted that we evaluate the effects of the Big Five personality traits on Covid-19 relevant outcomes in an additive manner. Subsequent research could instead conceptualize personality on the basis of personality types and thus elicit the influence of personality as a product of individual traits (cf. Specht et al., 2014). Finally, we restrict our investigation to threat perceptions, emotions, pandemic exposure, and social and political attitudes. Future studies could also provide valuable insights into personality's imprint on the assessment of vaccination campaigns, public's trust in (different) vaccinations and their affective reactions to them. Personality does play a vital role in strong situations of the pandemic. We pass this finding on to the relevant research, hoping it will stimulate further interesting insights into the pandemic personality.

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Appendix

A1: Description of the surveys

	survey during the first corona wave	**survey during the first corona wave**
Survey period	April 17, 2020/May 11,2020	November 24, 2020/January 18, 2021
Target population	Residents aged 18 years or older in Germany, France, Italy, Switzerland, Spain and the United Kingdom	Residents aged 18 years or older in Germany, France, Italy, Switzerland, Spain and the United Kingdom
Survey mode	Online	Online
Sample size	6,028 respondents (target sample size: 1,000 per country)	6,210 respondents (target sample size: 1,000 per country)
Quotas	Age, Sex, Education (language for Switzerland)	Age, Sex, Education (language for Switzerland)
Sampling	Qualtrics panel	Survey Engine panel(s)
Interview language	German, French, Italian, Spanish, English	German, French, Italian, Spanish, English
Response rate	Overall: 8.71% (RR5/6)*	Overall: 7.03% (RR5/6)*
Institute	survey carried out by Qualtrics	survey carried out by Survey Engine

*The American Association for Public Opinion Research (AAPOR) (2016). *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. Online:* https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf [accessed: 15.10.2020].

Survey 1: The data for the first survey was collected between 17 April and 11 May 2020 by Qualtrics through an web-based survey with around 1,000 respondents per country based on quota-sampling for sex, age and education. Our full sample consists of 6,028 respondents, with an average age of 48 years and of which 49.6 percent are women. Regarding education, all groups are represented with primary and lower secondary education comprising around 25 percent, upper secondary 39 percent and tertiary education around 36 percent of respondents. At the time we conducted our survey the pandemic was in full swing but the countries were affected to differing degrees. In Germany, for example, cases rose from 141,000 to 171,000 during the field period, while in the United Kingdom, the increase was from 117,000 to 215,000 cases. In Italy, cases rose from 172,000 to 219,000. Switzerland, on the other hand, did not experience such a sharp increase (27,000 to 31,000 cases) (Johns Hopkins University, 2020).

Survey 2: The data for the second survey was collected between 7 December 2020 and 18 January 2021 by SurveyEngine through a web-based survey with around 1,000 respondents per country based on quota-sampling for sex, age and education. Our full sample consists of 6,210

respondents, with an average age of 48 years and of which 50 percent are women. Regarding education, all groups are represented with primary and lower secondary education comprising around 25 percent, upper secondary 39 percent and tertiary education around 36 percent of respondents. Moreover, within the countries the demographics match the overall population based on official sources (OECD 2020). The second survey was conducted during the second wave of the pandemic when case numbers rose again.

A2: Descriptive statistics of the variables used

	N		**Mean**		**SD**		**[Min:Max]**	
	S1	S2	S1	S2	S1	S2	S1	S2
Dependent Variables								
Perceived Threat								
Health threat	5,154	4,365	2.60	2.54	0.93	0.90	[1:4]	[1:4]
Financial threat	6,028	6,210	2.53	2.30	1.03	1.00	[1:4]	[1:4]
Social threat	6,028	6,210	2.25	2.30	0.96	0.91	[1:4]	[1:4]
Covid-19 exposure								
Self-infection	6,027	6,201	0.04	0.07	0.21	0.26	[0:1]	[0:1]
Nearby-infection	6,027	6,201	0.15	0.30	0.35	0.46	[0:1]	[0:1]
Emotional reactions to Covid-19								
Enthusiasm								
enthusiastic		6,210		2.18		1.12		[1:5]
hopeful		6,210		2.80		1.14		[1:5]
proud		6,210		2.07		1.12		[1:5]
factor		6,210		0		1		[-1.41:2.84]
Fear								
anxious		6,210		2.62		1.18		[1:5]
worried		6,210		3.15		1.13		[1:5]
factor		6,210		0		1		[-1.83:2.04]
Aversion								
disgusted		6,210		2.31		1.19		[1:5]
hostile		6,210		1.90		1.04		[1:5]
upset		6,210		2.46		1.17		[1:5]
factor		6,210		0		1		[-1.28:2.92]
Political Preferences								
Assessment of Covid-19 measures								
not far enough	6,028	6,210	0.43	0.53	0.50	0.50	[0:1]	[0:1]
appropriate	6,028	6,210	0.48	0.33	0.50	0.47	[0:1]	[0:1]
too far-reaching	6,028	6,210	0.09	0.15	0.29	0.35	[0:1]	[0:1]
Relevance of closing borders		6,210		5.30		1.72		[1:7]
Priority: Economy vs. public health		6,210		3.10		1.70		[1:7]
Social Preferences (Covid-19 Intolerance)								
Boss	6,028	6,210	0.72	0.76	0.45	0.43	[0:1]	[0:1]
Teacher	6,028	6,210	0.73	0.77	0.44	0.42	[0:1]	[0:1]

Neighbour	6,028	6,210	0.67	0.65	0.47	0.48	[0:1]	[0:1]
Public office	6,028	6,210	0.75	0.77	0.43	0.42	[0:1]	[0:1]
Independent Variables								
The Big Five Personality Traits								
Openness to experience								
open to new experiences, complex	6,028	6,210	3.52	3.65	0.99	0.96	[1:5]	[1:5]
conventional, uncreative (-)	6,028	6,210	2.72	2.78	1.07	1.06	[1:5]	[1:5]
mean	6,028	6,210	3.40	3.43	0.75	0.77	[1:5]	[1:5]
Conscientiousness								
dependable, self-disciplined	6,028	6,210	3.82	3.94	0.96	0.91	[1:5]	[1:5]
disorganized, careless (-)	6,028	6,210	2.05	2.09	1.01	1.04	[1:5]	[1:5]
mean	6,028	6,210	3.88	3.92	0.77	0.79	[1:5]	[1:5]
Extraversion								
extraverted, enthusiastic	6,028	6,210	2.98	3.07	1.04	1.03	[1:5]	[1:5]
reserved, quiet (-)	6,028	6,210	3.26	3.35	1.08	1.08	[1:5]	[1:5]
mean	6,028	6,210	2.86	2.86	0.80	0.85	[1:5]	[1:5]
Agreeableness								
sympathetic, warm	6,028	6,210	3.75	3.87	0.92	0.88	[1:5]	[1:5]
critical, quarrelsome (-)	6,028	6,210	2.55	2.63	1.07	1.08	[1:5]	[1:5]
mean	6,028	6,210	3.60	3.62	0.71	0.74	[1:5]	[1:5]
Neuroticism								
anxious, easily upset	6,028	6,210	2.56	2.66	1.15	1.16	[1:5]	[1:5]
calm, emotionally stable (-)	6,028	6,210	3.48	3.55	0.99	0.97	[1:5]	[1:5]
mean	6,028	6,210	2.54	2.56	0.85	0.88	[1:5]	[1:5]
Controls								
Political ideology (right)	6,028	6,210	4.88	4.82	2.35	2.32	[0:10]	[0:10]
Age	6,028	6,210	48.56	47.79	16.55	16.50	[18:88]	[18:91]
Gender (male)	6,028	6,210	0.50	0.50	0.50	0.50	[0:1]	[0:1]
Educational attainment								
Upper secondary	6,028	6,210	0.39	0.39	0.49	0.49	[0:1]	[0:1]
Tertiary	6,028	6,210	0.36	0.36	0.48	0.48	[0:1]	[0:1]
Income situation	5,985	6,143	2.93	2.97	1.08	1.08	[1:5]	[1:5]
Health state	5,701	6,199	3.73	3.67	0.88	0.90	[1:5]	[1:5]
Residential area								
Small town	6,028	6,210	0.20	0.20	0.40	0.40	[0:1]	[0:1]
Midsize city	6,028	6,210	0.19	0.20	0.40	0.40	[0:1]	[0:1]
Suburb	6,028	6,210	0.12	0.12	0.33	0.33	[0:1]	[0:1]
City	6,028	6,210	0.23	0.21	0.42	0.40	[0:1]	[0:1]
Country								
France	6,028	6,210	0.17	0.17	0.37	0.37	[0:1]	[0:1]
Italy	6,028	6,210	0.17	0.16	0.37	0.37	[0:1]	[0:1]
Switzerland	6,028	6,210	0.17	0.18	0.37	0.39	[0:1]	[0:1]
Spain	6,028	6,210	0.17	0.16	0.37	0.37	[0:1]	[0:1]
United Kingdom	6,028	6,210	0.17	0.17	0.37	0.37	[0:1]	[0:1]

Notes: S1 = survey in April/May 2020; S2 = survey from late November 2021 to January 2021. Reference categories: Educational attainment = primary & lower secondary; Residential area= rural area or village; Country = Germany.

A3: Distribution of the Big Five of Personality on the Country Level

	Germany	France	Italy	Switzerland	Spain	United Kingdom
Share of respondents scoring high on…						
…Openness to experience	46.4	26.3	14.9	45.4	34.1	26.8
…Conscientiousness	68.9	65.1	57.1	69.0	57.4	49.3
…Extraversion	20.0	20.0	12.5	17.9	13.3	11.3
…Agreeableness	49.4	47.9	47.2	53.2	18.3	36.0
…Neuroticism	7.8	10.3	10.3	6.3	7.8	10.5
Observations	2,006	2,040	2,001	2,133	2,013	2,045

Notes: The proportions displayed equal the share of respondents who achieve a value of at least 4 on the arithmetic index for the respective personality dimension in each country. The proportional values are based on a combined dataset that includes the observations from both surveys used in this study (survey 1: March/April 2020; survey 2: late November 2020 to January 2021).

A4: Big Five of Personality and Perceived Threat from Covid-19

	health threat		**financial threat**		**social threat**	
	S1	S2	S1	S2	S1	S2
Openness to experience	-0.059	-0.026	0.059	0.130	-0.101	-0.039
	(0.045)	(0.045)	(0.041)	(0.037)***	(0.041)**	(0.037)
Extraversion	0.096	0.051	0.070	0.004	0.157	0.135
	(0.035)***	(0.037)	(0.035)**	(0.031)	(0.034)***	(0.031)***
Conscientiousness	0.111	0.074	-0.004	0.068	-0.068	0.073
	(0.041)***	(0.045)*	(0.038)	(0.036)*	(0.039)*	(0.036)**
Agreeableness	0.145	0.131	-0.010	-0.045	-0.074	0.009
	(0.045)***	(0.049)***	(0.042)	(0.038)	(0.043)*	(0.040)
Neuroticism	0.296	0.223	0.194	0.198	0.238	0.306
	(0.039)***	(0.040)***	(0.036)***	(0.034)***	(0.036)***	(0.035)***
Political ideology (right)	-0.002	-0.018	0.047	0.042	0.016	0.001
	(0.013)	(0.014)	(0.012)***	(0.012)***	(0.011)	(0.011)
Age	-0.005	-0.002	-0.015	-0.015	-0.012	-0.010
	(0.002)**	(0.002)	(0.002)***	(0.002)***	(0.002)***	(0.002)***
Gender (male)	-0.119	-0.292	-0.176	-0.293	-0.052	-0.205
	(0.056)**	(0.060)***	(0.052)***	(0.050)***	(0.051)	(0.049)***
Education						
Upper, post secondary	-0.129	0.079	0.269	0.225	-0.028	0.145
	(0.074)*	(0.079)	(0.068)***	(0.065)***	(0.069)	(0.066)**
Tertiary	0.075	0.214	0.454	0.305	0.158	0.301
	(0.078)	(0.083)**	(0.072)***	(0.068)***	(0.073)**	(0.068)***
Income situation	-0.086	-0.059	-0.932	-0.956	-0.278	-0.232
	(0.029)***	(0.030)*	(0.031)***	(0.030)***	(0.028)***	(0.026)***
Health state	-0.297	-0.342	-0.007	-0.045	-0.071	-0.114
	(0.036)***	(0.039)***	(0.032)	(0.032)	(0.032)**	(0.032)***
Residential area						
Small town	0.010	0.092	-0.073	-0.065	-0.018	0.124

	(0.081)	(0.083)	(0.075)	(0.071)	(0.073)	(0.070)*
Midsize city	0.120	-0.114	0.043	-0.154	0.019	-0.019
	(0.080)	(0.084)	(0.076)	(0.072)**	(0.075)	(0.070)
Suburb	0.020	-0.002	0.062	-0.005	0.158	0.082
	(0.094)	(0.098)	(0.087)	(0.086)	(0.088)*	(0.086)
City	0.052	0.169	0.169	-0.058	0.192	0.152
	(0.079)	(0.086)**	(0.076)**	(0.072)	(0.075)**	(0.071)**
Country						
France	0.261	-0.139	0.021	-0.218	0.043	0.106
	(0.097)***	(0.099)	(0.092)	(0.088)**	(0.084)	(0.081)
Italy	0.461	0.672	0.788	0.735	0.074	0.073
	(0.090)***	(0.093)***	(0.086)***	(0.084)***	(0.089)	(0.084)
Switzerland	-0.310	-0.268	-0.178	-0.132	-0.173	0.027
	(0.085)***	(0.090)***	(0.085)**	(0.083)	(0.081)**	(0.079)
Spain	0.673	0.572	0.982	1.035	0.344	0.198
	(0.096)***	(0.099)***	(0.087)***	(0.082)***	(0.091)***	(0.083)**
UK	0.571	0.266	0.036	-0.157	-0.695	-0.631
	(0.099)***	(0.098)***	(0.092)	(0.088)*	(0.092)***	(0.090)***
cut1	-1.780	-2.229	-3.774	-3.749	-2.627	-1.567
	(0.366)***	(0.409)***	(0.341)***	(0.333)***	(0.334)***	(0.321)***
cut2	0.287	-0.075	-1.960	-1.764	-0.896	0.282
	(0.365)	(0.407)	(0.337)***	(0.330)***	(0.332)***	(0.320)
cut3	1.916	1.668	-0.259	-0.050	0.767	2.137
	(0.366)***	(0.407)***	(0.335)	(0.329)	(0.332)**	(0.322)***
Observations	4856	4315	5660	6136	5660	6136

Notes: Ordered logistic modeling coefficients with robust standard errors in parentheses. S1 = survey in April/May 2020; S2 = survey from late November 2021 to January 2021. Reference categories: Educational attainment = primary & lower secondary; Residential area= rural area or village; Country = Germany.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A5: Big Five of Personality and Emotional Reactions to Covid-19

	Enthusiasm	Fear	Aversion
Openness to experience	-0.030 (0.017)*	0.017 (0.018)	0.004 (0.017)
Extraversion	0.158 (0.015)***	-0.024 (0.015)	0.022 (0.014)
Conscientiousness	-0.062 (0.017)***	0.097 (0.018)***	0.034 (0.017)**
Agreeableness	0.043 (0.018)**	0.090 (0.020)***	-0.164 (0.019)***
Neuroticism	-0.072 (0.015)***	0.342 (0.017)***	0.202 (0.015)***
Political ideology (right)	0.027 (0.005)***	-0.001 (0.005)	0.024 (0.005)***
Age	-0.001 (0.001)	-0.004 (0.001)***	-0.006 (0.001)***
Gender (male)	0.095 (0.025)***	-0.247 (0.025)***	-0.093 (0.024)***
Education			
Upper, post secondary	-0.030 (0.031)	0.116 (0.032)***	0.058 (0.031)*
Tertiary	-0.049 (0.033)	0.191 (0.034)***	0.080 (0.031)**
Income situation	0.004 (0.012)	-0.075 (0.012)***	-0.098 (0.012)***
Health state	0.062 (0.014)***	-0.165 (0.015)***	-0.099 (0.014)***
Residential area			
Small town	-0.004 (0.034)	0.017 (0.035)	-0.005 (0.033)
Midsize city	-0.036 (0.034)	-0.005 (0.035)	0.022 (0.034)
Suburb	-0.022 (0.042)	0.025 (0.041)	-0.064 (0.038)*
City	-0.019 (0.035)	0.046 (0.035)	-0.007 (0.034)
Country			
France	0.428 (0.041)***	0.385 (0.042)***	0.350 (0.041)***
Italy	0.540 (0.042)***	0.620 (0.045)***	0.488 (0.042)***
Switzerland	0.227 (0.040)***	0.075 (0.041)*	0.157 (0.037)***
Spain	0.543 (0.042)***	0.294 (0.044)***	0.307 (0.040)***
United Kingdom	0.500 (0.042)***	0.290 (0.045)***	0.141 (0.039)***

Constant	1.552 (0.150)***	2.063 (0.166)***	2.694 (0.147)***
R^2	0.081	0.216	0.172
Adjusted R^2	0.078	0.214	0.170
Observations	6136	6136	6136

Notes: OLS-modeling coefficients with robust standard errors in parentheses. Reference categories: Educational attainment = primary & lower secondary; Residential area= rural area or village; Country = Germany.
p < 0.10, ** p < 0.05, *** p < 0.01

A6: Big Five of Personality and Exposure to Covid-19

	self-infection		**nearby infection**	
	S1	S2	S1	S2
Openness to experience	-0.144	-0.137	0.013	-0.007
	(0.106)	(0.079)*	(0.062)	(0.043)
Extraversion	0.262	0.164	0.213	0.090
	(0.085)***	(0.063)***	(0.052)***	(0.036)**
Conscientiousness	-0.421	-0.305	-0.230	-0.067
	(0.087)***	(0.065)***	(0.055)***	(0.042)
Agreeableness	-0.196	-0.119	-0.035	-0.061
	(0.103)*	(0.077)	(0.063)	(0.045)
Neuroticism	0.039	-0.051	0.014	-0.024
	(0.096)	(0.067)	(0.056)	(0.038)
Political ideology (right)	0.128	0.025	0.048	0.002
	(0.030)***	(0.022)	(0.018)***	(0.013)
Age	-0.034	-0.028	-0.022	-0.020
	(0.004)***	(0.003)***	(0.003)***	(0.002)***
Gender (male)	0.431	0.213	0.096	0.025
	(0.141)***	(0.106)**	(0.083)	(0.061)
Education				
Upper, post secondary	0.007	0.014	-0.068	0.005
	(0.196)	(0.136)	(0.113)	(0.079)
Tertiary	0.469	0.281	0.416	0.217
	(0.192)**	(0.138)**	(0.110)***	(0.081)***
Income situation	-0.046	-0.035	-0.020	0.041
	(0.069)	(0.050)	(0.039)	(0.029)
Health state	-0.153	-0.269	-0.088	-0.128
	(0.087)*	(0.060)***	(0.050)*	(0.035)***
Residential area				
Small town	0.118	0.239	0.235	0.142
	(0.211)	(0.145)	(0.125)*	(0.086)*
Midsize city	0.194	0.075	0.243	0.193
	(0.205)	(0.145)	(0.123)**	(0.084)**
Suburb	0.210	-0.004	0.153	0.041
	(0.237)	(0.185)	(0.146)	(0.105)
City	0.011	0.032	0.240	0.101
	(0.215)	(0.155)	(0.117)**	(0.087)
Country				
France	0.252	0.291	0.846	0.752
	(0.234)	(0.209)	(0.152)***	(0.110)***
Italy	0.178	0.823	0.702	0.682
	(0.244)	(0.199)***	(0.160)***	(0.113)***
Switzerland	-0.312	0.660	0.527	1.158
	(0.268)	(0.196)***	(0.156)***	(0.105)***
Spain	0.063	0.468	1.261	0.937
	(0.252)	(0.203)**	(0.150)***	(0.110)***
United Kingdom	-0.217	0.283	0.092	0.136
	(0.240)	(0.209)	(0.166)	(0.116)
Constant	-0.229	0.609	-1.294	-0.129
	(0.906)	(0.617)	(0.540)**	(0.365)
Observations	5659	6130	5659	6130

Notes: Logistic modeling coefficients with robust standard errors in parentheses. S1 = survey in April/May 2020; S2 = survey from late November 2021 to January 2021. Reference categories: Educational attainment = primary & lower secondary; Residential area= rural area or village; Country = Germany. p < 0.10, ** p < 0.05, *** p < 0.01

A7: Big Five of Personality and Preferences Regarding Pandemic Control

	importance of closing borders		**priority: economy (over health)**	
Openness	-0.033	(0.032)	-0.056	(0.032)*
Conscientiousness	0.203	(0.031)***	-0.153	(0.031)***
Extraversion	-0.009	(0.027)	0.072	(0.027)***
Agreeableness	0.105	(0.034)***	-0.124	(0.034)***
Neuroticism	0.134	(0.028)***	0.002	(0.028)
Political ideology (right)	0.073	(0.009)***	0.144	(0.010)***
Age	0.005	(0.001)***	-0.010	(0.001)***
Gender (male)	-0.207	(0.043)***	-0.010	(0.044)
Education	0.000	(.)	0.000	(.)
Upper, post secondary	-0.041	(0.055)	-0.045	(0.058)
Tertiary	-0.346	(0.058)***	0.040	(0.060)
Income situation	0.006	(0.021)	-0.006	(0.021)
Health state	-0.009	(0.026)	0.117	(0.026)***
Residential area	0.000	(.)	0.000	(.)
Small town	-0.079	(0.061)	0.156	(0.061)**
Midsize city	-0.225	(0.062)***	0.126	(0.063)**
Suburb	-0.031	(0.071)	0.136	(0.074)*
City	-0.015	(0.063)	0.012	(0.062)
Country	0.000	(.)	0.000	(.)
France	0.560	(0.078)***	0.339	(0.075)***
Italy	0.669	(0.079)***	0.344	(0.077)***
Switzerland	-0.437	(0.078)***	0.172	(0.070)**
Spain	0.889	(0.076)***	-0.019	(0.075)
UK	0.911	(0.074)***	-0.130	(0.073)*
Constant	3.250	(0.276)***	3.308	(0.271)***
R^2	0.125		0.085	
Adjusted R^2	0.122		0.082	
Observations	6136		6136	

Notes: OLS-modeling coefficients with robust standard errors in parentheses. Reference categories: Educational attainment = primary & lower secondary; Residential area= rural area or village; Country = Germany.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A8: Big Five of Personality and Covid-19 Intolerance

	Having something against somebody who ignores measures against the spread of Coronavirus being a…							
	…boss		**…teacher**		**…neighbour**		**…public office holder**	
	S1	S2	S1	S2	S1	S2	S1	S2
Openness	0.062	0.167	0.086	0.149	0.030	0.062	0.094	0.185
	(0.047)	(0.045)***	(0.048)*	(0.045)***	(0.044)	(0.040)	(0.049)*	(0.046)***
Extraversion	-0.128	-0.092	-0.151	-0.091	-0.038	-0.054	-0.140	-0.143
	(0.040)***	(0.039)**	(0.040)***	(0.039)**	(0.038)	(0.034)	(0.041)***	(0.040)***
Conscientiousness	0.229	0.253	0.194	0.283	0.183	0.184	0.205	0.330
	(0.046)***	(0.042)***	(0.046)***	(0.043)***	(0.044)***	(0.039)***	(0.046)***	(0.044)***
Agreeableness	0.089	0.204	0.083	0.207	0.043	0.090	0.054	0.164
	(0.050)*	(0.047)***	(0.050)*	(0.048)***	(0.047)	(0.042)**	(0.052)	(0.049)***
Neuroticism	0.070	-0.008	0.114	-0.010	0.088	0.043	0.085	-0.035
	(0.042)*	(0.041)	(0.043)***	(0.041)	(0.040)**	(0.036)	(0.043)**	(0.041)
Political ideology	-0.055	-0.027	-0.055	-0.033	-0.027	-0.010	-0.065	-0.039
	(0.013)***	(0.014)*	(0.014)***	(0.014)**	(0.013)**	(0.012)	(0.014)***	(0.014)***
Age	0.013	0.011	0.013	0.012	0.010	0.014	0.015	0.014
	(0.002)***	(0.002)***	(0.002)***	(0.002)***	(0.002)***	(0.002)***	(0.002)***	(0.002)***
Gender (male)	-0.057	-0.138	-0.166	-0.146	-0.018	0.042	-0.033	-0.127
	(0.064)	(0.064)**	(0.064)***	(0.066)**	(0.060)	(0.058)	(0.066)	(0.066)*
Education								
Upper, post secondary	0.213	0.204	0.211	0.205	0.200	0.145	0.179	0.141
	(0.082)***	(0.080)**	(0.082)**	(0.081)**	(0.079)**	(0.074)**	(0.084)**	(0.082)*
Tertiary	0.414	0.366	0.446	0.416	0.323	0.280	0.406	0.322
	(0.085)***	(0.086)***	(0.086)***	(0.086)***	(0.081)***	(0.078)***	(0.089)***	(0.088)***
Income situation	0.090	0.128	0.129	0.152	0.071	0.055	0.099	0.113
	(0.031)***	(0.031)***	(0.032)***	(0.031)***	(0.030)**	(0.027)**	(0.032)***	(0.031)***
Health state	-0.112	-0.071	-0.088	-0.106	-0.132	-0.117	-0.113	-0.093

	(0.038)***	(0.038)*	(0.038)**	(0.039)***	(0.036)***	(0.034)***	(0.039)***	(0.039)**
Residential area								
Small town	0.050	-0.084	-0.070	-0.177	-0.072	0.084	-0.018	-0.152
	(0.091)	(0.090)	(0.092)	(0.092)*	(0.087)	(0.081)	(0.094)	(0.093)
Midsize city	0.098	-0.069	0.105	-0.141	-0.027	0.059	0.058	-0.153
	(0.093)	(0.090)	(0.096)	(0.092)	(0.089)	(0.081)	(0.096)	(0.093)
Suburb	0.096	0.131	0.055	0.027	0.007	0.096	0.052	-0.101
	(0.106)	(0.110)	(0.108)	(0.113)	(0.101)	(0.096)	(0.110)	(0.111)
City	0.125	-0.073	-0.069	-0.111	-0.070	0.158	0.029	-0.071
	(0.092)	(0.092)	(0.092)	(0.095)	(0.087)	(0.083)*	(0.095)	(0.096)
Country								
France	0.067	0.192	-0.013	0.138	0.403	0.204	-0.028	0.050
	(0.106)	(0.110)*	(0.107)	(0.115)	(0.100)***	(0.096)**	(0.110)	(0.114)
Italy	0.463	0.438	0.479	0.354	0.885	0.838	0.392	0.348
	(0.115)***	(0.115)***	(0.118)***	(0.119)***	(0.110)***	(0.105)***	(0.119)***	(0.120)***
Switzerland	0.169	0.048	0.266	-0.019	0.094	-0.119	0.092	-0.075
	(0.107)	(0.107)	(0.110)**	(0.111)	(0.098)	(0.093)	(0.110)	(0.111)
Spain	0.194	0.440	0.045	0.235	0.625	0.890	0.176	0.260
	(0.112)*	(0.114)***	(0.112)	(0.116)**	(0.107)***	(0.104)***	(0.117)	(0.118)**
UK	-0.018	-0.036	-0.214	-0.250	0.249	0.193	-0.020	-0.095
	(0.107)	(0.109)	(0.108)**	(0.112)**	(0.101)**	(0.097)**	(0.111)	(0.114)
Constant	-0.852	-1.649	-0.806	-1.420	-0.920	-1.499	-0.592	-1.303
	(0.388)**	(0.397)***	(0.394)**	(0.397)***	(0.370)**	(0.348)***	(0.398)	(0.406)***
N	5660	6136	5660	6136	5660	6136	5660	6136

Notes: Logistic regression modeling coefficients with robust standard errors in parentheses. S1 = survey in April/May 2020; S2 = survey from late November 2021 to January 2021.Reference categories: Educational attainment = primary & lower secondary; Residential area= rural area or village; Country = Germany.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$