



Who complies with the restrictions to reduce the spread of COVID-19?: Personality and perceptions of the COVID-19 situation[☆]

Marcin Zajenkowski^{a,*}, Peter K. Jonason^{b,c}, Maria Leniarska^a, Zuzanna Kozakiewicz^a

^a University of Warsaw, Italy

^b University of Padova, Italy

^c University of Kardinal Stefan Wyszyński, Poland

ARTICLE INFO

Keywords:

Personality
Big Five
Dark Triad
Situations
Perceptions
COVID-19

ABSTRACT

In 2020, many countries around the world created and enforced heavy restrictions geared towards reducing the spread of the coronavirus (i.e., COVID-19). In this study ($N = 263$), we examined the role of personality traits (i.e., Big Five and Dark Triad) and individual differences in perceptions of the COVID-19 pandemic situation (the situational eight: Duty, Intellect, Adversity, Mating, Positivity, Negativity, Deception, and Sociality) in accounting for individual differences in compliance with the governmental restrictions in Poland. We found that the way people perceived the situation explained more variance in compliance than personality traits which is in accordance with the hypothesis that strong situations, such as the COVID-19 pandemic, leave less room for dispositional tendencies in predicting behaviors than situational cues. Moreover, people scoring low on agreeableness and high on aspects of the Dark Triad traits (i.e., Machiavellianism, psychopathy Factor 1, and narcissistic rivalry) were less likely to comply with the restrictions. Additionally, we replicated and extended what is known about the associations between personality and individual differences in the perception of situations when the latter were assessed in relation to a strong situation and the former were assessed with long and multidimensional measures.

1. Introduction

From Pensacola (USA) to Padova (IT), Sydney (AUS) to Seoul (KOR), and Wakayama (JAP) to Warsaw (POL), much of people's lives around the world in 2020 were heavily regulated by government policies geared towards reducing the spread and impact of the coronavirus (i.e., COVID-19). These policies have met with mixed reviews at the medical and personal levels, leading to different rates of adoption and compliance with those restrictions which suggests we might try to understand why some people were more willing to comply with the policies of, for instance, wearing masks and isolating oneself at home. We posit there are at least two classes of individual differences that may influence whether people adhere to these restrictions: Personality and (perceptions of) situations.

2. Personality → Compliance

The most obvious way of understanding the role of personality traits in accounting for individual differences in compliance the restrictions is through the lens of the Big Five traits. The traits represent a broad cross-section of personality capturing individual differences in people's social, anxious, organized, creative, and personable nature. Some of these traits stand-out as important predictors of compliance with governmental policies regarding COVID-19. First, neuroticism is a trait that may capture people's tendency to avoid risk (Jonason & Sherman, 2020), and, therefore, may lead neurotic people to comply with policies that might increase their (sense of) safety. Second, agreeable people care about others and are generally prosocial in nature (Wilkowski, Robinson, & Meier, 2006). Therefore, those who are agreeable may comply because doing so protects others. Third, conscientious people try to avoid germs and live an organized life (McRae & Costa, 2008). The COVID-19 situation may elicit more compliance in those with this

[☆] This work was supported by the Faculty of Psychology, University of Warsaw, from the funds awarded by the Ministry of Science and Higher Education in the form of a subsidy for the maintenance and development of research potential in 2020 (501-D125-01-1250000 zlec. 5011000235) awarded to the first author. The second author was partially funded by the Polish National Agency for Academic Exchange (PPN/ULM/2019/1/00019/U/00001).

* Corresponding author at: Faculty of Psychology, University of Warsaw, Warsaw, Poland.

E-mail address: zajenkowski@psych.uw.edu.pl (M. Zajenkowski).

<https://doi.org/10.1016/j.paid.2020.110199>

Received 11 May 2020; Received in revised form 8 June 2020; Accepted 12 June 2020

Available online 16 June 2020

0191-8869/ © 2020 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

personality trait to avoid infection. Additionally, the study of personality and daily spatial behavior shows that conscientious people visit a relatively small number of places during a day, and thus, some of the restrictions, such as isolation, might be not so disturbing for them (Ai, Liu, & Zhao, 2019). On the contrary, extraverted individuals tend to visit more places during a day, and the isolation might be especially difficult for them.

While the Big Five traits cover a wide range in the personality landscape, they may be insufficient at covering “darker” aspects of human nature. Here we concern ourselves with the so-called Dark Triad traits (Paulhus & Williams, 2002) of Machiavellianism (i.e., manipulation and cynicism), narcissism (i.e., entitlement and self-centeredness), and psychopathy (i.e., callous social attitudes and impulsivity). Core aspects of Machiavellianism are seeking power and cynicism (Jones, 2016) which may mean that governmental restrictions are an affront to their illusions of their own power, their sense of independence, and as interfering with their agentic goals and the same people are unlikely to view the sacrifices called for by the restrictions to be efficacious. Similarly, narcissistic rivalry but not admiration may be associated with less compliance towards governmental restrictions. Rivalrous people strive for supremacy and react aggressively when their autonomy is threatened, whereas admiration-seeking people are concentrated on self-promotion but in rather socially acceptable way (Back, Küfner, Dufner, & Rauthmann, 2013). In addition, Factor 1 of psychopathy (e.g., shallow affect, lack of empathy) but not Factor 2 (e.g., impulsiveness, irresponsibility) may be associated with less compliance because lack of compliance is not about criminality or “poor” judgment but, instead, a lack of concern for whether one infects others.

3. Perceptions of the situation → Compliance

The second class of predictors of compliance we consider are individual differences in how people perceive the situation. While personality traits relate to perceptions of situations (Jonason & Sherman, 2020; Serfass & Sherman, 2013), we explore here the direct role of perceptions in accounting for individual differences in compliance. That is, instead of compliance being part of a larger pattern of behavior as suggested by a personality perspective, it may be how one evaluates the immediate situation that predicts whether they comply or not. Up until recently, studying perceptions of situations in a systematic way was difficult because no standardized metric existed nor was there an accepted framework to understand how/if situations differed in systematic ways (Rauthmann, Sherman, & Funder, 2015). With the creation of the DIAMONDS (i.e., Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception, and Sociality) framework (Rauthmann & Sherman, 2016) researchers are now able to study individual differences in the perception of situations in the same way they study personality traits, with the added benefit of being able to specify contexts like bars, classrooms, workplaces (Jonason & Sherman, 2020), and, now, the COVID-19 epidemic.

Several aspects of situational perceptions may be relevant to understanding why some people comply or not. People may comply because (1) they view the situation as characterized by some obligation or duty given the difficulty of adhering to the rules and (2) they view the situation as negative or adversarial in nature and thus demanding action to avoid the dangers of the virus. In contrast, people may comply less if (3) they misread the situation as providing opportunities to engage in sex and if (4) they view governmental policies and the presence of the virus as deceptions.

4. The current study

The current study has two primary aims. First, we capitalize on the salience of the COVID-19 pandemic to understand who complies with governmental restrictions (in Poland) to reduce the spread of the COVID-19 virus. We consider two major classes of individual

differences that may influence behavior: personality traits and people's perception of situation (Sherman, Nave, & Funder, 2012; Snyder & Ickes, 1985). We construe the pandemic as a strong situation (Snyder & Ickes, 1985) and seek to understand how personality and perceptions of the situation predict compliance.

The secondary aim of this study was to re-assess the relationships between personality and the perceptions of a “real” situation; expecting to replicate and extend previous findings (Jonason & Sherman, 2020; Serfass & Sherman, 2013) highlighting how neuroticism may be associated with avoiding threats, the Dark Triad traits and extraversion may be associated with engaging with the world (e.g., positivity, sociality, mating), and the Big Five traits should have a wider range of situational perceptions linked to them than the Dark Triad traits given the wider range of coverage of the personality landscape afforded by the former relative to the latter.

The current study contributes to the literature in several ways. Prior works examining the associations between personality and individual differences in perceptions of situations were characterized by weak, ambiguous, and hypothetical situations which may only be useful to understand dispositional patterns in these associations (Jonason & Sherman, 2020; Serfass & Sherman, 2013). Here, we rely on a concrete situation. Importantly, the COVID-19 may serve as a strong situation which should mean that perceptions of the situation should be more important in predicting compliance than personality traits (Sherman et al., 2012). Strong situations tend to provide salient cues to guide behaviors, like compliance, and have a structured set of parameters (Snyder & Ickes, 1985). In addition, we replicate and extend prior work linking the Big Five and Dark Triad traits to patterns of perceptions of situations by applying it to the COVID-19 situation while using longer measures of the Dark Triad traits and bidimensional measures of narcissism and psychopathy in a non-American sample.

5. Method

5.1. Participants and procedure

The sample was composed of 263 (27.8% male, 71.5% female, 0.8% “other”)¹ volunteers from Poland aged 18 to 80 years of age ($M = 28.96$, $SD = 10.64$) about half (49%) of whom had a university degree completed a series of self-report measures posted on various online social media platforms. None of the participants reported any direct experience with the COVID-19 virus. To maximize the salience of the COVID-19 threat, we collected data at the height of restrictions in Poland (14–30 April 2020). Participants were informed of the nature of the study, provided consent via tick box, and, upon completion, were thanked and debriefed. The necessary sample size was determined based on the average effect size in personality psychology ($r \approx 0.20$; Gignac & Szodorai, 2016) and guidelines ($N \approx 250$) set for reducing estimation error in personality psychology (Schönbrodt & Perugini, 2013). All procedures performed in studies were in accordance with the ethical standards of the institutional research committee. Data are available at: osf.io/tmnb6.

5.2. Measures

Individual differences in the Big Five traits were measured with the Polish version (Topolewska, Skimina, Strus, Ciecuch, & Rowiński, 2014) of the 20-item International Personality Item Pool (Donnellan, Oswald, Baird, & Lucas, 2006), with four items per trait: Openness/

¹ While women complied more than men did ($t[258] = -2.88$, $p < .05$, Cohen's $d = -0.36$) when sex was included in the regression analyses with other variables, it was non-significantly associated with compliance. Therefore, we excluded it from our central analyses, but details can be found on the supplemental Table 3.

Intellect (e.g., “I have a vivid imagination.”), Conscientiousness (e.g., “I get chores done right away.”), Extraversion (e.g., “I am the life of the party.”), Agreeableness (e.g., “I sympathize with others’ feelings.”), Neuroticism (e.g., “I get upset easily.”) where participants were asked their agreement (1 = *strongly disagree*; 5 = *strongly agree*). Items were averaged to create indexes of each trait.

Psychopathy was measured with the Polish version (see Rogoza & Cieciuch, 2019) of the Levenson’s Self-Report Psychopathy Scale (Levenson, Kiehl, & Fitzpatrick, 1995). The scale has 17 items (i.e., Factor 1) measuring individual differences in callous, manipulative and selfish use of others (e.g., “For me, what’s right is whatever I can go away with.”) and 10 (i.e., Factor 2) measuring impulsivity and limited behavioral control (e.g., “I find myself in the same kinds of trouble, time after time.”). Participants were asked their agreement (1 = *strongly disagree*; 4 = *strongly agree*) with the items which were averaged to create indexes of both factors.

Machiavellianism was measured with the Polish version (Pospiszyl, 2000) of the 20-item MACH-IV (Christie & Geis, 1970), where participants were asked how much they agreed (1 = *strongly disagree*; 7 = *strongly agree*) with statements such as: “It is hard to get ahead without cutting corners here and there” and “People suffering from incurable diseases should have the choice of being put painlessly to death.” The items were averaged to create a Machiavellianism index.

Narcissism was measured with the Polish version (Rogoza, Rogoza, & Wyszńska, 2016) of the Narcissistic Admiration and Rivalry Questionnaire (Back et al., 2013). The scale has nine items measuring individual differences in admiration (e.g., “I show others how special I am.”) and nine measuring rivalry (e.g., “I secretly take pleasure in the failure of my rivals.”) where participants were asked their agreement (1 = *disagree completely*; 6 = *agree completely*). Items were averaged to create indexes of each aspect.

Individual differences in the perceptions of the COVID-19 situation were measured with the S8* scale with all 40 items (Rauthman & Sherman, 2016). The scale was translated into Polish by three independent experts and then back-translated into English. The scale has five items for each of the eight dimensions: Duty (e.g., “A job needs to be done.”), Intellect (e.g., “Situation includes intellectual or cognitive stimuli.”), Adversity (e.g., “I am being blamed for something.”), Mating (e.g., “Potential sexual or romantic partners are present.”), pOsitivity (e.g., “The situation is pleasant.”), Negativity (e.g., “The situation could elicit stress.”), Deception (e.g., “It is possible to deceive someone.”), and Sociality (e.g., “Social interaction is possible.”). Participants were asked how much each statement applied (1 = *not at all*; 7 = *totally*) to the COVID-19 pandemic. Items were averaged to create indexes of each aspect.

Individual differences in compliance with governmental restrictions to reduce the spread of the COVID-19 virus were measured with a single item (in Polish). Participants reported the percent (1–100) to which they complied with the restrictions implemented by the Polish government.

6. Results

In Table 1 we report the correlations and descriptive statistics of all variables. While participants reported a relatively high rate of compliance, the presence of variability suggests an investigation of individual differences is warranted. We found that compliance was associated with higher agreeableness and lower Machiavellianism, primary psychopathy, and narcissistic rivalry. In addition, among the perception of situations, negativity correlated positively, while mating correlated negatively with compliance. However, given the correlations between and within personality and perceptions we attempted to evaluate the relative contribution of each and partial shared variance within classes of predictors.

Subsequently, we conducted three multiple regressions (Table 2) with compliance to restrictions as the dependent variable and three

groups of predictors: the Big Five traits (Model 1), the Dark Triad traits (Model 2), and individual differences in how people perceived the situation (Model 3). Perceptions of situations accounted for the most variance (5.7%), followed by the Dark Triad traits (2.9%) and the Big Five traits (2.4%). When examining the residual correlations, agreeableness predicted less compliance whereas duty and negativity predicted more compliance.

Combined (in a hierarchical multiple regression), the personality traits accounted for 7.4% of the variance in compliance ($R = 0.27$, $F[10, 251] = 2.02$, $p < .05$) and the addition of situation perceptions accounted for 5.7% more variance ($\Delta R^2 = 0.06$; $F[8, 243] = 1.98$, $p < .05$) suggesting the situation of COVID-19 accounted for important, incremental variance above personality traits in explaining why some people complied with the restrictions (only mating [$\beta = -0.19$, $p < .01$] and negativity [$\beta = 0.20$, $p < .03$] had residual correlations). When the order of the steps was flipped, personality traits accounted for no additional variance over situations suggesting that COVID-19 served as a “strong situation” driving compliance more than personality (details of both regressions are reported in Supplemental Material, Tables 1 and 2).

We also replicated and extended some associations between how personality relates to perceptions of situations (Table 1). Extraversion was associated with perceiving more mating, duty, intellect, and sociality opportunities. Neuroticism was associated with perceiving more adversity and negativity along with less mating and positivity. Agreeableness was associated with perceiving more duty, intellect, negativity, and sociality. Conscientiousness was associated with perceiving more duty. Openness was associated with intellect. Narcissistic admiration was associated with perceiving more duty, intellect, positivity, and sociality along with less negativity. Narcissistic rivalry was associated with perceiving more adversity and positivity. Machiavellianism was associated with perceiving more positivity. Psychopathy Factor 1 was associated with perceiving more mating, and positivity along with less negativity. Finally, psychopathy Factor 2 was associated with perceiving more adversity along with less duty and intellect.

7. Discussion

In the current study, we examined the role of personality traits and individual differences in perception of the COVID-19 pandemic situation in accounting for individual differences in compliance with governmental restrictions to reduce the spread of the virus. Generally, we found that the way people perceived the situation explained more variance in compliance than the Big Five traits and the Dark Triad traits. This finding supports the “strong situation hypothesis” according to which personality traits have less room to play an important role in predicting behaviors when situational cues overpower dispositional tendencies (Snyder & Ickes, 1985). As hypothesized, we found that people who viewed the situation as characterized by duty and negativity were more likely to comply with the restrictions. Perceiving a situation as dutiful entails that effort is necessary to fulfill some obligations, which in the current research might be governmental restrictions and a sense of moral obligation to protect fellow countrymen. The COVID-19 pandemic might be perceived as a threat and elicit tension, and anxiety, which, in turn, translates into compliance. By contrast, people who viewed the situation as conducive to sex, love, and romance, complied less with restrictions. It is possible that seeing sexual opportunities overrides potential threats related to health or breaking rules.

Among the Big Five traits, only agreeableness was associated with greater compliance. Specifically, agreeable people tend to be compassionate and caring people (McRae & Costa, 2008). The restrictions impose personal costs on people in hopes of protecting others one may or may not know. A generalized disposition towards helping, as found in those characterized by agreeableness (Matthews et al., 2009), may enable people to comply with restrictions imposing personal costs and

Table 1
Correlations between personality, perceptions of the COVID-19 situation, and compliance with restrictions along with descriptive statistics and internal consistency.

	1	2	3	4	5	6	7	8	9
1. Extraversion									
2. Neuroticism	−0.08								
3. Agreeableness	0.31**	0.10							
4. Conscientiousness	0.06	−0.16*	−0.07						
5. Openness/Intellect	0.26**	0.03	0.04	−0.02					
6. Machiavellianism	−0.05	0.20**	−0.26**	0.08	0.06				
7. Narcissism-A	0.43**	−0.24**	0.08	−0.09	0.31**	0.05			
8. Narcissism-R	−0.10	0.18**	−0.35**	−0.08	−0.11	0.58**	0.14*		
9. Psychopathy F1	0.04	−0.08	−0.40**	0.06	−0.01	0.57**	0.22**	0.48**	
10. Psychopathy F2	−0.06	0.32**	−0.17**	−0.37**	−0.16*	0.33**	−0.09	0.36**	0.26**
11. Duty	0.20**	−0.04	0.25**	0.23**	0.10	−0.09	0.22**	−0.06	−0.02
12. Intellect	0.15*	0.00	0.14*	0.10	0.20**	0.11	0.30**	0.02	0.05
13. Adversity	0.01	0.41**	0.01	−0.11	0.02	0.11	−0.07	0.18**	0.03
14. Mating	0.21**	−0.13**	0.07	0.03	−0.05	0.08	0.12	0.09	0.15*
15. pOstivity	0.07	−0.16**	−0.11	0.03	0.12	0.20**	0.17**	0.19**	0.28**
16. Negativity	0.01	0.30**	0.20**	−0.06	−0.07	−0.04	−0.16*	−0.07	−0.19**
17. Deception	−0.04	0.11	0.02	−0.03	0.02	0.11	−0.01	0.07	−0.04
18. Sociality	0.26**	−0.02	0.33**	−0.04	0.07	−0.07	0.22**	−0.10	−0.12
19. Compliance %	−0.05	0.04	0.17**	0.00	0.04	−0.19**	−0.05	−0.18**	−0.16**
Gronbach's α	0.85	0.79	0.69	0.78	0.62	0.74	0.81	0.75	0.78
M (SD)	3.07 (0.99)	3.32 (0.92)	4.07 (0.65)	3.08 (0.94)	4.05 (0.61)	3.40 (0.65)	3.31 (0.85)	2.50 (0.76)	1.57 (0.37)
10. Extraversion									
11. Neuroticism	−0.22**								
12. Agreeableness	−0.16*	0.48**							
13. Conscientiousness	0.30**	−0.05	0.03						
14. Openness/Intellect	−0.07	0.20**	0.20**	−0.04					
15. Machiavellianism	0.03	0.08	0.08	−0.14*					
16. Narcissism-A	0.09	0.04	0.11	0.37**	0.21**				
17. Narcissism-R	0.06	0.07	0.17**	0.23**	0.01	−0.55**			
18. Psychopathy F1	−0.03	0.22**	0.33**	−0.01	0.26**	−0.33**	0.53**		
19. Psychopathy F2	−0.11	0.08	−0.02	−0.03	−0.19**	0.18**	0.16*	0.03	
20. Duty	0.53	0.77	0.76	0.69	0.77	0.84	0.92	0.74	
21. Intellect	2.08 (0.40)	5.51 (1.04)	5.19 (1.16)	3.14 (1.21)	3.11 (1.46)	5.46 (1.31)	5.01 (1.60)	5.04 (1.17)	85.37 (16.91)
22. Adversity									
23. Mating									
24. pOstivity									
25. Negativity									
26. Deception									
27. Sociality									
28. Compliance %									
29. Gronbach's α									
30. M (SD)									

Note. Narcissism-A = Narcissistic Admiration; Narcissism-R = Narcissistic Rivalry; F1 = Factor 1; F2 = Factor 2.

* $p < .05$

** $p < .01$.

sacrifices. In contrast, several aspects of the Dark Triad traits predicted compliance. Being rivalrous (i.e., narcissism), caring little for others (i.e., psychopathy Factor 1), and cynical and power-seeking (i.e., Machiavellianism) may create a “perfect storm” of dispositions that lead to an unwillingness to comply in a combative way (e.g., protesting restrictions). Thus, agreeableness and these core aspects of the Dark Triad traits might represent two dispositional extremes that predict opposite outcomes in a salient situation, such as the COVID-19 pandemic.

Furthermore, we replicated and extended what is known about the associations between personality and individual differences in the perception of situations. Instead of relying on ambiguous or hypothetical judgments of situations, we relied on a concrete and strong situation. In addition, we improved on the measurement of the Dark Triad traits by adopting longer and multidimensional measures and increased sampling heterogeneity by sampling Poles as opposed to Americans. Among the Big Five traits, neuroticism was associated with generally unfavorable perceptions of the situation (i.e., high adversity and negativity along with low positivity and mating) which is consistent with the characteristic of this trait (Jonason & Sherman, 2020). The social nature of extraversion (Matthews et al., 2009) manifested in a positive association with mating and sociality. Interpersonal relations seem to also be important for individuals high on agreeableness, although this was observed only in the case of sociality. In line with the theoretical background, duty was primarily associated with conscientiousness and agreeableness, but also, less intuitively, with extraversion which may be related to high levels of activity and task-oriented thinking observed among extraverts (Matthews et al., 2009). Furthermore, intellect was associated with high levels of openness, but also extraversion, agreeableness, and narcissistic admiration. The correlation with openness seems to be straightforward, because this trait reflects intellectual engagement and enjoyment of cognitive activity (DeYoung, 2014). Additionally, both openness and extraversion have been linked to the neurotransmitter dopamine responsible for behavioral and cognitive exploration (DeYoung, 2014). Thus, focusing on intellectual aspect of the situation might reflect this tendency. This might be true also about narcissistic admiration which overlaps with extraversion and openness (Rogoza, Wyszyńska, Maćkiewicz, & Cieciuch, 2016). Additionally, admiration has been linked to inflated self-views of one's intelligence (Zajenkowski, Leniarska, & Jonason, 2020). Given that the intellect scale includes items referring to the opportunity to demonstrate intellectual capacities, it matches with braggadocious behavior observed among individuals scoring high on narcissistic admiration. Seeking for admiration from other people might be also responsible for a positive correlation between narcissistic admiration and sociality.

Interestingly, almost all Dark Triad traits were associated with high positivity. This might be, as previously suggested, a function of approach motivations (Jonason & Sherman, 2020). While the traits may have notoriously antisocial, selfish, and cynical views (Paulhus & Williams, 2002), these views may be directed towards people not situations. Instead, situations may be ripe—in the mind of those high in the Dark Triad traits—for exploitation because they come with fewer costs (e.g., interpersonal damages). Additionally, individuals high on the Dark Triad traits may perceive the pandemic situation as less risky and the heavy restrictions might be interpreted as inadequate and, in turn, not taken seriously.

8. Limitations and conclusions

While this study provided new insights into how personality may relate to individual differences in perceptions and how they collectively may influence compliance with government restrictions, it was nonetheless, limited. First, the sample was fairly W.E.I.R.D. (Henrich, Heine, & Norenzayan, 2010), which limits the generalizability of our findings. While Poland is not strictly Western in nature given its historical links to Soviet Russia, it is equivalently advanced compared to its “Western”

Table 2

Multiple regression models with the Dark Triad traits, the Big Five traits, and perceptions of the situation as predictors of compliance with COVID-19 restrictions.

		β
Model 1. Big Five as predictors of compliance		
Extraversion	$F(5, 256) = 2.21, p < .05$	−0.13
Neuroticism	$R_{adj}^2 = 0.02$	0.02
Agreeableness		0.20**
Conscientiousness		0.02
Openness/Intellect		0.05
Model 2. Dark Triad as predictors of compliance		
Machiavellianism	$F(5, 256) = 2.53, p < .05$	−0.11
Narcissism-Admiration	$R_{adj}^2 = 0.03$	−0.03
Narcissism-Rivalry		−0.08
Psychopathy F1		−0.05
Psychopathy F2		−0.04
Model 3. Characteristics of situation as predictors of compliance		
Duty	$F(5, 256) = 2.21, p < .01$	0.14*
Intellect	$R_{adj}^2 = 0.06$	−0.06
Adversity		−0.11
Mating		−0.22**
Positivity		0.04
Negativity		0.23**
Deception		−0.06
Sociality		−0.02

Note. F1 = Factor 1; F2 = Factor 2.

* $p < .05$.

** $p < .01$.

neighbors in many ways (e.g., availability of WI-FI). In addition, our sample was collected online through social media suggesting our sample may be more educated and richer than most others in Poland making our sample comparable to prior samples of Americans. Indeed, the sampling approach may have suppressed some of the darker aspects of personality because we relied on volunteers and it seems likely that people low on the Dark Triad traits would be less likely to volunteer. In a similar vein, our sample included more women than men and typically men score higher on the dark personality traits than women. Thus, our sample might not include individuals with relatively high levels of the Dark Triad traits.

Second, we measured compliance with a single, self-report item. Thus, we assessed people's declarations about their compliance rather than actual behavior. Future studies might include specific questions about compliance behaviors (e.g., wearing masks), yes/no questions capturing behavioroid manifestations of compliance, and specific measures that sample compliance over a short period (e.g., within the last week) or even through the use of a mobile phone application. However, we suspect that the salience and concreteness of the virus may galvanize people's memory to increase the trustworthiness of the responses.

While our findings are similar in magnitude to most personality research (Gignac & Szodorai, 2016), we have only come a small way in understanding who complies to governmental restrictions in relation to the COVID-19 and, perhaps, restrictions in general. By only accounting for about 10% of the total variance, there is substantial room for improvement in accounting for this rather important variable during times of crisis. We are unconvinced that alternative or more personality traits or improving measurement will meaningfully improve prediction. Instead, it may be that other individual differences may be more important. For instance, people might differ in terms of educational background and their general medical knowledge, risk preferences, or they might simply mistrust the government, all of which can influence their willingness to comply with the restrictions. Additionally, social values, fundamental motives, and moral foundations may be worth exploring in subsequent research to understand compliance patterns. For instance, prosocial values, pathogen avoidance motives, and moral

priorities of avoiding harm may help us understand who complies, so that the next time this happens, interested parties can tailor their messages to emphasize these aspects of psychology to enhance the immediate compliance with restrictions which may (we hope) reduce the impact faster making the sting everyone must endure less severe and shorter in duration.

CRediT authorship contribution statement

Marcin Zajenkowski: Conceptualization, Methodology, Investigation, Formal analysis, Writing - original draft, Writing - review & editing, Project administration, Funding acquisition. **Peter K. Jonason:** Conceptualization, Methodology, Formal analysis, Writing - original draft, Writing - review & editing, Funding acquisition. **Maria Leniarska:** Conceptualization, Investigation, Formal analysis, Writing - original draft. **Zuzanna Kozakiewicz:** Conceptualization, Investigation, Formal analysis, Writing - original draft.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2020.110199>.

References

- Ai, P., Liu, Y., & Zhao, X. (2019). Big Five personality traits predict daily spatial behavior: Evidence from smartphone data. *Personality and Individual Differences*, 147, 285–291.
- Back, M. D., Küfner, A. C. P., Dufner, M., & Rauthmann, J. F. (2013). Narcissistic admiration and rivalry: Disentangling the bright and dark sides of narcissism. *Journal of Personality and Social Psychology*, 105, 1013–1037.
- Christie, R., & Geis, F. L. (1970). *Studies in Machiavellianism*. New York, NY: Academic Press.
- DeYoung, C. G. (2014). Openness/intellect: A dimension of personality reflecting cognitive exploration. In M. L. Cooper, & R. J. Larsen (Eds.). *APA handbook of personality and social psychology: Personality processes and individual differences* (pp. 369–399). Washington, DC: APA.
- Donnellan, M., Oswald, F., Baird, B., & Lucas, R. (2006). The mini-IPIP scales: Tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment*, 18, 192–203.
- Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, 102, 74–78.
- Henrich, J., Heine, S., & Norenzayan, A. (2010). The WEIRDest people of the world? *Behavioral and Brain Sciences*, 33, 61–135.
- Jonason, P. K., & Sherman, R. A. (2020). Personality and the perception of situations: The Big Five and Dark Triad traits. *Personality and Individual Differences*, 163, 110081.
- Jones, D. N. (2016). The nature of Machiavellianism: Distinct patterns of misbehavior. In V. Zeigler-Hill, & D. K. Marcus (Eds.). *The dark side of personality: Science and practice in social, personality, and clinical psychology* (pp. 87–107). Washington, DC: APA.
- Matthews, G., Deary, I. J., & Whiteman, M. C. (2009). *Personality traits* (3rd ed.). Cambridge University Press.
- McRae, R. R., & Costa, P. T. (2008). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.). *Handbook of personality: Theory and research* (pp. 159–181). (3rd ed.). New York, NY: Guilford.
- Paulhus, D. L., & Williams, K. M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, 36, 556–563.
- Pospiszyl, K. (2000). *Psychopatia [Psychopathy]*. Warsaw, Poland: Żak.
- Rauthmann, J. F., & Sherman, R. A. (2016). Measuring the situational eight DIAMONDS characteristics of situations: An optimization of the RSQ-8 to the S8*. *European Journal of Psychological Assessment*, 32, 155–164.
- Rauthmann, J. F., Sherman, R. A., & Funder, D. C. (2015). Principle of situation research: Towards a better understanding of psychological situations. *European Journal of Personality*, 29, 363–381.
- Rogoza, R., & Cieciuch, J. (2019). Dark triad traits and their structure: An empirical approach. *Current Psychology*. <https://doi.org/10.1007/s12144-018-9834-6>.
- Rogoza, R., Rogoza, M., & Wyszynska, P. (2016). Polish adaptation of the narcissistic admiration and rivalry questionnaire. *Polskie Forum Psychologiczne*, 21, 410–431.
- Rogoza, R., Wyszynska, P., Maćkiewicz, M., & Cieciuch, J. (2016). Differentiation of the two narcissistic faces in their relations to personality traits and basic values. *Personality and Individual Differences*, 95, 85–88.
- Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality*, 47, 609–612.
- Serfass, D. G., & Sherman, R. A. (2013). Personality and the perceptions of situations from the Thematic Apperception Test. *Journal of Research in Personality*, 47, 708–718.
- Sherman, R. A., Nave, C., & Funder, C. (2012). Properties of persons and situations related to overall and distinctive personality-behavior congruence. *Journal of Research in Personality*, 46, 87–101.
- Snyder, M., & Ickes, W. (1985). Personality and social behavior. In G. Lindzey, & E. Aronson (Eds.). *Handbook of social psychology* (pp. 883–947). New York, NY: Random House.
- Topolewska, E., Skimina, E., Strus, W., Cieciuch, J., & Rowiński, T. (2014). The short IPIPBFM-20 questionnaire for measuring the big five. *Annals of Psychology*, 17, 385–402.
- Wilkowski, B. M., Robinson, M. D., & Meier, B. P. (2006). Agreeableness and the prolonged spatial processing of antisocial and prosocial information. *Journal of Research in Personality*, 40, 1152–1168.
- Zajenkowski, M., Leniarska, M., & Jonason, P. K. (2020). Look how smart I am! Only narcissistic admiration is associated with inflated reports of intelligence <https://doi.org/10.1016/j.paid.2020.110158>.