Preprint(unedited version before peer review): Adaptive and Maladaptive Behaviour During the COVID-19 Pandemic:
The Roles of Dark Triad Traits, Collective Narcissism, and Health Beliefs

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Abstract

In a nationally representative sample (N = 755), we examined the relationships between the Dark Triad traits and collective narcissism on the one hand, and behaviour related to the COVID-19 pandemic on the other, at the zero-order level, at the latent variance level, and indirectly through health beliefs about the virus (i.e., the health belief model). We focused on preventive and hoarding behaviours, as common reactions toward the pandemic. Participants characterised by the Dark Triad traits engaged less in preventive behaviour and more in hoarding, whereas those characterised by collective narcissism engaged in more hoarding only. Coronavirus-related health

beliefs mediated patterns of preventive behaviour (fully) and hoarding (partially) in latent Dark Triad (Dark Core) and collective narcissism. However, specific beliefs worked in opposite directions, resulting in a weak indirect effect for preventive behaviour and a null indirect effect for hoarding. The results point to the utility of health beliefs in predicting behaviour during the pandemic, explaining (at least partially) problematic behaviour associated with the dark personalities (i.e., Dark Triad, collective narcissism).

Keywords: Dark Triad; collective narcissism; prevention; hoarding; COVID-19

The COVID-19 pandemic presented researchers with an unprecedented opportunity to understand how a physical threat (i.e., the virus) affects people and how people cope with it. One way of coping is by enacting health behaviours (i.e., prevention). Various factors influence the enactment of health behaviours (Friedman & Kern 2014), and many such factors apply in the context of COVID-19. However, the pandemic afforded researchers a unique opportunity to re-examine how personality traits relate to adaptive (e.g., washing one's hands) and maladaptive (e.g., overstocking on toilet paper) behaviours, depending on one's beliefs about the virus. This opportunity was unique, also because people's reports of their behaviours and beliefs were more direct or less retrospective compared to prior work.

Much of this prior work on the relationship between personality and health behaviours has been concerned with socially desirable aspects of personality (Friedman & Kern 2014; Yoshitake et al., 2019). In contrast, traits like the Dark Triad (i.e., narcissism, Machiavellianism, psychopathy) and collective narcissism have attracted less attention, given their self-oriented character along with their narrowband coverage of the personality space. These traits, however, may have implications for how people cope with the virus (e.g., via adaptive behaviour such as social distancing) and how their actions entail consequences for others (e.g., via maladaptive behaviour such as hoarding supplies). Therefore, we examined how dark personality traits and collective narcissism predict health behaviours directly and indirectly through beliefs about the virus.

Although there is a wide range of so-called dark traits to consider (Zeigler-Hill & Marcus 2016), we were concerned with traits that we call person-focused and collective-focused. Person-focused traits invite participants to report their opinions of themselves, whereas collective-focused traits invite participants to report their opinions of their group [BLINDED]. For person-focused traits, we considered the Dark Triad (Paulhus & Williams, 2002): Machiavellianism (i.e., manipulativeness and cynicism), narcissism (i.e., grandiose self-view and sense of entitlement), psychopathy (i.e., impulsivity and emotional callousness). For collective-focused traits, we considered collective narcissism—both its agentic form (Golec de Zavala et al., 2009) and its communal form [BLINDED]. Agentic collective narcissism refers to strong identification with one's group, unrealistically positive beliefs about the group's potency in the agentic domain (e.g.,

achievement, or competence), entitlement about the group, and grievance for lack of external recognition. Communal collective narcissism refers also to strong identification with the ingroup, but unrealistically positive beliefs about the ingroup's communality (e.g., friendliness or helpfulness), entitlement about the group's communal value, and grievance for lack of external recognition in the communal domain.

The Dark Triad traits are correlated with various behaviours, and this pattern suggests that the traits may play a role in coping with the COVID-19 virus. Individuals characterised by the Dark Core (i.e., the shared variance among the three traits) are likely to be impulsive (Jones & Paulhus, 2011), competitive (Jones & Figueredo, 2013), and engage in risky behaviours (Gott & Hetzel-Riggin, 2018)—proclivities that may conduce adversely to one's health. Indeed, Dark Triad traits are linked to negative health outcomes, such as self-reported headaches (Malesza & Kaczmarek, 2019), relative lack of physical exercise (Jonason et al., 2015), and shorter life expectancy (Jonason et al., 2015). We conjectured, then, that the imminent threat posed by COVID-19 might draw together the three traits towards self-oriented or maladaptive goals, so that the traits would manifest similar correlations across virus-related beliefs and behaviours. Thus, we hypothesised that participants high in the Dark Triad traits would believe they were vulnerable, but would make excuses (e.g., perceive too many barriers); as such, instead of engaging in preventive behaviour, they would selfishly hoard supplies.

Unlike the Dark Triad traits, which are about the person, collective narcissism is about how exceptional someone feels their group is (on the agentic or communal domain), and how bad they feel other groups are (Golec de Zavala et al., 2013a). This disposition translates to hypersensitivity to threats (Golec de Zavala et al., 2013b) and the proclivity to negative emotionality (Golec de Zavala et al., 2019). We hypothesized that, assuming COVID-19 would act as a threat to one's sense of group superiority, it would spur positive associations between collective narcissism and hoarding, but not necessarily between collective narcissism and preventive behaviours.

Beliefs about particular ailments link personality traits to health outcomes (Yoshitake et al., 2019). The health belief model proposes six classes of beliefs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy, and cues to action

(Rosenstock et al., 1974, 1988). This model has been applied to the MERS-Cov coronavirus infection (Alsulaiman, & Rentner, 2018), asserting its relevance to predicting preventive behaviour. We regarded individual differences in these beliefs as putative mediators between personality traits and health-related behaviours in relation to COVID-19. We examined the associations between Dark Personality (Dark Triad traits, collective narcissism), and health behaviours in relation to COVID-19.

Method

Participants and Procedure

In a two-wave study ($Wave_1$ N = 835; $Wave_2$ N = 755), drawing on a Polish community sample, and as a part of a larger study on attitudes and behaviours during the pandemic, we recruited online participants through the Ariadna research panel. Data collection began on the 15th of March and ended on the 29th of March, 2020. Here, we only report data from participants who completed both waves (N = 755; 423 women, 332 men), with age range between 18 and 78 years (M = 45.83; SD = 14.98). Our sample had adequate power (β = .80) to detect regression coefficients greater than .10 (*G*Power 3.1.9.4; Faul et al., 2007). The study was approved by the Ethics Committee of the institution of the third and fourth authors (KEiB10/2018). Data and further details available at: https://osf.io/x54st/?view_only=175478ad465643288973d54d6f4c4004&fbclid=IwAR1gc-KQ4A_nWzjX9ZyzwPympi4m8_9AVhDIUcvxY57MSax_kC2Pdn7ZTCQ.

Measures

We measured the Dark Triad traits (Wave 2) with the Polish translation (Czarna et al., 2016) of the Dark Triad Dirty Dozen scale (Jonason & Webster, 2010). The scale consists of four items assessing each of psychopathy (e.g., "*I tend to lack remorse*"), narcissism (e.g., "*I tend to seek prestige or status*"), and Machiavellianism (e.g., "*I tend to manipulate others to get my way*"). Participants indicated their agreement with each item (1 = *strongly disagree*, 5 = *strongly agree*). We averaged responses to create indices of each trait.

We measured agentic and communal collective narcissism (Wave 2) with the 9-item Agentic Collective Narcissism Scale (Golec de Zavala et al., 2009) and the 7-item Collective Communal Narcissism Inventory [BLINDED], respectively. Participants indicated the extent to

which they agreed (1 = *definitely disagree*, 7 = *definitely agree*) with statements for the former (e.g., "*I wish other groups would more quickly recognize authority of my group*") and the latter (e.g., "*My group is extraordinarily friendly toward other groups*."). We removed one item (i.e., "*If my group had more to say, the world would be a better place*") from the former to reduce redundancy and potential multicollinearity with an item from the latter (i.e., "*My group will make the world a better place*."). We averaged responses to create indices of each form of collective narcissism.

To measure health beliefs in conjunction with COVID-19 (Wave 1), we modified the 20-item Health Belief scale (Champion, 1984) by substituting the name of the virus (e.g., "*The chance that I will get the coronavirus during my lifetime is very high*") in place of other health conditions (e.g., "*The chance that I will get the breast cancer during my lifetime is very high*"). The scale captures individual differences in perceived barriers, perceived susceptibility, perceived severity, perceived benefits, and self-efficacy (four items each). Participants indicated how true they believed each item was (1 = *definitely not*, 4 = *definitely yes*). We excluded items assessing cues to action (i.e., internal or external events that affect readiness for action and ignite the decision-making process; Rosenstock et al., 1974), because this construct was less relevant to the purposes of our study. Specifically, the pertinent items were general (e.g., "I often do exercise") rather than being contextually sensitive, and this a reason why cues for action is often omitted from research on the health belief model (Champion & Skinner, 2008). Also, internal cues to action are based on observed illness symptoms, and such symptoms were rare during the early stage of the pandemic in Poland, when we collected our data. We averaged responses to form the five indices of health beliefs.

We created two *ad hoc* measures of individual differences in preventive behaviour and hoarding behaviour (Wave 1) regarding the virus (three items each). Participants indicated how likely they were (1 = *definitely not*, 4 = *definitely yes*) to have enacted preventing behaviour (i.e., "*Decontaminating often touched places [e.g., phone, keys, and door-knobs]; Washing hands more often [e.g., after each return home]; Limiting leaving home without explicit necessity [e.g., to spend time with friends]*") and hoarding behaviour (i.e., "*Stockpile bigger amounts of food [e.g., flour, milk, eggs, canned goods]; Stockpile more cleaning and disinfecting supplies [e.g.,*

wipes, toilet paper, soap, spirit, etc.]; Stockpile of protective measures [e.g., gloves, masks]") during the last week in relation to the coronavirus. We averaged responses to form indices of each type of behaviour.

Results

We present descriptive statistics, Cronbach's αs, and inter-correlations in Table 1. The Dark Triad traits were associated with more perceived susceptibility and barriers as well as more hoarding, but less preventive behaviour. Narcissism was associated with more perceived severity and benefits, psychopathy was associated with more perceived benefits, and psychopathy and Machiavellianism were associated with less self-efficacy. Agentic and communal collective narcissism were positively associated with all five belief types and with hoarding, but not with preventive behaviour. We obtained mixed correlations for health beliefs and preventive as well hoarding behaviours.

Given the pattern of correlations and the known mediation effects of health beliefs in the link between personality and health behaviours (Yoshitake et al., 2019), we tested a Structural Equation Model. In this model, we used (1) a Dark Core (indicated by psychopathy, narcissism, and Machiavellianism), collective narcissism (indicated by agentic and communal forms), hoarding behaviour (indicated by stockpiling food, hygiene products, and protective products), and preventive behaviour (indicated by washing hands, decontaminating frequently used objects, and staying at home) as latent variables, and (2) health beliefs as a putative mediator. We implemented AMOS 25 with Maximum Likelihood estimation, and relied on common cut-off recommendations for good fit (Byrne, 1994): Comparative Fit Index (CFI) > .90, Root Mean Square Error of Approximation (RMSEA) < .08, and Standardized Root Mean Square Residual (SRMR) < .10.

The model (Figure 1) fit the data well ($\chi^2[74] = 447.02$, $p < .001$, CFI = .93, RMSEA = .08, SRMR = .07), explaining of 46% of the variance in preventive behaviour and 14% of the variance in hoarding. Participants high in Dark Triad traits were less likely to engage in preventive behaviour and more likely to engage in hoarding, whereas participants high in collective narcissism were more likely to engage in hoarding. Reluctance to engage in preventive behaviour among those characterized by Dark Triad traits was partly explained by their health

beliefs about COVID-19, especially higher perceived susceptibility, higher perceived barriers, and lower sense of self-efficacy. Participants who perceived barriers as high were less likely to engage in preventive behaviour, whereas participants who endorsed all other types of health beliefs were more likely to engage in preventive behaviour. However, the apparently protective effect of health beliefs was insufficient to counterbalance the small and negative (albeit not significant) effect of collective narcissism on preventive behaviour: Collective narcissism was unrelated to such behavior. Finally, participants who were likely to engage in hoarding were characterised by lower perceived barriers against preventive behaviour, and by perceived susceptibility and perceived severity.

Discussion

We extended work on the relationship between dark personality and health, examining preventive and hoarding behaviours during the COVID-19 pandemic. Our study pointed to the utility of the health belief model in predicting such behaviours. We advanced the scope of the model by illustrating the relevance of dark personality in predicting both adaptive (i.e., preventive) and maladaptive (e.g., hoarding) behaviours in reference to the pandemic.

As hypothesised, participants characterised by the Dark Triad traits were less likely to engage in preventive behaviour and more likely to hoard. Such findings are congruent with their higher impulsivity, focus on self-interest, and tendency toward risk-taking. Participants characterised by collective narcissism were also more likely to engage in hoarding, but collective narcissism was unrelated to prevention. Weaker preventive behaviour among those characterised by the Dark Triad traits was partially explained by their health beliefs about coronavirus, and in particular higher levels of perceived barriers against prevention and lower self-efficacy. Dark Triad traits were also linked to higher perceived susceptibility, yet without endorsing higher levels of perceived severity. Participants higher on Dark Triad traits seemed to be concerned with negative aspects of prevention and not consider the benefits of it. Such a concern with perceived barriers was accompanied by lower prevention, which indirectly contributed to lower hoarding. The relationship between health beliefs and behaviours raises the questions of motives underlying hoarding and prevention. Participants characterized by the Dark Triad traits may have engaged in hoarding partially for self-protection (Sedikides, 2012), as higher levels of perceived

susceptibility were associated with more hoarding. Yet, given that we also found direct effects on hoarding, hoarding may have been driven by different beliefs than those related to COVID-19. Collective narcissists engaged in prevention exclusively via their beliefs about coronavirus. They perceived more barriers against engaging in prevention, but also saw more benefits, and indicated higher self-efficacy, perceived severity, awe well as perceived susceptibility, which, in total, were only weakly (albeit significantly) related to higher levels of prevention.

Individuals characterised by higher levels of dark personality traits engaged more in hoarding, yet their beliefs about coronavirus did not play a substantial role in this relationship; as in total these beliefs worked in opposite directions. In contrast, individuals characterised by person-focused dark personality indicated fewer preventive behaviours both directly and via their higher levels of perceived barriers against prevention and lower perceived self-efficacy. Further, individuals characterised by group-focused dark personality did not differ from others in engaging in preventive behaviour. Despite having indicated some adaptive beliefs (i.e., perceived benefits and self-efficacy) about the coronavirus, they did not adopt preventive behaviour.

Our study showcased the relevance of Dark personality in coping with the threat imposed by the COVID-19 pandemic, and contributed to the literature on the health belief model. The study, though, was limited by its reliance on cross-sectional data, a monocultural sample, and behaviouroid measures of health-related behaviours (i.e., intentions). Still, the findings are generative, as they offer recommendations for managing problematic behaviour in the face of a pandemic, especially among individuals characterised by dark personality traits. The management of such behaviours may be effected through health beliefs. Health beliefs are likely to strengthen the self-protection motive (Janz & Becker, 1984); here, we observed accompanying behavioural manifestations that are both adaptive (i.e., prevention) and maladaptive (i.e., hoarding). For instance, perceived barriers and perceived severity were associated with increased prevention and hoarding. Perceived barriers were particularly critical for preventive behaviour among individuals with high levels of dark traits, and these individuals expressed lower self-efficacy. Such possibly problematic health beliefs could be altered through interventions that would thwart dark personalities from some personal and interpersonal costs of the pandemic, encouraging engagement in prevention and avoidance of hoarding.

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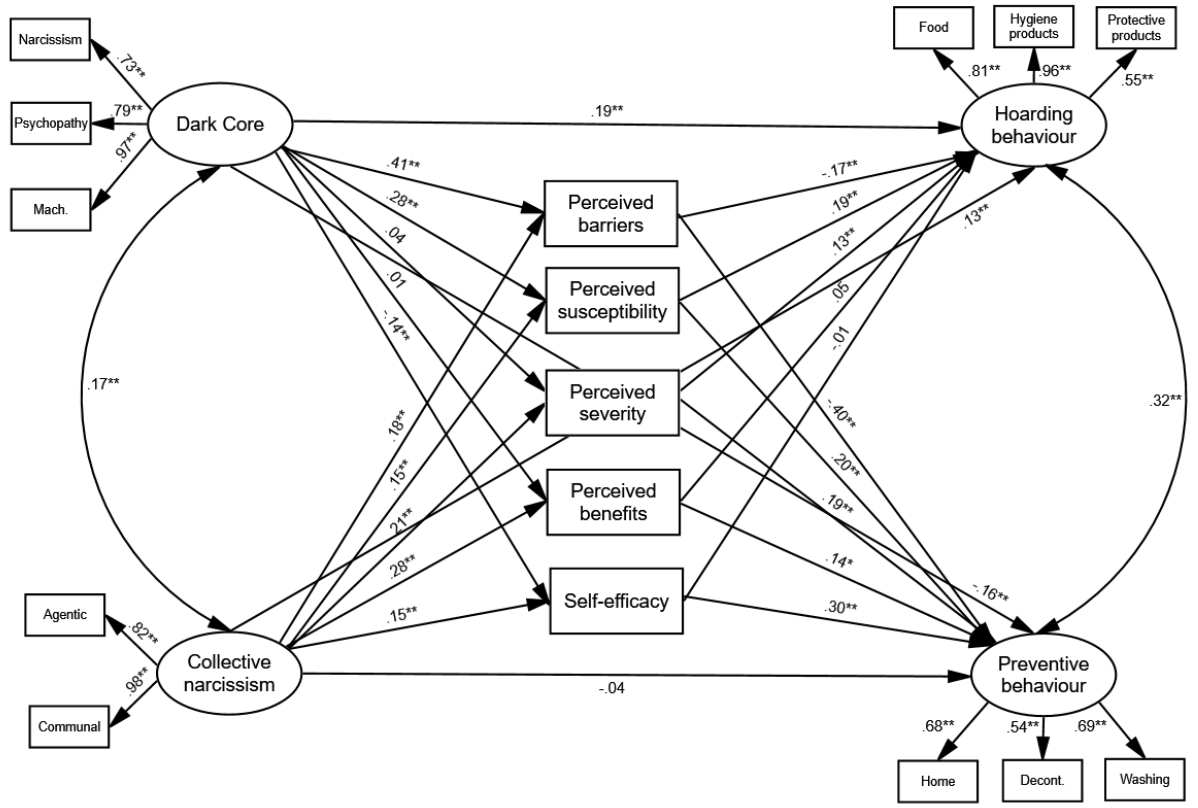

Figure 1. Standardised path coefficients in unconstrained models.

Notes.

(1) Mach. = Machiavellianism; Decont. = Decontamination.

(2) Total effect of Dark Core was -.31 (p = .002) on preventive behaviour and .18 (p = .001) on hoarding behaviour. Total effect of collective narcissism was .05 (p = .319) on preventive behaviour and .16 (p = .001) on hoarding behaviour. Indirect effect of Dark Core was -.15 (p = .001) on preventive behaviours and -.01 (p = .619) on hoarding behaviour. Indirect effect of collective narcissism was .08 (p = .005) on preventive behaviour and .03 (p = .071) on hoarding behaviour.

(3) *p < .050, **p < .010.

Table 1

Descriptive Statistics and Zero-Order Correlations Among Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Machiavellianism												
2. Narcissism	.71**											
3. Psychopathy	.76**	.55**										
4. Agentic CN	.11**	.21**	.03									
5. Communal CN	.16**	.24**	.10**	.81**								
6. Perceived barriers	.42**	.31**	.41**	.19**	.25**							
7. Perceived susceptibility	.29**	.23**	.25**	.19**	.19**	.41**						
8. Perceived severity	.07	.12**	.05	.24**	.21**	.01	.41**					
9. Perceived benefits	.05	.13**	.06**	.22**	.28**	.19**	.03	.16**				
10. Self-efficacy	-.13**	-.02	-.12*	.12**	.12**	-.16**	-.11**	.18**	.61**			
11. Hoarding behaviour	.23**	.24**	.20**	.18**	.23**	.11**	.31**	.26**	.12**	.04		
12. Preventive behaviour	-.20**	-.09*	-.21**	.06	.03	-.30**	.06	.28**	.24**	.38**	.28**	
Cronbach's α	.91	.89	.79	.91	.97	.72	.76	.74	.60	.58	.80	.65
Overall: *M* (*SD*)	2.19 (0.92)	2.50 (0.85)	2.32 (0.78)	4.11 (1.34)	3.79 (1.60)	2.31 (0.75)	2.55 (0.67)	3.29 (0.75)	3.23 (0.63)	3.70 (0.53)	2.19 (0.75)	3.19 (0.59)

Note. CN = collective narcissism; *$p < .050$, **$p < .010$.