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It's a Conspiracy: Covid-19 Conspiracies Link to Psychopathy, Machiavellianism and Collective Narcissism

1. Introduction

A proliferation of conspiracy theories (e.g., false beliefs that major events are being orchestrated by secret organisations) have emerged during the Covid-19 health pandemic. Some examples include, "Covid-19 was created in a laboratory" and "there is no real evidence that Covid-19 exists". Different conspiracy theories were also present during the H1N1 outbreak, (Wagner-Egger, Bangerter, Gilles, Green, Rigaud, Krings, & Clémence, 2011) Measles outbreak (Mavragani & Ochoa, 2018) and arguably during the Spanish flu pandemic (Bertin, Nera & Delouvee, 2020). Conspiracy theories often develop during times of uncertainty and fear, providing explanations for otherwise unexplainable events (March & Springer, 2019). Unfortunately, conspiracy theories are typically associated with medical misinformation and poorer health outcomes and tend to spread rapidly (Sternisko, Cichoka, Cislak & Van Bavel, 2020). Of recent concern, are links between Covid-19 conspiracies and adherence to medical guidelines (Bertin, Nera and Delouvée, 2020), including negative relations between Covid-19 conspiracy beliefs and willingness to obtain a future Covid-19 vaccine (Bertin, Nera & Delouvee, 2020 & Murphy et al., 2020).

Prior to Covid-19, individual differences in personality and susceptibility to conspiracy beliefs have been well established (Goreis & Voracek, 2019). Recently, researchers have begun identifying personality traits that may be more susceptible to current Covid-19 conspiracy beliefs (Imhoff & Lamberty, 2020) and how these beliefs lower adherence to guidelines aimed at slowing the spread of the virus. Except for Sternisko et al., (2020) however, we are not aware of research exploring the psychological processes involved in the dissemination of Covid-19 conspiracy theories. Sternisko et al., (2020) explored personality traits associated with spreading Covid-19 related conspiracies, with a focus on national identity. Across two studies, they found that collective narcissism (i.e., inflated superiority of one's self which extends to inflated in-group superiority) positively correlated with heightened conspiracy beliefs as well as intentional dissemination of

Covid-19 related conspiracy theories. Individuals with a heightened sense of in-group superiority feel that public health crises reveal in-group failings and perceive such pandemics as a threat to their national image, and use conspiracies to reduce, deny or provide alternative explanations to manage heightened hypersensitivity to these in-group threats (Sternisko et al., 2020).

Collective narcissism is not the only personality trait linked to a conspiracy mentality and inflated beliefs in one's in-group superiority. For example, trait psychopathy and Machiavellianism have previously been linked to heightened conspiracy mentalities in general (March & Springer, 2019). Trait psychopathy, consists of primary psychopathy, characterised by callousness and lack of emotion and secondary psychopathy, which is characterised by impulsivity and anti-social tendencies. Individuals high in Machiavellianism are recognised as strategic manipulators who are distrustful and cynical in nature (Jones & Paulhus, 2017). As these dark traits facilitate manipulative and exploitative lifestyles, these individuals may be more susceptible to general conspiracy beliefs, which perhaps stems from their cynical views and their own attempts to manipulate others (March & Springer, 2019). Furthermore, individuals high in the Dark Triad (psychopathy, narcissism, Machiavellianism) personality traits report increased levels of out-group hostility (Żemojtel-Piotrowskaa, Sawickib & Jonason, 2020) and in-group favouritism, suggesting they may view their in-groups as superior in a similar way to collective narcissists. It is therefore possible that these additional dark personality traits may also be associated with the spreading of Covid-19 conspiracies.

The Present Study

From their findings, Sternisko et al., (2020) suggest adjusting public health messages aimed at increasing adherence to medical guidelines during pandemics in relation to collective narcissism. For example, by stressing that adherence to such policies and guidelines helps protect the nation's image. However, due to the preliminary nature of their results, future research is needed to determine the replicability of their findings in relation to collective narcissism and conspiracy beliefs. We therefore aimed

to replicate their findings as well as explore primary/secondary psychopathy and Machiavellianism in relation to Covid-19 conspiracy beliefs and intentional dissemination of Covid-19 conspiracy theories. We also explored the mediating role of general and Covid specific conspiracy beliefs on links between traits and attitudes towards obtaining a future Covid-19 vaccine. Based on Sternisko et al.'s findings, we predicted that collective narcissism would emerge as a stronger positive predictor of Covid conspiracy beliefs compared to general conspiracy beliefs. We predicted that primary psychopathy and Machiavellianism would emerge as stronger predictors of general conspiracy beliefs. We kept more of an open mind in relation to both facets of psychopathy and Machiavellianism, in relation to Covid conspiracy beliefs, therefore these investigations were exploratory in nature. However, we expected Covid conspiracy beliefs to mediate relations between all traits and dissemination of Covid conspiracies and vaccine intention.

2. Method

2.1 Participants and procedure

UK citizens (*N*= 406, women = 290, men = 116, mean age, 29, *SD* = 8.84) were invited to take part in an online survey via Prolific data collection platform, investigating personality and Covid-19 information. All participants were paid an average rate for their time in line with Prolific recommendations. As three participants completed the survey in less than 7 minutes, they were removed from the overall analyses to avoid potentially invalid responses. Participants with missing data were deleted from the data set. Page one of the survey included participant information and required all participants to provide online consent before accessing the survey. Participants who had experienced increased distress in relation to Covid-19 were advised not to take part in the survey. A full debrief was provided on completion of the survey.

2.2 Personality measures

Psychopathy was measured using the Levenson Self-Report Psychopathy Scale (LSRP: Levenson, kiehl, & Fitzpatrick, 1995) distinguishing between primary and secondary psychopathy. Participants rated how much they agreed (1 = Strongly Disagree; 5 = Strongly Agree) with various statements. Primary psychopathy: ‘‘I enjoy manipulating other peoples’ feelings’’. Cronbach’s α = 68. Secondary psychopathy: ‘‘looking out for myself is my top priority.’’. Cronbach’s α =.67. Overall Cronbach’s α = .74. Machiavellianism was assessed using the MACH-IV (Christie & Geis, 1970). Participants rate their agreement (1, strongly disagree, 7 strongly agree) with statements such as “Anyone who trusts anyone else is asking for trouble”. Cronbach’s α = 68. Collective narcissism was measured using the Collective Narcissism Scale (Golec de Zavala et al, 2012). Using a 6-point scale (1= totally disagree to 6= totally disagree) participants rated their agreement to nine statements. Example statements: “my group deserves special treatment”. Cronbach’s α = .82.

2.3 Conspiracy measures

The Conspiracy Mentality Questionnaire (Bruder et al, 2013; CMQ) was used to assess conspiracist ideation. Example item: “I think many important things happen in the world, which the public is never informed about”). Responses are measured using a 5- point Likert scale (1-strongly disagree – 5 strongly agree). Cronbach’s α = .82. Beliefs in Covid-19 conspiracies were taken from Van Bavel’s (2020) collated Covid-19 conspiracy theories. Example item: “there is no hard evidence that Covid really exists”. Participants read statements relating to each conspiracy and were asked to rate how much they agreed with each one (eg, 1= strongly disagree to 5 = strongly agree). Cronbach’s α = .80. Additionally, participants were asked to indicate their willingness to disseminate each theory (1, very unwilling to 5, very willing). To assess intention to be vaccinated against Covid-19, participants were asked what they would do if a vaccine were tested and approved and they had the opportunity to be vaccinated next week. Responses were provided using a 7-point scale (1 = would definitely not be vaccinated, to 7= would definitely be vaccinated).

3. Results

Descriptive statistics and correlations are presented in Table 1. To reduce the probability of type 1 errors, we conducted path analyses using AMOS (Schumacker & Lomax, 2004) to explore links between all traits, conspiracy mentality and willingness to obtain a future Covid vaccine. Personality traits were entered as exogenous variables. General conspiracy beliefs, Covid conspiracy beliefs/dissemination and vaccine intention were entered as endogenous variables. Indices revealed a model fit of: χ^2 (5) = 10.67, p = .099; Relative χ^2 = 1.77; RMSEA = 0.04; NFI = 0.98; GFI = 0.98; CFI = 0.95; TLI = 0.97. To avoid potentially unmeaningful relations between traits when explored at the residual level (Miller, Vize, Crowe, Donald & Lynam, 2019), we explored links at both the residual and individual level.

Direct pathways are presented in Table 2. At both the residual and individual level, collective narcissism positively predicted Covid conspiracy beliefs, but not general conspiracy beliefs. Primary psychopathy positively predicted general and Covid conspiracy beliefs at both the residual and individual level. Secondary psychopathy positively predicted general conspiracy beliefs at the individual level only and predicted Covid conspiracy beliefs at both the residual and individual level. Machiavellianism positively predicted general conspiracy beliefs at both the residual and individual level and emerged as a positive predictor of Covid conspiracy beliefs only when assessed individually. We then investigated whether general and Covid conspiracy beliefs mediated links between traits and Covid dissemination and vaccine intention.

At the residual level primary psychopathy revealed indirect effects on Covid conspiracy dissemination (β = 0.22, 95% CI [.024, .240] and vaccine intention (β = - 0.06, 95% CI [-.138, -.022] which were mediated by Covid-conspiracy beliefs. Individually, primary psychopathy also revealed indirect effects on Covid conspiracy dissemination (β = 0.28, 95% CI [.203, .351] and vaccine intention (β = - 0.12, 95% CI [.203, .351] mediated by Covid conspiracy beliefs. Covid conspiracy beliefs also mediated the positive relations between collective narcissism and Covid conspiracy dissemination (β = 0.16, 95% CI [.063, .220], but not vaccine intention when investigated at the residual level. However, when explored individually,

Covid conspiracy beliefs mediated positive relations between collective narcissism and Covid conspiracy dissemination (β = 0.21, 95% CI [.135, 298] as well as vaccine intention (β = - 0.12, 95% CI [- .190, - . 081]. Secondary psychopathy revealed indirect effects on Covid conspiracy dissemination (β = 0.12, 95% CI [.043, .228] and vaccine intention (β = - 0.07, 95% CI [.043, .228] which were mediated by Covid conspiracy beliefs. Individually, secondary psychopathy revealed a similar pattern of indirect effects on Covid conspiracy dissemination (β = 0.18, 95% CI [.143, 313] and vaccine intention (β = - 0.10, 95% CI [-.189, -.073], again mediated by Covid conspiracy beliefs. Finally, Covid conspiracy beliefs mediated links between Machiavellianism and Covid conspiracy dissemination (β = 0.07, 95% CI [.033, .190] but not vaccine intention when explored at the residual level. However, Covid conspiracy beliefs did mediate links between Machiavellianism and vaccine intention (β = - 0.10, 95% CI [-.191, -.085] as well as Covid conspiracy dissemination (β = 0.18, 95% CI [.159, .319] when explored individually.

General conspiracy beliefs did not mediate relations between traits and vaccine intention or Covid conspiracy dissemination. As there are established sex differences in psychopathy, Machiavellianism, and narcissism (Jonason, Valentine, Li & Harbeson, 2011), we used the model comparison function in AMOS to explore whether traits were operating differently in men and women. We found no significant differences between men and women across all endogenous variables (χ^2 (17) = 11.41, p = .834), suggesting that all traits were operating similarly in men and women.

Table 1. Descriptive statistics and correlations (Spearman's rho) among personality traits, conspiracy mentality and vaccine intention.

	Variables	1	2	3	4	5	6	7	*Mean*	*SD*
1.	Collective narcissism	-							25.00	7.64
2.	Machiavellianism	0.27**	-						95.60	13.30
3.	Primary psychopathy	0.24**	0.35**	-					43.33	6.65
4.	Secondary psychopathy	0.11	0.22**	0.40**	-				27.80	5.28
5.	General Conspiracy mentality	0.00	0.26**	0.27**	0.18**	-			26.02	5.16
6.	Covid Conspiracy beliefs	0.27**	0.29**	0.33**	0.27**	0.36**	-		16.50	5.17
7.	Covid conspiracy dissemination	0.28**	0.25**	0.31**	0.28**	0.29**	0.80**	-	14.20	6.00
8.	Vaccine Intention	-.02	-.07	- 0.12*	- 0.12*	- 0.17**	- 0.41**	- 0.30**	5.22	1.75

Note: * p = <.05, ** p = <.001

Table 2: Standardised regression weights for direct path analyses.

Parameter estimates	Residual model	Individual trait models
Collective narcissism → general conspiracy beliefs	- 0.09	0.02
Primary psychopathy → general conspiracy beliefs	0.20**	0.30**
Secondary psychopathy → general conspiracy beliefs	0.08	0.20**
Machiavellianism → general conspiracy beliefs	0.20**	0.26**
Collective narcissism → Covid conspiracy beliefs	0.20**	0.27**
Primary psychopathy → Covid conspiracy beliefs	0.12*	0.27**
Secondary psychopathy → Covid conspiracy beliefs	0. 15*	0.23**
Machiavellianism → Covid conspiracy beliefs	0.09	0.22**

Note: * p 0.05, ** p < 0.001.

4. Discussion

We explored links between psychopathy, collective narcissism, Machiavellianism, and conspiracy beliefs, and the mediating role of conspiracy beliefs on dissemination of conspiracy theories, as well as attitudes towards obtaining a future Covid-19 vaccine. Collective narcissism positively predicted Covid-19 conspiracy beliefs, and these beliefs also mediated the positive association between collective narcissism and intentional dissemination of Covid conspiracies. That collective narcissism revealed no predictive links to general conspiracy beliefs, but to Covid conspiracy beliefs only, provides additional evidence to suggest that these individuals may not be susceptible to conspiracies when they perceive their national image is not under threat. Our results are in line with Sternisko et al's novel findings suggesting that public health crises may pose a threat to one's in-group and therefore one's own national identity.

Machiavellianism and primary psychopathy emerged as stronger positive predictors of general conspiracy beliefs. Thus, providing additional evidence suggesting that these exploitative individuals may be more susceptible to general conspiracy beliefs, perhaps stemming from their cynical views and their own attempts to manipulate others (March & Springer, 2019). Covid-19 conspiracy beliefs mediated the positive relations between both traits and intentional dissemination of Covid conspiracies as well as the negative relations between both traits and vaccine intentions. Machiavellianism emerged as a non-significant predictor of Covid conspiracy beliefs at the residual level, but subsequently emerged as a positive predictor of Covid conspiracy beliefs when explored individually. It is well established that Machiavellianism shares many characteristics with psychopathy such as abusive leadership behaviour and strategic manipulation tactics (Kavish, Jones, Rock, Johnson & Anderson, 2019), with psychopathy being the most dominant trait. As a result, psychopathy has been suggested to render Machiavellianism redundant (Dinić, Wertag, Tomašević & Sokolvska, 2020) in certain contexts. Thus, providing one potential explanation for the different residual and individual effects in the current study.

Secondary psychopathy did not predict general conspiracy beliefs at the residual level but did so at the individual level only. Again, these differences may be explained by primary psychopathy being the most central and dominant trait, whereas secondary psychopathy is suggested to be the most peripheral (Dinić et al., 2020). Nevertheless, Covid conspiracy beliefs mediated the positive relations between Covid conspiracy dissemination and both primary and secondary psychopathy. Each facet of psychopathy may be associated with distinct motivations to intentionally disseminate Covid conspiracies. For example, individuals high in primary psychopathy may enjoy spreading information for social enjoyment and status enhancing, whereas individuals high in secondary psychopathy may even spread such information as a form of in-group protection (Lyons & Hughes, 2015). This is plausible given that individuals high in secondary psychopathy can engage in cooperative interactions with others (Gervais, Kline, Ludmer, George & Manson, 2013).

Limitations and future research

The present study has several limitations. First, we asked participants to rate their intentions to spread Covid related conspiracy theories, rather than obtain actual behavioural measures. Previous research does however present strong positive correlations between intentions and information dissemination behaviours on social media (Mosleh, Pennycook & Rand, 2020). Nevertheless, we did not explore how participants would spread such conspiracies. For example, which social media platform is preferred or indeed other methods of dissemination. Second, we cannot rule out the possibility that increased beliefs in Covid conspiracies were due to a lack of factual knowledge amongst the present sample. Future researchers who may wish to replicate our findings should control for such knowledge by including additional factual questions about Covid-19. Finally, due to the cross-sectional nature of this research, we cannot infer causal conclusions and therefore future research would benefit from employing more objective behavioural methods.

5. Conclusion

We provide additional evidence suggesting that Covid-19 conspiracy beliefs are negatively associated with attitudes towards obtaining a future vaccine. We further identify individual susceptibility to conspiracy beliefs, whilst identifying potential contributors responsible for spreading Covid-19 conspiracies. Overall, we provide evidence to suggest that Covid-19 conspiracy beliefs mediated the negative relations between collective narcissism, Machiavellianism and both facets of psychopathy and willingness to obtain a Covid-19 vaccine. Covid-19 conspiracy beliefs also mediated the positive relations between collective narcissism, psychopathy and Machiavellianism and dissemination of Covid conspiracies. We have replicated recent findings in relation to collective narcissism and dissemination of Covid-19 conspiracy theories. It is possible however that each trait has distinct motivations for spreading such misinformation. Future research should investigate motivations for spreading current and future conspiracy theories, particularly for psychopathy and Machiavellianism, so that public health messages may be adjusted accordingly to increase adherence to medical guidelines.

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