Research Article

Big Five, Dark Triad, and Face Masks

The Role of Personality in Reducing the Spread of COVID-19

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Abstract: Face masks are an effective method to reduce the spread of COVID-19, but many people are reluctant to wear them. Recent authors have called for studies of personality to determine which people may have particularly negative face mask perceptions and reduced face mask wearing. In the current article, we assess the relation of the Big Five and Dark Triad with face mask perceptions and wearing. We apply a four-wave longitudinal research design collected via MTurk (n = 209, M_{age} = 36.97 years, 50% female, 85% American), and we use the eight-dimension Face Mask Perceptions Scale to test mediating mechanisms between personality and behavior. When tested together, conscientiousness, extraversion, and neuroticism did not have notable relations with perceptions or wearing; openness and the Dark Triad had significant relations with face mask perceptions, and agreeableness had significant indirect effects on face mask wearing via perceptions. These results indicate that personality does relate to face mask perceptions and behaviors. We call on future research to conduct facet-level studies of personality with face mask perceptions and behaviors to ascertain the cause of these observed relations, further identify the importance of specific face mask perceptions, and integrate personality into models of health behaviors.

Keywords: face masks, preventive behaviors, Big Five, dark triad, personality

More than 640 million individuals worldwide have contracted COVID-19, resulting in more than 6,500,000 deaths until March 2022 (New York Times, 2022). These staggering numbers have caused health officials to call on the public to perform preventative behaviors to curb the spread of COVID-19, including hand washing, social distancing, and face mask-wearing (Brauer et al., 2020; Chavez et al., 2021; Howard, 2020; Lewnard & Lo, 2020; Stein, 2020). While all preventative behaviors are important, we study the last of these in the current article.

Empirical research has robustly supported that face mask wearing can prevent individuals from both contracting and spreading COVID-19 (Cheng et al., 2020; Eikenberry et al., 2020; Liu & Zhang, 2020); however, some individuals in Western cultures are reluctant to wear face masks. In an observational study, about 30% of men and 50% of women wore face masks while riding public transportation in London, and these figures dropped to lower than 20% for those riding public transportation in Manchester and Glasgow (Taylor et al., 2020). This discrepancy demands that researchers investigate the causes of reduced mask-wearing.

Howard (2020) proposed that studying face mask perceptions could be an avenue to understand face mask-wearing, and the author created an eight-dimension face mask perceptions scale that assesses negative attitudes toward face masks (Table 1). Howard (2020) also showed that face mask perceptions indeed predict face mask-wearing, and the dimensions' predictive strength was in the following order: perceptions that face masks are ineffective (Efficacy Doubts), inconvenient (Inconvenience), silly looking (Appearance), not needed if other precautions are taken (Compensation), infringing upon independence (Independence), difficult to obtain (Access), attracting undesirable attention (Attention), and uncomfortable (Comfort). The author called for future research to identify antecedents of face mask perceptions, as these antecedents may predict face mask wearing via mediated effects through face mask perceptions.

The goal of the current article is to initiate the study of personality and face masks by investigating two of the most popular and relevant models of personality: the Big Five and Dark Triad. A host of research has supported that personality influences perceptions, and a person's view of the world is shaped by the person (Giluk, 2009; Gross et al., 1998). The Big Five is the most popular conceptualization of personality, and it includes the dimensions of openness, the tendency to be curious, creative, and accept novelty; conscientiousness, the tendency to be organized, productive, and responsible; extraversion, the tendency to be sociable, assertive, and seek stimuli; agreeableness, the tendency to be compassionate, respectful, and trust others; and neuroticism, the tendency to be anxious, depressed, and emotionally sensitive (McCrae & Costa, 1987). Multiple dimensions may relate to face mask perceptions and

Table 1. Constructs studied in the current article

Construct	Definition
Big Five[1]	
Openness	Tendency to be curious, creative, and accepting of novel experiences.
Conscientiousness	Tendency to be organized, productive, and responsible.
Extraversion	Tendency to be sociable, assertive, and seek stimuli.
Agreeableness	Tendency to be compassionate, respectful, and trust others.
Neuroticism	Tendency to be anxious, depressed, and emotionally sensitive.
Dark Triad[2]	
Machiavellianism	Tendency to be vain, pursue ego gratification and have a sense of superiority, grandiosity, dominance, and entitlement.
Narcissism	Tendency to be manipulative, calculating, duplicitous, amoral, and self-interested.
Psychopathy	Tendency to be callous, impulsive, antisocial, and bold.
Face Mask Perceptions[3]	
Comfort	Perception that face masks are irritating and/or hamper breathing.
Efficacy doubts	Perception that face masks do not prevent illness.
Access	Perception that face masks are difficult to obtain.
Compensation	Perception that face masks are unneeded when other safety precautions are taken.
Inconvenience	Perception that face masks are inconvenient to wear.
Appearance	Perception that face masks have an undesirable appearance.
Attention	Perception that face masks attract negative social attention.
Independence	Perception that face masks infringe upon freedom and independence.

Note. [1]Definitions for Big Five were adapted from Psychology Today (2020a). [2]Definitions for Dark Triad were adapted from Psychology Today (2020b). [3]Definitions for face mask perception dimensions were adapted from Howard (2020).

wearing, but we particularly stress the possible influences of conscientiousness and agreeableness.

Conscientious people are cautious and disciplined. These individuals are more likely to engage in behaviors that promote their health (e.g., exercise) and the health of society (e.g., recycling) (Bogg & Roberts, 2004; Zhang et al., 2020). Conscientiousness may have a positive relation with face mask perceptions and face mask wearing because conscientious people value the benefits to their health, value the benefits to others around them, and can remain committed to such behaviors. Also, agreeable people are considerate and cooperative. Prior research has supported that these individuals are more likely to support public health initiatives (De Coninck et al., 2020; Stadler et al., 2020). Agreeableness may likewise have a positive relation with face mask perceptions and face mask wearing because agreeable people value the well-being of others and the aid that they can provide in reducing the spread of illness.

Further, the Dark Triad is a popular conceptualization of maladaptive personality traits, and it includes the dimensions of Machiavellianism, characterized by self-interest and the manipulation of others; narcissism, characterized by grandiosity and egotism; and psychopathy, characterized by remorselessness and antisocial behavior (Jones & Paulhus, 2014). Each of the Dark Triad dimensions has an association with callousness (Howard & Van Zandt, 2020; Jones & Figueredo, 2013), and those high in Dark Triad traits are less likely to both engage in physical health behaviors and support public health initiatives (de Francisco Carvalho & Machado, 2020; Malesza & Kaczmarek, 2021; Nowak et al., 2020). Because those high in the Dark Triad may discount the personal and societal benefits of face masks, we predict that the Dark Triad will relate to negative face mask perceptions and less face mask wearing. It should be highlighted that these conceptual arguments associate the Dark Triad dimensions with our outcomes due to their association with the "dark core of personality", often considered to be callousness (Howard & Manix, 2022; Howard & Van Zandt, 2020; Jones & Figueredo, 2013). For this reason, we aggregate the Dark Triad dimensions together in our analyses to more directly assess this conceptual core as done in certain prior research (Bader et al., 2021; Horsten et al., 2021; Moshagen et al., 2018).

Further, these predictions are supported by recent research on the relation between personality and other COVID-19 perceptions and behaviors. Asselmann et al. (2020) found that "agreeable individuals, in particular, tend to comply with governmental rules and recommendations to fight COVID-19" (p. 1), and they also found that conscientious people were more likely to monitor COVID-19 updates. Rammstedt et al. (2021) showed that agreeableness had the strongest relations with protective responses to the COVID-19 pandemic, and conscientious people were more likely to believe in the effectiveness of policy measures. Zettler, Schild, and colleagues (2021) supported that those high in agreeableness, high in conscientiousness, and low in Dark Triad traits were more likely to follow COVID-19 health recommendations. In the current article, we extend

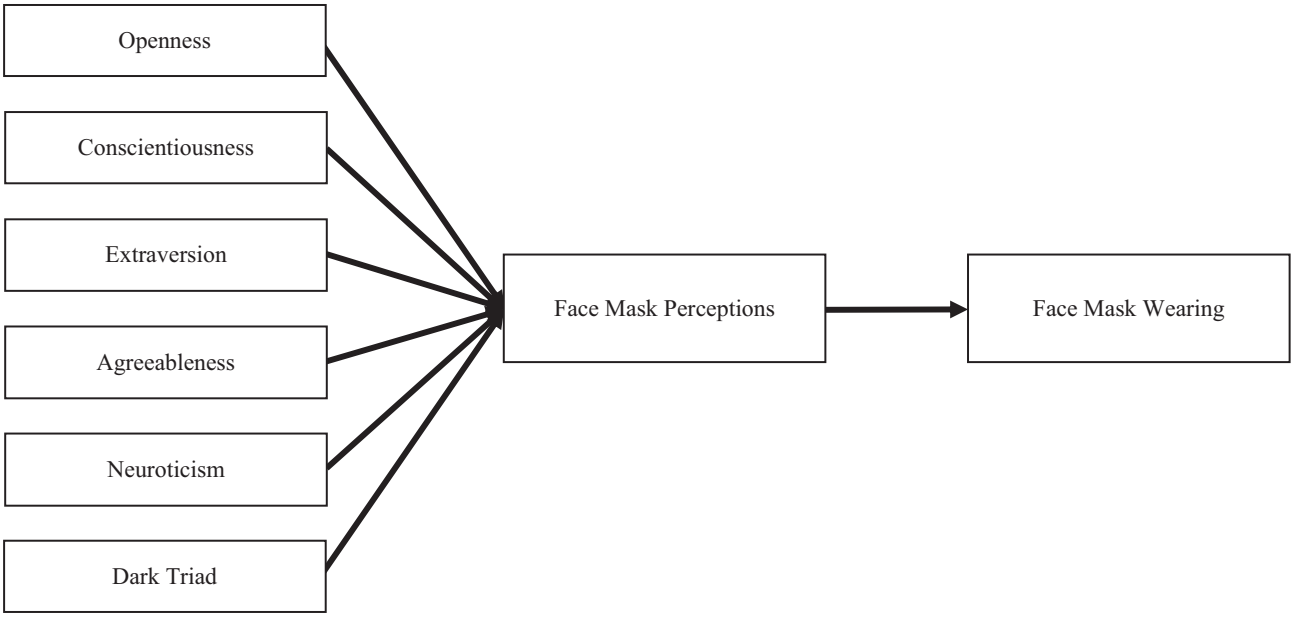

Figure 1. Visual representation of conceptual model.

these findings by studying a specific behavior, face mask-wearing, and identifying a potential set of explanatory mechanisms, face mask perceptions, between personality and this specific behavior. We study the mediating effects of face mask perceptions in a relatively exploratory manner. That is, we expect these perceptions to collectively mediate the significant relations between personality and face mask-wearing in an omnibus manner, and we do not make a priori predictions regarding which specific perceptions will produce consistent mediating effects. Together, our conceptual model is provided in Figure 1.

From these efforts, we provide benefits for research and practice. First, the goal of all present research on face mask wearing is to identify avenues to encourage adherence and reduce the spread of illnesses, such as COVID-19, and future researchers can develop interventions to encourage face mask wearing in the particularly resistant populations identified in the current article. Second, linking Howard's (2020) multidimensional perceptions with personality expands the theoretical associations of face mask perceptions and wearing. Third, linking the Big Five and Dark Triad with face mask perceptions and wearing further stresses personality's influence on health behaviors, which may be presently understudied.

Method

Participants

Participants (M_{age} = 37.0, SD_{age} = 12.1, 50% female, 85% American) were recruited from MTurk and were provided monetary compensation. MTurk is a platform that connects those willing to complete small tasks on their computer, such as taking a survey, with those needing the tasks completed. Studies have supported that results from MTurk samples are valid if certain precautions are taken, such as utilizing inclusion criteria, attention checks, and time-separated research designs (Barends & de Vries, 2019; Hunt & Scheetz, 2019). All three were applied in the current study. Participants were only allowed to participate if they had an MTurk approval rate of 95% or better as well as previously completed more than 50 MTurk assignments. We included seven attention checks (e.g., "Please mark 'agree' to show that you are paying attention") and removed participant responses if they failed any (48 participants). All statistics, including the reported sample sizes below, reflect the sample after removing these participants.

Procedure

Participants enrolled in the study via MTurk on June 25, 2020. The MTurk platform presents participants with a list of possible tasks with very brief descriptions. The current study was listed as a brief series of surveys with a nondescript title ("Survey About Your Self-Perceptions") to reduce demand characteristics, and participants enrolled in the study by clicking the title. They immediately provided their informed consent and completed the first survey online (Time 1; n = 567). One week later, they were emailed and completed the second survey (Time 2; n = 317). A week after the second survey, they were emailed and completed the third survey (Time 3; n = 251). A week after the third

survey, they were emailed and completed the fourth survey (Time 4; n = 209). Afterward, they disclosed the purpose of the study and thanked for their time. For each of the follow-up surveys, participants did not need to select the study from a list, but they were instead directly emailed an invitation to participate in the follow-up surveys.

We performed a Welch's ANOVA to determine whether there were differences between those who dropped out at various time points (after Time 1, after Time 2, and after Time 3) and those who completed all surveys regarding their demographic characteristics. The ANOVA was statistically significant for age (F = 6.77, p < .01) but not gender (F = 2.33, p = .08). The Games-Howell post hoc tests indicated that the only significant pairwise comparison (p < .01) was between those who dropped out after Time 1 (M_{age} = 34.6, SD_{age} = 10.7) and those who completed all surveys (M_{age} = 39.7, SD_{age} = 13.1). Those who dropped out after Time 2 (M_{age} = 37.8, SD_{age} = 13.5) and Time 3 (M_{age} = 36.6, SD_{age} = 11.0) did not differ from any other group. Therefore, those who were sufficiently motivated and completed all surveys systematically differ from those who stopped participating after completing the first survey regarding their age, and the current results should be interpreted with this sample characteristic in mind.

Measures

Unless otherwise noted, all scales were administered with a 1 = *strongly disagree* to 7 = *strongly agree* response format.

Time 1

Demographics

The two measured demographic variables were age and gender.

Time 2

Big Five

We applied the Mini-IPIP scale of Donnellan et al. (2006). This scale includes 20 items with 4 items representing each dimension. An example item is, "I am the life of the party" (extraversion).

Dark Triad

We applied the Dirty Dozen scale of Jonason and Webster (2010). This scale includes 12 items with 4 items representing each dimension. An example item is, "I tend to lack remorse" (psychopathy).

Time 3

Face Mask Perceptions

We applied the multidimensional Face Mask Perceptions Scale (FMPS) of Howard (2020). This scale includes 32 items with four items representing each dimension. An example item is, "Face masks disrupt my breathing" (comfort).

Time 4

Face Mask Wearing

We applied the face mask-wearing items of Howard (2020), in which participants responded on a scale of 1 (Never) to 7 (Every Time). They were also provided the option of N/A (I did not go into public during this time). These items were "Within the past [6 months/3 weeks/past week], how often have you worn a face mask when going into public?".

Analyses

Primary Analyses

We first assessed the psychometric properties of our scales via separate exploratory factor analyses (EFAs) (Howard, 2016; Watkins, 2018). While all applied scales are established in the literature, we used EFA to more robustly assess emergent factors and possible cross-loadings. We utilized principal axis factoring with an oblimin rotation, as it was assumed that the dimensions would be correlated to some extent. To determine the number of factors, we used parallel analysis and interpreted the results via the recommendations of Lim and Jahng (2019).

We assessed several hypotheses via multiple regression analyses, in which the Big Five and Dark Triad were the predictors and face mask perceptions and face mask wearing were the outcomes. We utilized all participants possible for each analysis to maximize our statistical power. For instance, in correlating personality with face mask perceptions, we included all participants that completed the personality scales at Time 2 and the face mask perceptions scale at Time 3 regardless of whether they participated at Time 4. Multicollinearity was not an issue in these analyses (VIF < 2). We calculated indirect effects via Hayes's (2017) PROCESS macro, which provides bootstrapped estimates and confidence intervals. We tested the effect of each personality dimension (predictor) on face mask-wearing (outcome) with all eight face mask perceptions as mediators and all other personality dimensions as covariates. By including these covariates, we assessed the total indirect effects of the personality dimensions beyond each other.

Sensitivity Analyses

We performed several sensitivity analyses. We replicated the current analyses using partial least squares structural equation modeling (PLS-SEM; see Electronic Supplementary Material, ESM 1), following the recommendations of prior authors (Hair et al., 2020; Sarstedt et al., 2020). Our PLS-SEM results replicated our primary analyses, further supporting the robustness of our results. We also reconducted our tests of indirect effects while assessing the effect of each predictor independently (ESM 2). The statistical significance was consistent between these analyses

Table 2. Standardized beta coefficients of personality predicting face mask perceptions and behaviors

	Comfort	Efficacy doubts	Access	Compensation	Inconvenience	Appearance	Attention	Independence	Worn within 6 months	Worn within 3 weeks	Worn within 1 week
1. Openness	−.23**	−.19**	−.15*	−.04	−.22**	−.19**	−.15*	−.07	.04	−.02	−.04
2. Conscientiousness	.29**	.14*	−.09	.16*	.01	.05	.06	.11	−.01	−.14	−.12
3. Extraversion	.05	.08	.02	.08	.02	.06	−.01	.08	−.01	.02	.02
4. Agreeableness	.02	−.16*	−.14*	.04	−.09	−.19**	−.15*	−.12	.22**	.27**	.28**
5. Neuroticism	.22**	.05	.11	.21**	.11	.06	.10	.11	.04	−.01	.05
6. Dark Triad	.09	.25**	.17**	−.04	.17**	.18**	.21**	.19**	−.01	−.10	−.11
R^2	.13	.18	.16	.05	.15	.15	.14	.09	.06	.10	.10

Note. n = 251 for each regression analysis with face mask perceptions as an outcome. n = 209 for each regression analysis with face mask wearing as an outcome. *p < .05; **p < .01.

and our primary analyses for 17 of 18 total indirect effects – one additional total indirect effect of the Dark Triad became statistically significant. Once again, these results support the robustness of our findings. We likewise tested the Dark Triad as separate predictors in regression analyses (ESM 2), but multicollinearity was an issue as indicated by large VIF values (> 2). We also analyzed them separately in tests of indirect effects (ESM 2), and each produced significant total indirect effects in agreement with aggregated Dark Triad analyses detailed below. These findings further support their investigation as an aggregated construct, as their variance was repetitive in predicting our outcomes. We lastly reconducted our analyses while controlling for whether the participants' location had implemented a face mask ordinance at Time 4 (ESM 4). All findings were consistent between these reconducted analyses and those presented above; all significant relations remained significant, and all non-significant relations remained non-significant. These additional analyses even further stress the robustness of our findings.

Results

Results of Psychometric Analyses

The results of our EFAs are presented in ESM 5. The Mini-IPIP produced a five-factor solution. Each item loaded .51 or above onto its posited factor with the exception of one (.35), and the largest cross-loading was .25. The Dirty Dozen produced a three-factor solution. Each item loaded onto its primary factor .41 or above, but two sizable cross-loadings were observed (.42 and .48). The FMPS produced an eight-factor solution. Each item loaded .40 or above onto its posited factor with the exception of two (.34 and .37), and two sizable cross-loadings were observed (.34 and .41). Although some items in the Dirty Dozen and the FMPS did not perform well, we did not alter these measures due to their precedence in the prior literature, as removing any items could substantially alter the nature of the assessed construct. Prior authors have also identified similar results regarding these scales, indicating that our sample does not pose unique concerns (Howard, 2020; Jonason & Luévano, 2013). We also report confirmatory factor analyses in ESM 5 that replicated the results of our EFA and produced an appropriate fit for each scale.

Results of Primary Analyses

ESM 6 provides correlations and Cronbach's αs. Table 2 provides regression results of personality dimensions predicting face mask perceptions and wearing. Extraversion did not significantly relate to face mask perceptions (β = −.01 to .08; all p > .05); neuroticism significantly related to two (β = .05 to .22; 2 of 8, p < .05), conscientiousness significantly related to three (β = −.09 to .29; 3 of 8, p < .05), agreeableness significantly related to four (β = −.19 to .04; 4 of 8, p < .05), openness significantly related to six (β = −.23 to .04; 6 of 8, p < .05), and the Dark Triad significantly related to six (β = −.04 to .25; 6 of 8, p < .05). Only agreeableness significantly related to any face mask wearing items, wherein it significantly related to all three (β = .22 to .28; all p < .05). Together, openness, agreeableness, and the Dark Triad had noteworthy direct effects on face mask perceptions, whereas only agreeableness had a noteworthy direct effect on face mask wearing.

Table 3 presents the total indirect effects of personality on the face mask-wearing items via face mask perceptions, and all indirect effects are included in ESM 7. Conscientiousness, extraversion, and neuroticism did not produce any significant indirect effects (ab = −.07 to −.01; all 95% CI included 0), whereas openness, agreeableness, and the Dark Triad produced significant indirect effects in predicting face mask-wearing (ab = −.15 to .15; 8 of 9, 95% CI excluded 0). While indirect effects can be significant without the presence of a direct effect (e.g., dual mediation), we did not have an a priori theoretical rationale for such a scenario. For this reason, we only consider the

Table 3. Total indirect effects of personality on face mask wearing via face mask perceptions

	Worn within 6 months				Worn within 3 weeks				Worn within 1 week			
	Total indirect effect	Standard error	Lower 95% CI	Upper 95% CI	Total indirect effect	Standard error	Lower 95% CI	Upper 95% CI	Total indirect effect	Standard error	Lower 95% CI	Upper 95% CI
1. Openness	.13*	.06	.03	.25	.15*	.06	.03	.27	.15*	.06	.04	.27
2. Conscientiousness	−.03	.06	−.15	.07	−.07	.06	−.20	.04	−.06	.06	−.20	.04
3. Extraversion	−.04	.04	−.11	.05	−.05	.04	−.13	.04	−.05	.04	−.13	.04
4. Agreeableness	.13*	.06	.01	.26	.13*	.06	.01	.27	.14*	.06	.03	.28
5. Neuroticism	−.01	.05	−.12	.08	−.05	.05	−.16	.05	−.03	.05	−.14	.06
6. Dark Triad	−.15	.08	−.29	.00	−.16*	.07	−.30	−.03	−.17*	.07	−.32	−.04

Note. n = 209. *95% confidence interval excludes zero.

indirect effect of agreeableness to be reliable because it was the only aspect of personality that produced consistent direct effects on face mask wearing.

Discussion

We heeded the calls of prior authors by studying two models of personality, the Big Five and Dark Triad, with face mask perceptions and behaviors. Conscientiousness, extraversion, and neuroticism did not have notable relations with face mask perceptions or wearing. The non-significance of conscientiousness was most surprising, given its association with cautiousness and duty. Future research should probe this finding and identify why conscientious people are no more likely to favorably perceive or wear face masks. Some prior studies have even observed a negative relation between conscientiousness and face mask-wearing, although it is known to positively relate to other preventative behaviors (Aschwanden et al., 2020; Takahashi et al., 2013). It could be recommended that conscientious individuals are less likely to wear face masks because they compensate in other manners; however, conscientiousness was not significantly related to the face mask perception of compensation in the current study. Future researchers may need to look beyond face mask perceptions to understand this relation.

Openness, agreeableness, and the Dark Triad had consistent direct effects on face mask perceptions, whereas agreeableness also produced consistent direct and indirect effects on face mask wearing. While we did not propose the effects of openness, its relations may be due to associations with inquisitiveness and unconventionality, wherein open individuals are more receptive to new experiences such as mask-wearing (De Coninck et al., 2020; Stadler et al., 2020). Likewise, those high in openness flout societal norms (Eck & Gebauer, 2021). Because face masks were relatively novel to our sampling source at the time of data collection, those high in openness may have been more receptive to this unusual social convention. Alternatively, we did propose that agreeableness's effects are due to its association with considerateness and cooperativeness. Future research should perform facet-level investigations to verify the causes of openness and agreeableness's effects. Likewise, these aspects of agreeableness are evident in honesty-humility (Howard & Van Zandt, 2020), providing justification for future authors to investigate these research questions using the HEXACO model. Lastly, we suggested that the effects of the Dark Triad would arise due to associations with callousness, and researchers should test whether antisocial perceptions may also mediate the relation of the Dark Triad and face mask wearing to probe this effect.

The current results aid in interpreting prior findings regarding the relation of personality with face mask perceptions and wearing, which have produced varying results (Aschwanden et al., 2020; Barceló & Sheen, 2020; Campos-Mercade et al., 2021; Miguel et al., 2020; Shook et al., 2020; Willroth et al., 2020). While prior studies often label their outcome "face mask wearing", authors have used this label to refer to both perceptions as well as behaviors. As our results showed, the relations of personality with face mask perceptions and face mask wearing can greatly differ, as personality tends to have stronger relations with perceptions than behaviors. The stronger relations of personality with perceptions than behavior are proposed by many theories and supported by many studies (Kassarjian, 1971; Zettler, Thielmann, et al., 2020). For example, personality is typically supported as an antecedent of attitudes and intent when integrated with the theory of planned behavior (Conner & Abraham, 2001; Munir et al., 2019; Rhodes et al., 2004). Thus, the differences in prior studies on the relation of personality and face mask wearing may be due to their differences in operationalization, and the current article provides clarity by showing that personality more strongly predicts face mask perceptions than face mask wearing.

Our results also lend further support to the recommendations of Howard (2020). Howard (2020) demonstrated that the eight face mask perception dimensions had differential

relations with health perceptions and face mask-wearing, wherein efficacy doubts, inconvenience, appearance, and independence had the most consistent effects. The author called on future research to further assess the differential effects of all face mask perceptions with a particular focus on the heightened effects of these four dimensions. In the current article, three of these four dimensions (efficacy doubts, inconvenience, and appearance) were the strongest mediators for agreeableness. These cumulative findings suggest that efficacy doubts, inconvenience, and appearance are the three key face mask perceptions that have the strongest influences on face mask-wearing, and it is important to note that these dimensions are quite different from each other. Efficacy doubts focus on the preventative potential of face masks; inconvenience focuses on the cognitive burden produced by remembering to wear face masks, and appearance focuses on the reactions of others regarding face masks. People may thereby have many different justifications for not wearing face masks, and it is necessary to study face mask perceptions in a multidimensional manner rather than simply a spectrum from positive to negative. Future research should continue assessing whether these dimensions are key to understanding face mask-wearing, such that interventions could be developed to alter the most influential perceptions.

Further, Howard (2020) associated face mask perceptions with several models of health behaviors (e.g., COM-B). Future research should integrate personality into these models and assess whether associated outcomes can be more strongly predicted with the inclusion of the Big Five or Dark Triad. Researchers should also assess whether relations in these models may be influenced by personality (i.e., moderating effects), wherein certain influences on health behaviors may be amplified for people with certain personality traits (Brauer et al., 2020; Chavez et al., 2021; Lewnard & Lo, 2020; Stein, 2020). For instance, agreeable people may be more influenced by appeals to helping others via face mask-wearing, and thereby these messages may be particularly effective to certain subsets of people. The recently developed situation, trait, and outcome activation (STOA) model (Zettler, Thielmann, et al., 2020) may serve as a useful framework to integrate with prior health behavior models to understand this role of personality.

Lastly, the current results emphasize the importance of understanding personality and preventive health behaviors. Our results showed that certain personality dimensions related to face mask wearing even when controlling for whether the participants' location had a face mask ordinance. This suggests that the effects of personality are robust, and they may have an impact even in the presence of strong contextual influences. Future research should further the current insights by investigating face mask behaviors in contexts chosen for their theoretical relevance. For instance, formal face mask ordinances may not influence the relation between personality and face mask behaviors, but the informal cultural standards may instead influence the effects of personality. In studying context, researchers should assess the ability of relevant personality-context interaction theories, such as trait activation theory (Tett et al., 2013) and situational strength theory (Meyer et al., 2020), to explain and predict face mask-wearing.

Limitations

We planned our sample size based on power analyses and prior recommendations (Fritz & MacKinnon, 2007; Schoemann et al., 2017; Zhang, 2014), and our analyses utilized differing sample sizes because all participants that completed the associated measures were included in analyses (e.g., Wave 1 and 2 completers); however, larger sample sizes produce more accurate results, and the current findings can be bolstered by future studies with large sample sizes. Future authors should also replicate our results utilizing other sampling techniques. MTurk can provide high-quality data when utilizing the precautions taken in the current article (Barends & de Vries, 2019; Hunt & Scheetz, 2019), but it was presently used for convenience purposes. Although our sample resembled the average demographic characteristics of the United States (M_{age} = 38.1, 51% female), the use of an online platform to recruit participants may result in a sample with greater socioeconomic status and/or technological aptitude. Researchers should use purposive sampling techniques in replicating the current results. Our research design is also unable to assess causality, and future researchers should replicate the current results using designs that can properly assess causal effects (e.g., panel designs; Zyphur et al., 2020). The current article also utilized self-reported face mask-wearing, which may be susceptible to various biases (e.g., recall). Future researchers should replicate the current results when using different outcome measures, such as behavioral observations. Likewise, some items from our measures produced modest primary loadings and/or large cross-loadings. We did not remove these items because each measure was taken from a prior study, but future researchers should replicate the current results using alternative measures to ensure the robustness of our findings.

Conclusion

Our conceptual rationale and statistical results supported the aggregation of the Dark Triad dimensions together, as done in some prior studies investigating the Big Five and

Dark Triad together (i.e., B5 + D3 studies) (Howard & Van Zandt, 2020). Some readers, however, may be interested in the effects of each personality dimension when assessed in isolation due to concerns regarding shared variance. We refer these readers to ESM 2 and ESM 6 for these alternative analyses. These results largely replicated our primary analyses, and all inferences were consistent between the two sets of analyses. Lastly, the current article includes many analyses. We did not perform any corrections for the familywise error rate, but we instead based our interpretations on the cumulative results of several analyses. For instance, we only considered the antecedents to have meaningful relations with our outcomes if they produced multiple significant relations with face mask-wearing. This approach reduces the likelihood that spurious results bias the interpretations of our results, as suggested by prior authors (Hair et al., 2019). Nevertheless, readers should be aware that a large number of analyses increases the familywise error rate, and any specific result should be interpreted with reasonable caution.

Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at https://doi.org/10.1027/1614-0001/a000387

ESM 1. Replication of results using PLS-SEM

ESM 2. Complete indirect effect results of personality on face mask behaviors via face mask perceptions with only including focal predictor in analyses

ESM 3. Replication of results with dark triad separate to observe effects of multicollinearity

ESM 4. Reconducted analyses while controlling for face mask ordinance

ESM 5. Exploratory factor analysis and confirmatory factor analysis

ESM 6. Correlations of personality dimensions, face mask perceptions, and face mask perceptions and wearing

ESM 7. Complete indirect effect results of personality on face mask behaviors via face mask perceptions when including all predictors together in analyses

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