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How to protect yourself ... from the protective mask. The Dark Triad traits, conspiracy beliefs and compliance with sanitary measures, during the Covid-19 pandemic

Andreea Scrumeda[1*]

Abstract: Among critical situations throughout history, sanitary crises have proved to be the most difficult to manage, both because of the very unpredictability of their evolution, and because of the often poor communication between the governing bodies and the general population. Since sanitary measures are essential in the mastering and eradicating an infectious disease, compliance becomes the key element. The purpose of this study was to examine the association between the dark triad traits (or dark factor), conspiracy beliefs (hereafter named "conspiracism") and compliance with health measures in Romania, during the Covid-19 pandemic. Based on previous research, we anticipated a negative association between the dark factor and conspiracism, as independent variables, and compliance, as a dependent variable. The sample was composed of 308 volunteers, full-time students enrolled in bachelor's and master's programs. The results show that both the dark triad traits and conspiracism significantly predict a low level of compliance and the trait conspiracism mediates the relation between the dark triad traits and compliance. Behavior specific to dark triad traits and conspiracism can generate a health hazard, both for the individual and for the people in their vicinity. Hence, the competent institutions should provide adequate information to counteract conspiracism; also, they could introduce regulations to prevent the dark factor characteristic noncompliance. Therefore, the collaboration between specialists in psychology, sociology and medicine should be considered.

Keywords: Dark Triad traits, conspiracy beliefs, compliance with health measures, Covid-19.

[1] Faculty of Psychology and Educational Sciences, Alexandru Ioan Cuza University of Iași, Romania
[*]Email of corresponding author: andreea.scrumeda@gmx.com

Introduction

> *"The main thing that I learned about conspiracy theory is that conspiracy theorists actually believe in a conspiracy because that is more comforting. The truth of the world is that it is chaotic. The truth is, that it is not the Jewish banking conspiracy or the grey aliens or the 12 foot reptiloids from another dimension that are in control. The truth is more frightening, nobody is in control. The world is rudderless."* (Moore & Vylenz, 2003).

The history of humankind is also one of the critical situations, and as the world's population increased, they multiplied and diversified, from military conflicts to great recessions. Health crises have proven to be the most difficult to manage, both because of the very unpredictability of their evolution, and because of the often poor communication between the governing bodies and the general population. Since health measures are essential in the mastering and eradicating an infectious disease, compliance becomes the key element.

Considering the dark triad traits (inherited, according to Vernon et al., 2008), we found in several researches a negative correlation between them and compliance with health measures (Blanchard et al.,2023; Chávez-Ventura et al., 2022).

The authors Maftei and Holman (2022) refer to the immoral nature of non-compliance, or moral disengagement, which makes one neglect the protection of others and ignore individual responsibility in the collective fight against the virus. People with socially aversive characteristics could be indifferent or even hostile to the idea of collective protection promoted by the anti-Covid-19 health measures (Blagov, 2021).

The next matter of interest for the present research, the conspiracism, also has an inverse relationship with compliance to health measures, but for some different reasons, rather related to distrust in authorities. Kaspar & Nordmeyer (2022) note that trust in political actors and in more or less transparent public communication plays a key role here.

We constantly receive amounts of information that are difficult to interpret and classify, especially since they sometimes happen to be contradictory. And, naturally, during this process personal factors such as the dark triad traits decisively intervene. Thus, some creations generically called "conspiracy theories" are born and gain credibility in various contexts.

Our hypotheses were the following: 1) The dark triad traits correlate negatively with compliance with health measures; 2) Conspiracism correlates negatively with compliance with health measures; 3) Conspiracism mediates the relationship between dark triad traits and compliance with health measures.

Dark Triad

This concept has, as its name suggests, three sides, representing three personality traits: Machiavellianism, (subclinical) narcissism and (subclinical) psychopathy. The original epithet "dark", translated into Romanian as "întunecat, sumbru, negru" is the main characteristic that unites the three features. The Dark Triad ultimately means a lack of empathy, which appears in all three descriptions and can be considered the "darkest" characteristic, in which many of the other negative traits have its origin, such as selfishness, immorality, antisocial behavior, lack of remorse.

The American Psychological Association Dictionary of Psychology tells us that Machiavellianism is a „personality trait marked by a calculating attitude toward human relationships and a belief that ends justify means, however ruthless" (Vanden Boss, 2006). Hence, Machiavellianism denotes the tendency to manipulate other people for one's own ends and not necessarily through moral methods.

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), narcissistic personality disorder is characterized by selfishness, excessive pride and a lack of empathy. The concept of subclinical narcissism goes back to the study conducted by Fischer (1984), after Lasch (1979) and other researchers referred to the presence of narcissistic traits in the general population, though in mostly low levels.

The same Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) describes psychopathy as characterized by aggressiveness, antisocial behavior and lack of remorse. Widom (1977) was the first to use the concept of subclinical psychopath, whom he described as ``charming, aggressive, carefree people who are impulsively irresponsible but are good at handling people and at looking after number one" (p. 675), while his comeback on the topic resulted in an assessment methodology for this trait (Widom and Newman, 1985). Lilienfeld (1998) chooses to use this term for people with low level of antisocial behavior, while having high levels of core psychopathy traits.

Conspiracism

Searching the origin of the term "conspiracy", we find that it is made up of the Latin words "con" (with, together) and "spirare" (to breathe). The volume of specialized literature is impressive, and a more synthetic definition of the conspiracy theories was provided by Douglas et al. (2017, p.1): "[…] explanations for important events that involve secret plots by powerful and malevolent groups." Although there are studies proving certain psychological benefits of conspiracism, such as a sense of meaning or a feeling of importance (van Prooijen, 2022), this factor is usually treated in a negative key.

Duplaga (2020) explores the relation between the level of conventional medical knowledge (health literacy - HL) and that of medical knowledge acquired from social media (eHealth literacy - eHL), on the one hand, and the tendency to believe in conspiracy theories, on the other on the other hand, finding a strong correlation between eHL and conspiracism. A similar finding comes from Šrol et al. (2021), revealing a strong correlation between conspiracism and pseudoscientific beliefs, on the one hand, and the feeling of lack of control, on the other.

Georgiou et al. (2019) found a tendency to believe in conspiracy theories more pronounced in people with a less analytical cognitive style. It was also stated that a higher level of education is associated with a higher level of knowledge, good practice of analytical thinking and awareness of counterarguments (Swami & Furnham, 2012). A very plausible explanation for the tendency to believe in conspiracy theories might be found in their very simplistic, "semi-prepared" nature, because, as Swami and Furnham (2014) stated, they appeal rather to the affective side of the individual, involving too little cognitive effort.

We also observe the fact that the conspiratorial trait can be considered "contagious", since the correlation with a great willingness to make one's opinions known was confirmed (Freeman et al., 2022).

Compliance with health measures

The perhaps unprecedented disinformation campaign we have witnessed, based on fake news and permanently activated on social networks, has raised the alarm; on the official page of the European Commission, an authentic guide for identifying conspiracy theories has been published (European Comission, 2020). Among other things, the authors (Lewandowsky & Cook, 2020) draw the public attention to the degree of danger implied by these theories. Specifically, they fuel discrimination and hatred, justify violence, encourage apathy or radicalization and spread mistrust in scientific information, especially in the medical area.

The health measures recommended (sometimes imposed) by the authorities, as they appear on the WHO website (World Health Organization, 2020) and in the *Compliance with Covid -19 prevention guidelines* scale (Plohl & Musil, 2021) were, basically, the following: hand disinfection, wearing a protective mask, physical distancing, avoiding the crowd, covering the mouth and nose when coughing and sneezing and self-quarantine, in case of suspicion or diagnosis of coronavirus disease.

While the first four indications clearly represent the methods of self-protection valid in the case of any infectious disease that has become an epidemic (or pandemic), the last two have the specific purpose of protecting the

people we come into contact with. Compliance with these measures therefore involves two different aspects: risk awareness and moral (dis)engagement.

A possible point 7 could be vaccination, which, as an invasive procedure, is likely to meet a stronger rejection from people who already declare themselves against non-invasive precautions, such as mask and isolation.

The effect of the dark triad traits on compliance

There are numerous studies in literature that prove the negative impact of the dark triad traits on the willingness to put into practice the instructions from the authorities. It has already been shown that moral disengagement can negatively affect compliance with social distancing (Maftei & Holman, 2022), as well as with the use of face masks (Chávez-Ventura et al. 2022). A paradoxical observation comes from Triberti et al. (2021), showing that the measure of social distancing reversed the values regarding prosocial behavior and antisocial behavior. Hence, while in normal times, sociability is regarded as a positive trait, socializing during pandemic implies lack of sanitary hazard awareness. Among the traits of the dark triad, Machiavellianism seems to play an insignificant role in relation to compliance with health measures. Significant negative correlations were found between compliance and narcissism and especially between compliance and psychopathy (Ambrosch & Feldhammer-Kahr, 2023; Blanchard et al. 2023; Gogola et al. 2021). Blagov (2021) found that people with high scores on the Dark Triad are the ones who tend, to the greatest extent, not to comply with the sanitary rules imposed in the context of the Covid-19 pandemic.

A significant addition came from the authors Espinosa & Clemente (2021), who showed that it's not only people with high scores on the "dark factor" that are prone to violating the rules. Except for individuals with a very high level of moral commitment, most of the people are likely to break the rules under certain circumstances, for their loved ones, not for selfish reasons.

The effect of the dark triad traits on conspiracism

Covid-19 conspiracism is positively predicted by Machiavellian views and psychopathic antisociality (Kay, 2020). The same conclusion comes from March and Springer (2019), following a study that showed that Machiavellianism and primary psychopathy (as well as belief in magic) were significant positive predictors for belief in conspiracy theories. The authors explain it by the fact that "the individual inclined towards conspiracism might have some unusual patterns of thinking, might be strategic and manipulative, as well as reveal interpersonal and affective deficits". According to the literature, people with a high level of Machiavellianism are manipulative, cynical and inclined to use other people. Douglas and Sutton (2011) opine that these people,

manipulators above all, are also very suspicious of the possibility of being manipulated, themselves, by some power institutions.

The results of the study conducted by March and Springer (2019) also showed psychopathy to be a significant predictor for conspiracism, but only primary psychopathy, not secondary psychopathy. According to Douglas and Sutton (2011), this could be explained by the fact that primary psychopathy is associated with self-confidence and the tendency to manipulate, while secondary psychopathy is defined by impulsivity and faulty interpersonal relationships.

The effect of conspiracism on compliance

The tendency to believe in conspiracy theories has also begun to emerge as an important anti-compliance factor (Allington & Dhavan, 2020; Pavela Banai et al., 2022; Freeman et al., 2022). It was found that conspiracy is usually facilitated by unexpected situations, with unpredictable developments and potential risks to life (Egorova et al., 2020). The study carried out by Bierwiaczonek et al. (2022) describes the phenomenon, noting the negative effects of conspiracism in terms of social distancing and vaccination, but not in terms of hygiene measures. Conspiracism has been negatively associated with compliance with health measures, because the people concerned perceive it as being hazardous for individual freedom and the economic situation, rather than providing health benefits (Juanchich et al., 2021; Hughes et al., 2022).

The type of conspiracy theory adopted by someone can also indicate their behavior type. Thus, scenarios that present the pandemic as a hoax lead to opposition towards the measure of social isolation, while beliefs about the intentional creation of the virus intensify self-centered preparedness behavior (Imhoff & Lamberty, 2020). A synthesis of the COVID-19 conspiracy theories from over 80 international articles (van Mulukom et al., 2022) shows that an understanding of the antecedents and consequences of conspiratorial beliefs is very important, and Marinthe et al. (2020) opine that perceived risk could increase compliance.

It is not surprising, in the time of the Covid-19 pandemic, to hear all kinds of theories, from completely denying the existence of this virus, to attributing it to increasingly fanciful origins. We synthetize that any conspiracy theory is essentially based on three elements: the conspirators, the plan and the attempt to keep the secret (Byford, 2011). The word "infodemic", emerged during the SARS epidemic in 2003, has intensely re-emerged together with the Covid-19 pandemic, and the World Health Organization draws our attention to the dangers this phenomenon involves. According to them, an infodemic involves a large quantity of misleading information, which is spreading in the mass-media, while disease is spreading in the environment (World Health Organization, 2021).

An interesting division of the population, according to beliefs towards the pandemic was made by Rothmund et al. (2020), namely into four groups: the mainstream and the cautious (in agreement with specialists), then skeptics and denialists (Covid-19 conspiracy theorists); denialists would present a low estimate of risk, anti-elitist feelings and low compliance, while skeptics would be characterized by uncertainty and poor scientific education. The difference between these two categories can be noticed even in preventive behavior; while denialists are inclined to simply ignore the reality of the pandemic, skeptics will prefer alternative means to traditional medicine, including controversial and potentially harmful, also called "non-normative" therapies (Marinthe et al., 2020).

People who accept the personal hygiene rules and mask wearing could, however, be opposed to isolation, testing and vaccination, is the finding that also comes from Juanchich et al. (2021), Bruder and Kunert (2022) and Kaspar and Nordmeyer (2022). In our study, the independent samples T-test did not reveal significant differences in vaccination acceptance according to dark triad traits, but the same test showed a significance threshold of less than .000 in the case of conspiracism.

The mediating role of conspiracism in the association between the dark triad traits and compliance

Two factors predisposing to non-compliance (the dark triad traits and conspiracy beliefs, respectively post-truth beliefs) appear to be strongly positively correlated, as shown by Rudloff et al. (2022) and Uscinski et al. (2022). Conspiracism, narcissism and social networks play a key role in the (non)adherence to health measures, as Vaal et al. (2023) summarized.

Our goal in this study was to investigate the way dark triad traits and conspiracism relate to compliance with health measures.

Method

Participants and procedure

The sample was composed of 308 volunteers, full-time students enrolled in bachelor's and master's programs. In this sample, 276 (89.6 %) were women and 32 (10.4 %) were men, aged between 18 and 59 years (M = 22.59, SD = 5.39). The data, including gender and age, were collected online, through Google Forms. Participants were briefed on the aims of the study. They were informed that participation was voluntary, anonymous and could be discontinued at any time without repercussions. The agreement of the Ethics Committee of the Alexandru Ioan Cuza University in Iaşi (1946 bis/09.11.2020) was obtained.

Measures

The *Short Dark Triad (SD3) scale*, created by Jones & Paulhus (2014), was applied to establish the levels of narcissism, Machiavellianism and psychopathy traits. It must be mentioned that the level of each trait is subclinical, since we refer to the general population. Each trait corresponds to a subscale of 9 items, and the response scale is a Likert type, from 1 (strong disagreement) to 5 (strong agreement). Examples of items: Machiavellianism subscale - "It's wise to keep track of information that you can use against people later"; narcissism: "Many group activities tend to be dull without me"; psychopathy: "Payback needs to be quick and nasty". Satisfactory internal consistency was found, α = .78.

The level of belief in conspiracy theories was determined by applying the Generic Conspiracy Beliefs Scale (GCBS). The scale made by Brotherton et al. (2013) contains, in its short version, 15 items with response options from 1 (total disagreement) to 5 (total agreement). The items have the form of statements such as: "The spread of certain viruses and/or diseases is the result of the deliberate, concealed efforts of some organization" or "Certain chemicals are put in the water supply in order to control the people". We chose to calculate a single composite score, as subscales were found of small reliable variance beyond the general factor (Persson et al., 2019) and we found a very high degree of internal consistency of this scale: α =.92.

The Compliance with COVID-19 Prevention Guidelines scale, created by Plohl and Musil (2021), consists of 11 items with answer options from 1 (not at all) to 4 (to a great extent). The statements refer both to avoiding contamination („Avoiding touching your eyes, nose and mouth with unwashed hands") and to preventing spread („Covering your mouth and nose with your bent elbow or tissue when you cough or sneeze"). The internal consistency of the scale was proved to be very high: α =.89.

Results

Preliminary analyses and descriptive statistics

For preliminary, correlation and regression analyses, the statistical program IBM SPSS 22 was used. We examined the level of dark triad traits, conspiracism and compliance in our sample.

We performed Pearson correlations between the variables included in the research and independent samples T-tests to check on gender differences. Finally, we used mediation through multiple linear regression via Process v3.5 (Hayes, 2013), in order to check whether dark triad traits and conspiracism predict compliance with health measures.

The independent samples T-tests revealed a significant difference at the level of conspiracism in favor of the female gender (*Mmasculine* = 36.09, *Mfeminine* = 41.18; t = -2.376, p = .018). Correlation analyses revealed a significant, but weak association between age and compliance (r = .189, p = .001).

Associations between the study variables

We found that the dark triad traits (total score and subscale scores, except for narcissism) and conspiracism had a significant negative correlation with compliance with health measures (see Table 1).

Table 1. Pearson correlations between the main study variables

	M	*SD*	*1*	*2*	*3*
Dark Triad traits	79.87	8.43	1		
Conspiracism	41.67	10.82	.33**	1	
Compliance	36.04	6.53	-.20**	-.27**	1

Note: N = 308; *** p < .001; ** p < .01; * p < .05

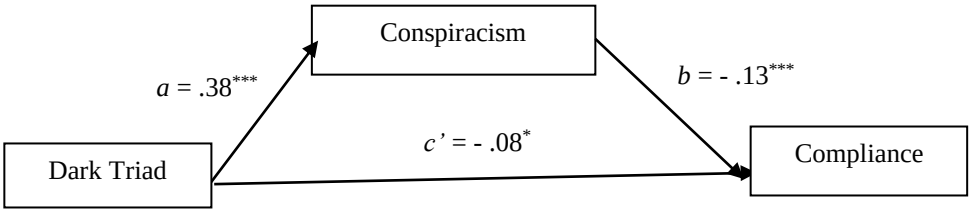
Mediation testing

In the mediation analysis, dark triad traits were the predictor, compliance with health measures was the outcome, and conspiracism was introduced as a mediator. Dark triad traits had a significant total effect on compliance with health measures (b = -.13, SE = .03, t = -3.61, p < .001). After introducing the mediator, the direct effect of dark triad traits on compliance remained significant (b = -.08, SE = .03, t = -2.13, p < .05).

Linear regression via Process v3.5 with bootstrapping was used and a significant indirect effect of dark triad traits on compliance with health measures, through conspiracism, was found (b = -.05, *CI* 95% [-.08; -.02]).

Thus, mediation was supported. Dark triad traits have a negative effect on compliance with health measures through high levels of conspiracism (see Figure 1).

Our hypotheses no. 1 and no. 2, stating that dark triad traits, respectively conspiracism, correlate negatively with compliance with health measures, were fully supported. The third hypothesis, stating that conspiracism mediates the association between dark triad traits and compliance with health measures, was also fully supported



Note. This model predicts compliance from dark triad traits, with the mediating effects of conspiracism. *$p < .05$, **$p < .01$, ***$p < .001$.

Figure 2. Final model and standardized coeficients of the proposed mediation model.

Discussion

Previous research has found significant correlations between factors like dark triad traits, conspiracism and compliance. However, the (acquired) tendency to believe in conspiracy theories, has not yet been proposed as a mechanism explaing the association between the (inborn) dark factor and compliance to health measures during the Covid-19 pandemic and this is what the present study aims at. Also, as far as we have checked, this is the first research to use this model on a Romanian sample.

Our first hypothesis was supported, as our findings revealed a significant negative association between dark triad traits and compliance. This result aligns with previous studies, such as those conducted by Ambrosch & Feldhammer-Kahr (2023), Blanchard et al. (2023) and Gogola et al. (2021).

Regarding the second hypothesis, it was found that the conspiracism factor was significantly negatively associated with compliance. This is consistent with previous research (Allington & Dhavan, 2020; Pavela Banai et al., 2022; Freeman et al., 2022).

As a third hypothesis, we postulated that the level of conspiracism mediates the association between dark triad traits and compliance. The findings of this study suggest that conspiracism may act as a mediator between dark triad traits and compliance with health measures imposed by authorities. This finding relates to the conclusions of recent studies which have found trust in authorities negatively correlated with conspiracism and positively with compliance (Pavela Banai et al., 2022; Bruder & Kunert, 2022, Kahraman, 2022; Mancosu et al., 2021).

Limitations

Beyond the useful information provided by the present research, we also have to consider some limitations. The first would be that the sample consists of a compact group of volunteers (students), not randomly selected participants from the general population. The second limitation is represented by the fact that the applied questionnaires were self-report ones, thus higher correlations appear between the variables. The third limitation of our study is its cross-sectional design, which doesn't allow a causality conclusion.

Conclusions and future directions

Despite the mentioned limitations, the practical implications of this research are significant. Therefore, it is essential to recognize in due time the conduct specific to dark triad traits and belief in conspiracy theories. This conduct, as shown by the present study, can generate a health hazard, both for the individual and for the people in his vicinity. Of course, it is impossible to intervene on some personality characteristics. But the competent institutions can proceed with adequate information and introduce regulations that fulfill the role of the moral sense, usually negatively correlated with the traits of the dark triad. Proper scientifical information could be useful, as long as the used language is an accessible one for any individual who is not an expert in the field. Also, the tone of the recommendations should not be an aggressive, threatening one, as it can only lead one to the belief there are superior, echonomical or political interests involved. Therefore, we consider the need for a collaboration between specialists in psychology, sociology and medicine.

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