

Conspiracy Belief and Behavior in the COVID-19 Pandemic.

How Belief in Conspiracy Theory Relates to Adherence to Quarantine Restrictions (Wearing Protective Equipment, Isolation, Hygiene) and Influences Antisocial Behavior such as Aggression and Selfishness, as well as Prosocial Behavior such as Help and Altruism

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Abstract: *This research was aimed at investigating the relationship between belief in conspiracy theory and personality behaviors in quarantine. Belief in conspiracy theory has been hypothesized to predict the degree of adherence to quarantine restrictions (wearing protective equipment, isolation, hygiene) and influences antisocial behavior such as aggression and selfishness, as well as prosocial behavior such as help and altruism. The obtained data of the empirical research indicate the absence of functional connections that could demonstrate the defining role of conspiracy mindset in the manifestations of prosocial and asocial behavior; however, there is still a statistical consistency of changes in indicators.*

Also, preventive behavior was practically not associated with the personality's conspiracy beliefs about COVID-19 (the regression equation explains less than 1% of the variance). It is emphasized that the data obtained contradict the results of some previous researches, which are devoted to the research of the behavioral consequences of conspiracy mindset and adherence to preventive measures in a pandemic, in particular.

Keywords: *Belief in conspiracy, quarantine behavior, antisocial behavior, pro-social behavior.*

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Introduction

In 2020, the entire population of the planet faced the largest pandemic in the last 150 years - the COVID-19 pandemic. Due to the uncontrolled nature of the spread, the increase in the number of infected around the world and the deadly danger of the coronavirus, many countries have been forced to impose strict quarantine restrictions. However, despite this, a large-scale spread of the disease continues in Ukraine, it ranks 17th in the ranking in terms of the number of infected people worldwide. Economic instability, a turbulent situation in the world community, as well as a long information war against Ukraine undermines the level of public confidence in the government and, in particular, the state's anti-epidemic policy. The current situation is aggravated by the spread of the «spread of rumors» that arose against the backdrop of the COVID-19 pandemic and makes it difficult to find reliable sources of information, as well as credible recommendations. As Swami (2012) emphasizes in his research, such stressful conditions contribute to the development of conspiracy mindset (belief in conspiracy theory). Thus, the current situation in the world served as a fertile ground for the spread of various conspiracy theories about the causes of the COVID-19 virus and aroused keen scientific interest in them. This interest is largely due to the behavioral implications of belief in conspiracy theories, in particular adherence to preventive advice.

Behavioral implications of belief in conspiracy theory

Almost all large-scale events of recent decades, along with the official version of their occurrence, are characterized by an alternative version associated with the participation of conspiracies secretly developed by powerful agents. Analyzing conspiracy theories, scientists came to the conclusion that if a person believes in one kind of conspiracy theory, then there is a high probability that he will believe in others, therefore, he will be characterized by a conspiracy mindset. It has been determined that those who are inclined to believe that nothing depends on them and that only the government decides how to live society, easily succumb to the influence of conspiracy theories (Parsons et. al. 1999). In addition, conspiracy theories thrive wherever there is no trust between individuals and authorities (Darwin et. al., 2011; Goertzel, 1994).

A large number of studies are devoted to the socio-psychological reasons for the emergence of a belief in a conspiracy theory in a person (van Prooijen, 2016). Douglas et. al. (2017) in their work consider the

psychological factors that drive belief in a conspiracy. Also van Prooijen (2019), in a special issue of *EJOP*, emphasizes that conspiracy beliefs can have serious consequences for a person and his social environment, and indicates the need to study them.

It is known that the spread of conspiracy ideas in fact a universal human reaction to prolonged increasing uncertainty due to a stressful event, the need to build fairly simple cause-and-effect relationships, thereby displacing fear for the future. Thus, according to some scholars, this type of thinking has a number of positive consequences: it serves to satisfy important social needs (control and reduction of uncertainty (van Prooijen & Jostmann, 2013; Whitson & Galinsky, 2008) and can lead to a sense of community with others who support the same theories (Franks et. al., 2017).

However, much of the current research shows the negative consequences of belief in conspiracy theories. Belief in conspiracy theories has been shown to increase feelings of powerlessness and frustration (Jolley & Douglas, 2014), and may fuel inter-group conflict and prejudice (Bilewicz et. al. 2013; Golec de Zavala et. al., 2013), and keep people from voting. Conspiracy ideas are increasingly associated with motivated rejection of science, including anti-vaccination theories, denial of the AIDS-HIV link, and denial of climate science (Lewandowsky et. al., 2013). The conspiracy has also been repeatedly associated with high levels of mistrust, hostility, aggression, and right-wing authoritarianism (Abalakina-Paap et. al., 1999; Grzesiak-Feldman, 2015). Experiments show that adherence to conspiracy theories diminishes trust in government institutions, even when conspiracy theories are not associated with those institutions (Einstein & Glick, 2015), causing disillusionment among politicians and academics (Jolley & Douglas, 2014). Thus, heightened interest in conspiracy theories may reflect low levels of public confidence in government and a general cultural suspicion.

Analysis of the literature revealed a contradictory trend: on the one hand, a number of authors argue that agreeing with conspiracy ideas can reduce the intention to participate in politics (Jolley & Douglas, 2014; van Prooijen & Douglas, 2018). On the other hand, conspiracy thinking can encourage people to be active in the political sphere (Imhoff & Bruder, 2014; Imhoff & Lamberty, 2018). Explaining this controversy, Imhoff et al. (2020) showed that adherence to conspiracy theories also lowers the desire to participate in normative political acts and at the same time increases illegal political action (for example, violent protest). The authors also emphasize that conspiracy beliefs can stimulate people to illegal ways to communicate with society. Realizing that others are conspiring can change people's perceptions of social norms associated with immoral behavior.

Among the behavioral consequences of belief in conspiracy theories, it is necessary to highlight its negative relationship with health-related measures. For example, people who believe in conspiracy theories exhibit lower vaccination intentions and higher rejection of modern medicine (Jolley & Douglas, 2014; Oliver & Wood, 2014; Lewandowsky et al., 2013). This thinking style decreases commitment to sexually transmitted infection prevention (Bogart & Thorburn, 2005) and increases sexual risk behavior (Gaston & Alleyne-Green, 2013).

Likewise, Lamberty & Imhoff (2018) found that conspiracy thinking correlates with the use of alternative medical therapies believed to be promoted by influential institutions. Other researches also highlight that conspiracy thinking leads to reduced prevention and treatment interventions using biomedical therapies (Jolley & Douglas, 2014; Bogart & Thorburn, 2005). Thus, it is theoretically likely that people with a high level of conspiracy mindset are less likely to adhere to government-initiated preventive behaviors.

Van der Linden (2015) points out that the potential impact of conspiracy theories can have negative and unwanted social consequences. While past research has focused on the personality correlates of conspiracy ideas, this study examines the effect of conspiracy; the degree to which familiarity with a real conspiracy theory influences prosocial and environmental decision making. His research findings provide compelling evidence of the social-cognitive power of conspiracy, and underscore that exposure to popular conspiracy theories can have negative and undesirable consequences for society.

It is known that theoretical speculation about conspiracy can negatively affect people's desire to follow normative preventive behavior, but awareness of greater risk can suppress this effect. Some studies have shown that self-interested conspiracy advocates (Cichocka et al., 2016) engage in normative preventive behavior (Jolley et al., 2019), and that beliefs in conspiracy is positively correlated with increased anxiety about the Zika virus (Klofstad et al., 2019). Belief in conspiracy theories can stimulate people to seek to protect themselves, under which conditions they are more likely to accept political pressure (Uscinski & Parent, 2014). Conspiracy thinking is also inherent to people with pronounced narcissism (Cichocka et al., 2016), and they also have a low level of empathy (Watson & Morris, 1991). Such individuals are convinced that their own lives are more important than the lives of others (Golec de Zavala et al., 2013). As a result, a person with a pronounced conspiracy thinking can adhere to preventive

measures related to COVID-19 only if he perceives it as affecting his own health, and not the health of people in society as a whole.

The COVID-19 pandemic represents a global health crisis, adherence to government policies and public health guidelines is critical to reducing transmission rates. At the same time, we are faced with the proliferation of COVID-19 conspiracy theories and the reluctance of the population to maintain social distance and other restrictions. A recent study by Plohl & Musil (2020) showed that belief in shared conspiracy beliefs indirectly contributes to adherence COVID-19 prevention guidelines through trust in science. People who trust science more are more likely to implement preventive behaviors during the COVID-19 outbreak.

A study by Turkish scientists Alper et al., (2020) examined individual differences in conspiracy beliefs about COVID-19, their relationship to the level of prevention, and other individual differences that may determine adherence to prevention. The authors proved that high belief in intuition, uncertainty avoidance, impulsivity, general conspiracy beliefs, religiosity and right-wing ideology, and lower levels of cognitive reflection were associated with belief in conspiracy theories regarding COVID-19. It is worth noting that the study highlights the lack of connection between beliefs about the COVID-19 conspiracy and adherence to preventive measures. These findings are consistent with previous research on the psychology of conspiracy theories (Swami et al. 2014), but contradict work linking conspiracy beliefs with unhealthy behaviors (Goreis & Voracek, 2019).

French scientists Marinthe et al. (2020) also studied the influence of a conspiracy belief on adherence to preventive health measures required to cope with the COVID-19 pandemic. The authors also measured the motivation to comply with preventive measures. They indicate that people with a high conspiracy mentality are more likely to engage in abnormal preventive behavior but are less likely to engage in government-initiated preventive behaviors. However, the authors demonstrate that the perceived risk of death and the motivation to protect oneself can minimize this trend.

A similar research was carried out in Greece. Banai et al. (2020) have empirically examined the conditionality of adherence to official COVID-19 prevention guidelines to conspiracy theory beliefs, including the mediating role of pseudoscientific information beliefs and trust in government officials. The direct negative impact of COVID-19 conspiracy beliefs on preventive compliance has been identified.

Consequently, it is likely that conspiracy mindset can minimize pro-social behavior, which is a concern in a pandemic when the population and government must act as one to combat the coronavirus. Thus, scientists are

raising the question of the feasibility of conducting an experimental study of the influence of belief in conspiracy theory on antisocial behavior, such as aggression and selfishness, as well as on prosocial behavior, such as help and altruism. A detailed understanding of the possible consequences and the conditions for their occurrence will allow practitioners to assess the risks of certain conspiracy theories, the need for preventive interventions in order to level their negative social consequences.

In our opinion, one of the fundamental psychological factors of preventive behavior is the nature of a person's thinking. According to a number of scientists, a pandemic, mass quarantine and the accompanying economic and socio-political instability in a certain way affect the style of thinking and a number of socio-behavioral manifestations of a person. This provision requires empirical research and determines further scientific research.

In the context of modern pandemic and massive quarantines established by the government, such studies are becoming especially relevant. In our opinion, such manifestations of social behavior of an individual as altruism-selfishness, as well as aggression, can be determined by of conspiracy mindset and can play an important role in observing preventive measures during the COVID-19 crisis. This provision formed the basis of our empirical research.

Research aims based on an analysis of recent research in this area, this study examines the relationship between belief in conspiracy theory and personality behaviors in quarantine. We build on new research showing that conspiracy beliefs have potentially significant social consequences.

In particular, according to studies by van Prooijen & K. Douglas, we assume that, firstly, belief in conspiracy theory is related to the extent to which a person will adhere to quarantine restrictions (wearing protective equipment, isolation, hygiene).

Second, belief in conspiracy theories influences antisocial behavior such as aggression and selfishness, as well as pro-social behavior such as helping and altruism. We hypothesize that agreement with conspiracy ideas is positively associated with general levels of aggression and selfishness, and also negatively associated with prosocial behaviors.

Participants and Procedure

In May 2020, we organized and conducted a pilot online study using the Google Forms service. All respondents agreed to participate anonymously in the study. The sample consisted of 174 residents of Ukraine, of which 96 women (55.2%) and 78 men (44.8%) aged 16 to 68 years ($M =$

24.08 years, SD = 9.99). To test the above hypotheses, three empirical studies were carried out on the same sample.

Research 1 examined the degree of belief in conspiracy theories associated with the pandemic. An analysis of various Internet resources and media has revealed the existence of a number of conspiracy theories about the COVID-19 pandemic. Among the most common versions of this kind are claims that the virus is a biological weapon, a tool for population regulation, the result of a spy operation, or that it was introduced to to get economic benefits from vaccines.

To measure beliefs in conspiracy theories, we built a belief scale in conspiracy theories about the coronavirus. The scale consisted of five items, each representing a different conspiracy theory about COVID-19. Among them:

1. Coronavirus infection was created deliberately in special laboratories of the secret special services, from which there was a leak.
2. Coronavirus infection has been created by some countries as a biological weapon.
3. Coronavirus infection does not exist at all; it is an attempt to secretly rebuild the economic system in the world by secret organizations.
4. Coronavirus infection is widespread to destroy (% decrease) the world's older population.
5. Coronavirus infection was created for further vaccination (chipping) of the world's population for the purpose of total control.

The respondents were asked to familiarize themselves with the statements and assess the degree of agreement with them on a five-point Likert scale (1 - "completely disagree", 2 - "disagree", 3 - "do not have a definite opinion", 4 - "agree", 5 - "completely I agree").

Research 2 was aimed at studying the preventive behavior of an individual in conditions of quarantine restrictions. We have developed a questionnaire, the questions of which reflect the main WHO recommendations for the prevention of coronavirus. Respondents were asked to rate the degree of compliance with these recommendations on a four-point Likert scale (1 - "always", 2 - "sometimes", 3 - "very rarely", 4 - "never"). The total indicator shows the degree of respondents' adherence to quarantine restrictions. Moreover, the higher the assessment received by the respondent, the more the person neglected preventive behavior.

The third research was aimed at studying the asocial and prosocial behavior of the respondents. As a diagnostic tool, the questionnaire "Motivation of help" (Nartova-Bochaver, 1992), the method "Diagnostics of the personal attitude" altruism - egoism" (Fetiskin et al., 2002), the Bass-

Darki aggressiveness questionnaire (standardized in Russian by Khvan et al., 2008).

Results

The first phase of the research was devoted to examining the degree of belief in conspiracy theories. It was revealed that more than 30% of the sample share conspiracy beliefs associated with COVID-19. The respondents predominantly believe that the coronavirus infection was created artificially in some countries as a biological weapon, and its spread was due to an accidental leak from special laboratories. Also, more than 30% of respondents deny the possibility of creating a coronavirus in order to microchip the population for total control or to reduce the number of the elderly population. More than 30% of the sample has an undifferentiated opinion. The average score on the Likert scale was 18 points (out of 25 possible, where 25 points fully support conspiracy beliefs). However, it should be noted that the majority of respondents (42%) do not agree that the COVID-19 virus is a fake spread by secret organizations with the aim of restructuring the economic balance in the world.

The second stage of the study is aimed at studying the features of preventive behavior during the quarantine period. A number of violations of the quarantine regime on the part of the respondents were revealed. So only 38.5% of respondents always use personal protective equipment, 62.6% of respondents partially adhered to sanitary requirements, that is, only in those cases when circumstances required it. 28% of the sample indicates isolated cases of violation of quarantine prohibitions (they did not always use a mask, did not always limit their social contacts, and partially did not comply with sanitary requirements). 30.5% of residents completely limited their contacts and adhered to social distance, almost half of the respondents (49.4%), as far as possible, adhered to the lockdown regime and refused to visit public places. The average score on the Likert scale was 9.94 points (out of 25 possible, where 25 points do not fully adhere to quarantine restrictions and preventive recommendations). Thus, the data obtained indicate an insufficient level of preventive behavior among the respondents, which may be due to a number of reasons. Among them, on the one hand, is legal nihilism and distrust of the authorities and health care systems in general, characteristic of the population of our country. On the other hand, the dominance of a regressive strategy of behavior, a return to childish forms of response (refusal and selfishness, self-indulgence), as a protective reaction of the body, which is characteristic of people during periods of prolonged stress.

The third stage of the study allowed us to study the features of the asocial and prosocial behavior of the respondents under conditions of quarantine restrictions.

One of the manifestations of pro-social behavior is a pronounced motivation for helping a person. According to the results of the study, the average indicator for the group was 7.6 points out of 12 possible, which indicates an average degree of its severity. It is worth noting that helping behavior is multi-motivated: a person can be simultaneously guided by both egoistic and altruistic motives.

The presented sample is dominated by a pronounced egoistic orientation (the average indicator was 8.57 points). A person showing an egoistic orientation realizes egoistic tendencies in his behavior, which directly affects the peculiarities of his organization of the space of interpersonal relations with others. It is worth noting that the expressed motivation for help and the presence of an egoistic tendency in a person can be explained by the search for benefits from providing help, for example, internal self-reward.

The results of the study of aggressive behavior indicate that the sample is characterized by the average level of indirect aggression, as well as negativism and resentment. It should be noted that negativism manifests itself in the form of oppositional behavior in behavior from passive resistance to active struggle against established customs and laws.

An increased level of severity of physical aggression, irritability, suspicion and feelings of guilt and a very high level of manifestation of verbal aggression, which is expressed in the form of negative feelings (shouting, screeching), and through the content of verbal responses (curses, threats) were also diagnosed.

Multiple regression analysis with stepwise selection of predictors was used to examine the relationship between belief in conspiracy theory and preventive behavior and asocial and prosocial behavioral manifestations.

Table 1. Regression models of the relationship between belief in conspiracy theories and quarantine behavior (in general and its individual manifestations)

Model variables	B	Stand. error	B	t	P
Quarantine behavior ($R^2 = 0,126$; Durbin–Watson = 1,6)					
(Constant)	7,538	0,531		14,207	0,000

Coronavirus infection does not exist at all; it is an attempt to secretly rebuild the economic system in the world by secret organizations.	0,557	0,236	0,208	2,360	0,019
Coronavirus infection was created for further vaccination (chipping) of the world's population for the purpose of total control.	0,510	0,236	0,191	2,164	0,032
Have you been in public places without personal protective equipment (medical mask, respirator)? (R² = 0,058; Durbin–Watson = 1,7)					
(Constant)	1,425	0,116		12,269	<0,0001
Coronavirus infection was created for further vaccination (chipping) of the world's population for the purpose of total control.	0,153	0,047	0,242	3,257	0,001
Have you visited parks, forest parks, playgrounds during quarantine? (R² = 0,113; Durbin–Watson = 1,9)					
(Constant)	1,150	0,150		7,667	0,000
Coronavirus infection does not exist at all; it is an attempt to secretly rebuild the economic system in the world by secret organizations.	0,275	0,059	0,336	4,663	0,000
Did you consistently provide personal protective equipment and maintain adequate sanitation requirements? (R² = 0,066; Durbin–Watson = 1,8)					
(Constant)	1,534	0,102		15,061	0,000
Coronavirus infection was created for further vaccination (chipping) of the world's population for the purpose of total control.	0,143	0,041	0,257	3,472	0,001

Have you limited contact with your family members and close friends? (R² = 0,045; Durbin–Watson = 1,6)					
(Constant)	1,785	0,189		9,467	0,000
Coronavirus infection does not exist at all; it is an attempt to secretly rebuild the economic system in the world by secret organizations.	0,210	0,074	0,212	2,833	0,005
How often did you watch COVID-19 incidence statistics and information on quarantine restrictions? (R² = 0,041; Durbin–Watson = 1,6)					
(Constant)	1,887	0,145		13,035	0,000
Coronavirus infection is widespread to destroy (% decrease) the world's older population	0,136	0,050	0,202	2,700	0,008

Note: R² is the coefficient of determination for the model; B - coefficient and constant of the regression equation; β - standardized coefficient of the regression equation; t - is the ratio of the coefficient B to the standardized error; p - statistical significance.

Table 1 presents regression models of the relationship between belief in conspiracy theory and quarantine behavior (in general and its individual manifestations). Based on the analysis of the data presented, the coefficient of determination for the models (R²) is too low (less than 0.13) in order to assert the influence of belief in conspiracy theories on the observance of preventive measures, both in general and in their individual manifestations. The data obtained make it possible to assert that conspiracy thinking does not determine the behavior of an individual under quarantine conditions. At the same time, we can observe statistically significant links between certain conspiracy beliefs and behavior under quarantine conditions. Apparently, behind the coordinated change in these variables, there is some other factor, the search for which should be devoted to further empirical research.

Interestingly, among the multitude of conspiracy beliefs in the coronavirus relationship that we investigated, it was "trying to rebuild the economic order" and "chipping for control purposes" that turned out to be the variables that were associated with a decrease in the likelihood of

quarantine behavior. Both theories refer to conspiracy and control from above, which seems to alleviate the problem of uncertainty, but at the same time leads to a decrease in the manifestation of quarantine behavior.

And only such a form of behavior as viewing statistics on the incidence of COVID-19 is associated with the conspiracy theory that the coronavirus was created to destroy or reduce the number of the elderly. Apparently, people who do not look at the statistics do not consider themselves to be at risk - older people, although today it is already known that everyone has a risk of contracting the coronavirus.

Table 2. Regression models of the relationship between belief in conspiracy theories and prosocial behavior.

Model variables	B	Stand. error	B	t	p
Motivation of help ($R^2 = 0,062$; Durbin-Watson = 1,9)					
(Constant)	6,119	0,474		12,913	0,000
Belief in conspiracy	0,118	0,035	0,249	3,363	0,001
"altruism - egoism" ($R^2 = 0,046$; Durbin-Watson = 1,8)					
(Constant)	6,729	0,677		9,946	0,000
Belief in conspiracy	0,145	0,050	0,215	2,882	0,004

Note: R^2 is the coefficient of determination for the model; B - coefficient and constant of the regression equation; β - standardized coefficient of the regression equation; t - is the ratio of the coefficient B to the standardized error; p - statistical significance.

Table 3. Regression models of the relationship of belief in conspiracy theories and asocial behavior.

Model variables	B	Stand. error	B	t	p
Suspicion ($R^2 = 0,025$; Durbin-Watson = 1,9)					
(Constant)	3,667	0,376		9,745	0,000
Coronavirus infection was	0,318	0,152	0,158	2,091	0,038

created for further vaccination (chipping) of the world's population for the purpose of total control.					
Guilt ($R^2 = 0,024$; Durbin-Watson = 1,7)					
(Constant)	4,395	0,420		10,458	0,000
Coronavirus infection has been created by some countries as a biological weapon.	0,287	0,140	0,155	2,049	0,042

Note: R^2 is the coefficient of determination for the model; B - coefficient and constant of the regression equation; β - standardized coefficient of the regression equation; t - is the ratio of the coefficient B to the standardized error; p - statistical significance.

Tables 2 and 3 show regression models for the relationship between belief in conspiracy theories and asocial and prosocial behavior that have reached the level of statistical significance. It is worth noting the low indicator of the coefficient of determination. According to the models obtained, the regression equation explains less than 1% of the variance of the effective trait. This result underscores the fact that prosocial and asocial behavior is not conditioned by belief in conspiracy theories.

At the same time, we see an interesting statistically significant relationship between the overall belief score in conspiracy theories, motivation to help, and altruism. It seems that people who are prone to assimilating conspiracy theories are also inclined to help others and orient themselves to their interests. Behind this connection it is worth looking for some unaccounted internal factor.

The analysis of the regression models in Table 3 also indicates the absence of functional connections that could demonstrate the decisive role of conspiracy mindset in the manifestations of asocial behavior. However, the statistical consistency of changes in indicators is still present. Suspicion, the tendency to believe that other people are seeking to harm, is associated with the belief about chipping and population control thanks to the coronavirus. The penchant for remorse stems from the notion that the coronavirus is a biological weapon. Apparently, the subject, inclined to blame himself, also ascribes great blame to other authors, in particular states.

The discussion of the results

The present study was aimed at investigating the relationship between belief in conspiracy theory and personality behaviors in quarantine. Belief in conspiracy theory has been hypothesized to predict the degree of adherence to quarantine restrictions (wearing protective equipment, isolation, hygiene) and influences antisocial behavior such as aggression and selfishness, as well as pro-social behavior such as help and altruism. However, the results of this study did not show any influence. Only isolated links were identified, behind which apparently other factors lie. We consider that these factors have situational and personality nature, naturally, that their influence needs to be weighed.

Our empirical research data showed that prosocial and asocial behavior is not due to belief in conspiracy theory, but is determined by a number of other factors that have not been studied in the current study and require further theoretical and empirical. Also, preventive behavior was practically not associated with the personality's conspiracy beliefs about COVID-19 (the regression equation explains less than 1% of the variance).

It is worth noting that the findings contradict the results of some previous studies that investigated the behavioral consequences of conspiracy mindset and adherence to preventive measures in a pandemic, in particular.

It research be noted that the conducted theoretical analysis of experimental studies demonstrates many disagreements among scientists. This is especially true of the question of the impact of belief in conspiracy theory and health-related behavior. Most of the 2020 studies, in particular those conducted in the context of a pandemic and quarantine, indicate that belief in conspiracies negatively affects compliance with preventive measures that are initiated by governments in almost all countries. The researches that were studied were carried out in France, Greece, Turkey, and Slovenia. All of them point to a negative connection with belief in conspiracies or the conditioning of preventive behavior by conspiracy thinking. Scientists from Slovenia (Plohl & Musil, 2020), arguing the results obtained, emphasize that conspiracy ideas do not directly affect compliance with the recommendations for the prevention of COVID-19, but do so indirectly through the credibility of science. The authors conclude that people with a higher level of development of conspiracy ideas have less confidence in science, which, in turn, leads to a lower level of compliance with preventive measures.

Our results are inconsistent with those of Marinthe et al., (2020), which indicate a negative connection between belief in conspiracies and

adherence to preventive forms of behavior initiated by the government, as well as studies by Banai et al., (2020), which proves a negative connection of conspiracy beliefs with non-compliance with preventive measures in the COVID-19 pandemic. This inconsistency of the results obtained can be explained by a number of reasons that are hidden in the peculiarities of the Ukrainian mentality. In particular, we are talking about the basic distrust of the population in social institutions, as well as the corruption of the political system and the health care system. Thus, the beliefs that arise in Ukrainian society (regarding the pandemic in particular) are generally explained not by the result of a conspiracy by some groups of people (secret organizations and others), but by the policy of the Ukrainian government, which, in the opinion of the population, comes from self-interest and its own ambition. Thus, the Ukrainian sample, in contrast to the samples from other countries (see research above), is characterized by legal nihilism, which has developed as a historical tradition.

The Ukrainian political elite, which by its own example must demonstrate high legal self-awareness and adhere to all quarantine restrictions, is often not such. This fact can serve as the reason for the leveling by the respondents of the close connection between conspiracy mindset and asocial and prosocial manifestations of human behavior under quarantine in Ukraine.

It should be noted that social isolation caused by quarantine restrictions reduces the likelihood of prosocial behavior (Twenge et. al., 2007), thereby often provoking asocial tendencies in behavior, conflict in relationships, selfish orientation and manifestation of unreasonable aggression (which confirmed by our empirical data). Therefore, the behavioral manifestations in the current situation of quarantine restrictions and forced social isolation may be explained not by the peculiarities of the prevailing type of thinking (for example, conspiracy theories), but by situational factors that require further theoretical and empirical researches.

At the same time, the statistically significant links we examined between belief in conspiracy theories, propensity for quarantine behavior, motivation to help, altruism, suspicion, and guilt indicate that there is a common internal factor that determines their consistent variability. As such a common factor, one should probably consider a certain temperamental trait, for example, hypersensitivity. It seems that hypersensitive people are more susceptible to believing in conspiracy theories, and it is more difficult for them to comply with quarantine behavior, since they need contact, empathy and interaction. Suspicion and guilt, altruism and motivation to help can also be a natural consequence of hypersensitivity.

These assumptions naturally form the basis for further researches, in which the influence of situational and temperamental factors, both on prosocial/asocial, quarantine behavior, and on the propensity for conspiracy mindset, should be checked.

Limitations and future directions

Previous research has rarely examined the impact of belief in conspiracy theories on personality patterns in a pandemic. Our research was aimed at studying this issue, but it had a number of limitations, which indicates the need for further researches of the influence of conspiracy mindset on the prevalence of prosocial or asocial behavior in conditions of security threats (such as a pandemic, economic crisis, etc.), as well as in conditions of relative stability (favorable conditions).

One of the main limitations of the presented research is the characteristics of its sample. The number of study participants was relatively small, mostly Ukrainians between the ages of 20 and 30, which limits the possibility of transferring the research results to another cultural context.

The online nature of the research is also a limitation. The design of the developed questionnaires requiring further approbation can influence the result and lead to socially desirable answers. It is worth noting, however, that honest responses were encouraged by the fact that the research was completely anonymous. In order to level this limitation in the future, the authors plan to develop a validated method for studying the peculiarities of conspiracy mindset, or to adapt existing ones.

We recognize that adherence to COVID-19 prevention guidelines is not as context less as discussed in this research, but may be influenced by various variables outside the scope of this research article (e.g., need to go to work, government policies and laws).

It should be noted that our findings relate to political COVID-19 conspiracy theories regarding health and the global crisis. Thus, the results cannot be extended to other conspiracy theories; this issue remains open and requires further researches.

Authors' Contribution

N.Y., V.A., developed the study concept. N.Y. analyzed and interpreted the data under the supervision of V.A. and O.Z.. N.Y. provided the first draft of the manuscript. V.A. and O.Z. provided critical revisions of the manuscript. All authors approved the final version of the manuscript for submission. We confirm that the research was conducted ethically, results

are reported honestly, the submitted work is original and not (self-)plagiarized, and authorship reflects the authors' contributions.

Data archiving and sharing

Data described in this manuscript can be viewed at <https://osf.io/q2m5e/quickfiles>

References

- Abalakina-Paap, M., Stephan, W. G., Craig, T., & Gregory, W. L. (1999). Beliefs in conspiracies. *Political Psychology*, 20(3), 637–647. <https://doi.org/10.1111/0162-895X.00160>
- Alper, S., Bayrak, F., & Yilmaz, O. (2020). Psychological correlates of COVID-19 conspiracy beliefs and preventive measures: Evidence from Turkey. *Current Psychology* 1–10. <https://doi.org/10.1007/s12144-020-00903-0>
- Banai, I. P., Banai, B., & Mikloušić, I. (2020). Beliefs in COVID-19 conspiracy theories predict lower level of compliance with the preventive measures both directly and indirectly by lowering trust in government medical officials. <https://doi.org/10.31234/osf.io/yevq7>
- Bilewicz, M., Winiewski, M., Kofta, M., & Wójcik, A. (2013). Harmful ideas, the structure and consequences of anti-Semitic beliefs in Poland. *Political Psychology*, 34(6), 821–839. <https://doi.org/10.1111/pops.12024>
- Bogart, L. M., & Thorburn, S. (2005). Are HIV/AIDS Conspiracy Beliefs a Barrier to HIV Prevention Among African Americans? *Journal of Acquired Immune Deficiency Syndromes*, 38(2), 213–218. <https://doi.org/10.1097/00126334-200502010-00014>
- Cichocka, A., Marchlewska, M., & Golec de Zavala, A. (2016). Does self-love or self-hate predict conspiracy beliefs? Narcissism, self-esteem, and the endorsement of conspiracy theories. *Social Psychological and Personality Science*, 7, 157–166. <https://doi.org/10.1177/1948550615616170>
- Darwin, H., Neave, N., & Holmes, J. (2011). Belief in conspiracy theories. The role of paranormal belief, paranoid ideation and schizotypy. *Personality and Individual Differences*, 50(8), 1289–1293. <https://doi.org/10.1016/j.paid.2011.02.027>
- Douglas, K. M., Sutton, R. M., & Cichocka, A. (2017). The Psychology of Conspiracy Theories. *Current directions in psychological science*, 26(6), 538–542. <https://doi.org/10.1177/0963721417718261>
- Einstein, K. L. & Glick, D. M. (2015). Do I think BLS data are BS? The consequences of conspiracy theories. *Political Behavior*, 37(3), 679–701. <https://doi.org/10.1007/s11109-014-9287-z>

- Fetiskin, N., Kozlov, V., Manuilov, G. (2002). *Diagnostika lichnostnoy ustanovki "al'truiz'm – egoiz'm"* [Diagnostics of the personal attitude "altruism - egoism"]. Socio-psychological diagnostics of the development of personality and small groups. Moscow: Izd-vo Instituta Psikhoterapii. 23–24. [in Russian]
- Franks, B., Bangerter, A., Bauer, M.W., Hall, M. & Noort, M.C. (2017). Beyond "monologicality"? Exploring conspiracist worldviews. *Frontiers in psychology*, 8, 861. <https://doi.org/10.3389/fpsyg.2017.00861>
- Gaston, G. B & Alleyne-Green, B. (2013). The impact of African Americans' beliefs about HIV medical care on treatment adherence: a systematic review and recommendations for interventions. *AIDS Behav* 17(1), 31–40. <https://doi.org/10.1007/s10461-012-0323-x>
- Goertzel, T. (1994). Belief in conspiracy theories. *Political Psychology*, 15(4), 731–742. <https://doi.org/10.2307/3791630>
- Golec de Zavala, A., Cichocka, A., & Iskra-Golec, I. (2013). Collective narcissism moderates the effect of in-group image threat on intergroup hostility. *Journal of Personality and Social Psychology*, 104(6), 1019–1039. <https://doi.org/10.1037/a0032215>
- Goreis, A., & Voracek, M. (2019). A systematic review and meta-analysis of psychological research on conspiracy beliefs: Field characteristics, measurement instruments, and associations with personality traits. *Frontiers in Psychology*, 10, Article 205. <https://doi.org/10.3389/fpsyg.2019.00205>
- Grzesiak-Feldman, M. (2015). Are the high authoritarians more prone to adopt conspiracy theories? The role of right-wing authoritarianism in conspiratorial thinking. In M. Bilewicz, A. Cichocka, & W. Soral (Eds.), *The psychology of conspiracy* (p. 99–121). Routledge/Taylor & Francis Group.
- Imhoff, R., & Lamberty, P. (2018). How paranoid are conspiracy believers? Toward a more fine-grained understanding of the connect and disconnect between paranoia and belief in conspiracy theories. *European journal of social psychology*, 48(7), 909–926. <https://doi.org/10.1002/ejsp.2494>
- Imhoff, R., Lamberty, P., Klein, O. (2018). Using power as a negative cue: How conspiracy mentality affects epistemic trust in sources of historical knowledge. *Personality and Social Psychology Bulletin*, 44, 1364–1379. <https://doi.org/10.1177/0146167218768779>
- Imhoff, R., Dieterle, L., Lamberty, P. (2020). Resolving the puzzle of conspiracy worldview and political activism: Belief in secret plots decreases normative but increases nonnormative political engagement. *Social Psychological and Personality Science*. <https://doi.org/10.1177/1948550619896491>.
- Jolley, D., Douglas, K. M. (2014). The social consequences of conspiracism: Exposure to conspiracy theories decreases intentions to engage in politics

- and to reduce one's carbon footprint. *British Journal of Psychology*, 105, 35–56.
<https://doi.org/10.1111/bjop.12018>
- Jolley, D., Douglas, K. M., Leite, A. C., Schrader, T. (2019). Belief in conspiracy theories and intentions to engage in everyday crime. *British Journal of Social Psychology* 58(3), 534–549 <https://doi.org/10.1111/bjso.12311>
- Khvan, A. A., Zaitsev, Yu. A., Kuznetsova, Yu. A. (2008). *Opyt standartizatsii oprosnika izmereniya agressivnykh i vrazhdebnykh reaktsiy A. Bassa i A. Darki* [Experience of standardization of the questionnaire for measuring aggressive and hostile reactions A. Bass and A. Darki]. *Psychological diagnostics*, 1, 54–58.
- Klofstad, C.A., Uscinski, J.E., Connolly, J.M. et al. (2019). What drives people to believe in Zika conspiracy theories? *Palgrave Commun*, 5, 36.
<https://doi.org/10.1057/s41599-019-0243-8>
- Lewandowsky, S., Gignac, G. E., & Vaughan, S. (2013). The pivotal role of perceived scientific consensus in acceptance of science. *Nature Climate Change*, 3(4), 399–404. <https://doi.org/10.1038/NCLIMATE1720>
- Marinthe, G., Brown, G., Delouvée, S. & Jolley, D. (2020). Looking out for myself: Exploring the relationship between conspiracy mentality, perceived personal risk, and COVID-19 prevention measures. *Health Psychology*, 25(4), 957–980. <https://doi.org/10.1111/bjhp.12449>
- Nartova-Bochaver, S.K. (1992). *Ekspperimental'noye issledovaniye situatsionnoy izmenchivosti motivatsii pomoshchi* [An experimental study of the situational variability of motivation for help]. *Psychological Journal*, 13 (4), 15–23.
- Oliver, J. E., & Wood, T. J. (2014). Conspiracy Theories and the Paranoid Style(s) of Mass Opinion. *American journal of political science*, 58 (4), 952–966.
<https://doi.org/10.1111/ajps.12084>
- Parsons, S., Simmons, W., Shinhoister, F., & Kilburn, J. (1999). A test of the grapevine: An empirical examination of conspiracy theories among African Americans. *Sociological Spectrum*, 19(2), 201–222.
<https://doi.org/10.1080/027321799280235>
- Plohl, N., & Musil, B. (2020). Modeling compliance with covid-19 prevention guidelines: The critical role of trust in science. *Psychology, Health & Medicine*. Advance online publication.
<https://doi.org/10.1080/13548506.2020.1772988>
- Swami, V. (2012). Social psychological origins of conspiracy theories: The case of the Jewish conspiracy theory in Malaysia. *Frontiers in Psychology*, 3, 1–9.
<https://doi.org/10.3389/fpsyg.2012.00280>
- Swami, V., Voracek, M., Stieger, S., Tran, U. S., & Furnham, A. (2014). Analytic thinking reduces belief in conspiracy theories. *Cognition*, 133, 572–585.
<https://doi.org/10.1016/j.cognition.2014.08.006>

- Twenge, J., Baumeister, R., DeWall C. N., Ciarocco, N. J. & Bartels J.M. (2007). Social Exclusion Decreases Prosocial Behavior. *Journal of Personality and Social Psychology* 92(1), 56–66. <https://doi.org/10.1037/0022-3514.92.1.56>
- Uscinski, J. E., Parent, J. M. (2014). *American Conspiracy Theories*. New York: Oxford University Press.
<https://doi.org/10.1093/acprof:oso/9780199351800.001.0001>
- Van der Linden, S.L. (2015). The conspiracy-effect: Exposure to conspiracy theories (about global warming) decreases pro-social behavior and science acceptance. *Personality and Individual Differences* 87, 171–173.
<https://doi.org/10.1016/j.paid.2015.07.045>
- Van Prooijen, J.-W., & Jostmann, N. B. (2013). Belief in conspiracy theories: The influence of uncertainty and perceived morality. *European Journal of Social Psychology*, 43(1), 109–115. <https://doi.org/10.1002/ejsp.1922>
- Van Prooijen, J.-W. (2016). Sometimes inclusion breeds suspicion: Self-uncertainty and belongingness predict belief in conspiracy theories. *European Journal of Social Psychology*, 46, 267–279. <https://doi.org/10.1002/ejsp.2157>
- Van Prooijen, J.-W., & Douglas, K. M. (2018). Belief in conspiracy theories: Basic principles of an emerging research domain. *European Journal of Social Psychology*, 48(7), 897–908. <https://doi.org/10.1002/ejsp.2530>
- Van Prooijen, J. -W. Bilewicz, M., Witkowska, M., Pantazi, M., Gkinopoulos, Th. & Klein, O. (2019). Traumatic Rift: How Conspiracy Beliefs Undermine Cohesion After Societal Trauma? *European Journal of Psychology*, 15(1), 82–93. <https://doi.org/10.5964/ejop.v15i1.1699>
- Watson, P. J. & Morris, R. J. (1991). Narcissism, empathy and social desirability. *Personality and Individual Differences*, 12(6), 575–579.
[https://doi.org/10.1016/0191-8869\(91\)90253-8](https://doi.org/10.1016/0191-8869(91)90253-8)
- Whitson, J. A. & Galinsky, A. D. (2008). Lacking Control Increases Illusory Pattern Perception. *Science* 322(5898):115–7.
<https://doi.org/10.1126/science.1159845>