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Content matters. Different predictors and social consequences of general and government-related conspiracy theories on COVID-19

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ABSTRACT

In times of crisis, people are more prone to endorse conspiracy theories. Conspiracy thinking provides answers about the causes of an event, but it can also have harmful social consequences. Our research tested both the predictor and the consequences of two types of conspiracy beliefs related to the Covid-19 pandemic: (1) general conspiracy beliefs and (2) government-related conspiracy theories. In two studies in Poland ($N_{\text{total}} = 2726$), we found that a perceived lack of individual control predicted both types of conspiracy theories, while a sense of collective control was positively related to general conspiracy beliefs but negatively associated with government-related conspiracy theories. Moreover, general conspiracy theories were related to the acceptance of xenophobic policies and to a less favourable attitude towards outgroups whereas government-related conspiracy theories were not. Additionally, people who believed in conspiratorial governments less frequently indicated that they used prevention methods, such as social distancing and handwashing. Our research demonstrates the importance of considering the content of various conspiracy theories when studying their social effects and potential causes. Knowing which attitudes may be associated with the endorsement of specific conspiracy theories can contribute to counteracting their negative consequences during crises.

1. Introduction

Conspiracy theories can be defined as attempts to identify the cause of various events as plots by secret and powerful groups rather than as natural or caused by transparent actions (Bale, 2007; Douglas, Sutton, Callan, Dawtry, & Harvey, 2015; Swami et al., 2011). Belief that secretive actors are conspiring to do harm to the collective good are common in modern societies (van Prooijen & Douglas, 2018; West & Sanders, 2003), and their spread is facilitated by growing Internet access (Douglas et al., 2015).

Numerous studies have shown that people are particularly inclined to believe in conspiracies during societal crises, such as natural disasters, wars, terrorist attacks, financial crises or diseases, when people are seeking to make sense of a chaotic world (e.g. Fritzsche et al., 2017; van Prooijen & Douglas, 2017).

As existential threats grow, so does people's willingness to find meaning in the situation they are experiencing (Bale, 2007; van Prooijen, 2019). Although in most cases conspiracy theories are clearly incorrect and unfounded (Pipes, 1999), they can help people regain a sense of the world, providing them with simple answers about causes of

a certain situation and who can be trusted and who cannot (van Prooijen & Douglas, 2017). Therefore, in times of heightened uncertainty, conspiracy theories may serve as a guide for attitudes and behaviour: what to think, what to do and what to avoid in order to reduce danger.

What kinds of answers and guidance are provided by conspiracy theories in times of the COVID-19 pandemic? There have been rumours about the existence of a vaccine that was hidden by pharmaceutical companies and available only to some people. Some theories have alleged that the coronavirus was developed in laboratories as a biological weapon against China or, depending on one's political sympathies, the United States. Other theories include accusing specific governments of concealing facts about the pandemic and using the situation for their own purposes. Clearly, COVID-19 conspiracy theories provide their believers with a plethora of different explanations or recommendations. Unfortunately, they could have also numerous negative social consequences (Van Bavel et al., 2020), and this induced the World Health Organization (WHO) to state that we are 'not just fighting an epidemic; we're fighting an infodemic. Fake news spreads faster and more easily than this virus, and is just as dangerous' (WHO); see also Pennycook,

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Mcphetres, Zhang, & Rand, 2020 and Van Bavel et al., 2020).

Surprisingly, in the vast research on the societal effects of the proliferation of conspiracy theories, the specific content of such theories is often overlooked (e.g. Larsen, Donaldson, & Mohanty, 2020). One of the reasons why the content of conspiracy theories is relatively rarely addressed may be that many studies have found that different types of conspiracy theories are examples of the same generalised mindset (e.g. Imhoff & Bruder, 2013; Popper, 2002), which explains why sometimes logically incompatible conspiracies are positively correlated with each other (Wood, Douglas, & Sutton, 2012; Imhoff and Lamberty, 2020). However, some studies indicate the potential significance of what a given conspiracy theory explicitly says. In the context of intergroup relations, it has been shown that the effect of conspiracy theories may vary depending on whether these theories involve the out-group or the in-group (Cichocka, Marchlewska, Golec de Zavala, & Olechowski, 2015). Recent research by Imhoff and Lamberty (2020) on COVID-19 has revealed the different effects of believing that the coronavirus is a hoax or a biological weapon. Thus, we argue that endorsing different conspiracy theories may have different social consequences, and the understanding of this more nuanced relationship may be crucial in diminishing their negative influence on anti-COVID-19 actions and efforts. In our study, we aimed to examine the social consequences of two COVID-19 conspiracy theories: (1) the more general belief in the existence of malevolent groups that benefit from a pandemic or have created a virus for their own hidden purposes and (2) the belief that governments are concealing the facts of the pandemic from the public and using the emergency situation to achieve their own, possibly anti-democratic goals. The choice of these two types of theory is also supported by existing literature showing that while most conspiracy theories are about malevolent out-groups that conspire and manipulate the situation against the in-group, some of them also concern the actions of in-group members, particularly one's own government (e.g. van Prooijen, 2019; Wood et al., 2012). Since both types of theory emphasise different kinds of threats, they should be related to the different attitudes and behaviours of their followers.

1.1. Consequences of general and government-related conspiracy theories for protective behaviour and prosociality

Generally, a belief in conspiracy theories has detrimental effects on trust in science and prosocial behaviour (Douglas, Sutton, & Cichocka, 2017; van der Linden, 2015). Since people who believe in conspiracy theories are characterised by extreme scepticism and a lack of faith in authority, they often reject scientifically established facts, such as those related to, for example, climate change (e.g. van der Linden, 2015; van Prooijen, 2019). Also, medical conspiracy theories have been shown to be related to risky health behaviours, such as not getting vaccinations, rejection of conventional medicine and seeking alternative treatments (e.g. Bogart, Wagner, Galvan, & Banks, 2010; Georgiou, Delfabbro, & Balzan, 2020; Jolley & Douglas, 2014; Lamberty & Imhoff, 2018; Setbon & Raude, 2010). Such a tendency to challenge official findings and facts can have particularly dangerous consequences during a pandemic by, for example, reducing people's willingness to comply with anti-pandemic recommendations or their pro-sociality. However, some research has shown that endorsing conspiracy theories can have some positive consequences, as it allows individuals to question social hierarchies and, as a result, encourage governments to be more transparent (Clarke, 2002; Fenster, 1999; Swami & Coles, 2010). In a medical context, there is some evidence that belief in HIV-related conspiracy theories is significantly positively associated with HIV-testing (Ford, Wallace, Newman, Lee, & Cunningham, 2013) and with the willingness to use pre-exposure prophylaxis (Ojikutu et al., 2020). We argue that a better understanding of when and why conspiracy theories have different consequences requires focusing on the content of an endorsed conspiracy theory. We hypothesise that belief in government-related

conspiracy theories is linked to a decreased tendency to take positive actions, such as protective behaviour or pro-sociality, as these actions are clearly recommended by the authorities the conspiracies call into question (Hypothesis 1a). The opposite pattern should be visible in the context of more general conspiracy theories: their followers may perceive COVID-19 as a real threat and, therefore, engage in positive, protective actions to protect themselves from the danger (Hypothesis 1b).

1.2. Consequences of general and government-related conspiracy theories for intergroup relationships

Moreover, numerous studies have shown that endorsing conspiracy theories is related to intergroup hostility (Jolley, Meleady, & Douglas, 2019), as conspiratorial thinking may serve as a 'core mindset that defines the enemies' (Bilewicz & Sędek, 2015). Additionally, conspiracy narratives have been shown to promote anger-related feelings (e.g. Abalakina-Paap, Stephan, Craig, & Gregory, 1999) and that feelings can motivate people to act to confront the anger-evoking target (Jolley & Paterson, 2020; Ullrich, Keers, & Coid, 2014). During times of pandemic, the public may experience an increased need to find someone to blame for the situation; thus, followers of conspiracy theories will show a less positive attitude towards groups the media associates with the spread of the coronavirus. In addition, as conspiratorial thinking is linked to a greater acceptance of the use of violence and less support for democratic actions (Lamberty & Leiser, 2019, preprint), it is likely to be related to acceptance of xenophobic policies against potentially dangerous outgroups. We hypothesise that this effect will be particularly visible among people believing in more general conspiracy theories about COVID-19, as these theories especially highlight the existence of threatening, conspiring groups (Hypothesis 2a). In turn, intergroup hostility and the acceptance of a government's xenophobic actions should be lower among those who see the government as conspiring against the common good, as that type of conspiracy theory defines not the outgroup but an ingroup enemy (Hypothesis 2b).

1.3. Individual and collective control as predictors of belief in conspiracy theories

The second main aim of our research was to examine how the endorsement of general and government-related conspiracy theories is related to both an individual and collective sense of control. An individual's sense of control is one of the most prominent predictors of belief in conspiracy theories (Douglas et al., 2017). It has been shown that a lack of personal control is related to a tendency to connect events with non-existent patterns in the environment and with the endorsement of various conspiracy theories (Douglas et al., 2017). According to compensatory control theory, the motivation to find meaning in the social world is closely linked to whether people feel they are in control of their own lives (Kay, Whitson, Gaucher, & Galinsky, 2009). If people perceive themselves as bereft of power, they often attempt to find epistemic structure in the environment (Kay et al., 2009), which may to some extent compensate for the lack of order and stability in their lives (Kay et al., 2009; Rutjens, van Harreveld, & van der Pligt, 2013). Conspiracy theories act as easily obtainable sources of explanation and may flourish when individuals experience threats to their sense of control. In summary, feelings of powerlessness, which are particularly evident in times of social unrest and crises, can provoke people to seek answers of any kind, often prompting them to indulge conspiracist explanations for distressing occurrences. Therefore, we hypothesise that a lack of individual control will be positively related with the endorsement of both general and government-related conspiracy theories (Hypothesis 3).

Lack of control and uncertainty lead people to attempt to restore a

sense of predictability and power (Fritzsche, Jonas, & Kessler, 2011). Where and how can they find a source of empowerment during a pandemic? It has been shown that people can reduce unpleasant feelings of helplessness by turning to their own group and replacing the thought 'I am not in control' with 'We are in control' (Stollberg, Fritzsche, Barth, & Jugert, 2017). Fritzsche et al. (2017) argued that this way of regaining control could be particularly adaptive during crises, as it may enable greater intragroup coordination and shared efforts to combat danger. It could be assumed that collective control is associated with a decreased tendency towards conspiratorial thinking for two reasons. First, it provides an individual with a source of meaning, potentially decreasing their desire to search for another way to reduce epistemic insecurity, such as endorsement of conspiracy theories. Second, believing in conspiracy theories could conflict with a group's shared goals, such as taking communal action to fight the spread of the virus. At the same time, group-based control can be related to enhanced ethnocentrism and hostility towards out-groups (Fritzsche et al., 2011). Thus, an increased sense of collective control could be associated with an increased belief in a conspiracy that undermines the interests and efforts of one's own group. In the context of the pandemic, such a theory could hold that unknown groups benefit from the pandemic and have an interest in the virus's spread.

We believe that the key to solving such somewhat contradictory hypotheses on the relationship between collective control and the endorsement of conspiracy theories again lies in considering the content of conspiracy theories. By including two types of COVID-19 conspiracy theories in our study, we can see how a sense of collective control is associated with each of them. We hypothesise that collective control will correlate positively with the endorsement of general conspiracy theories, emphasising the existence of an unknown, conspiring group or groups (Hypothesis 4a). In turn, a sense of collective control should correlate negatively with government-related conspiracy theories as the belief that the group's control of the situation during the pandemic should be accompanied by a positive assessment of government actions and efforts (Hypothesis 4b). Moreover, we examine the mediation model of relationships between individual and collective control and social consequences via the endorsement of both types of conspiracy theories.

1.4. Overview of the studies

The aim of our study was to deepen the existing knowledge of the social consequences of believing in conspiracy theories by examining how these consequences may differ in dependence on the content of a given conspiracy theory: whether it is more general (focused on the existence of a malevolent, conspiring group) or government-related. Second, the study examined whether the relationship between a sense of control (individual and collective) and conspiracy theories may also be shaped by the specific content of the latter. In addition to this general contribution to the research on conspiracy theories, the practical implications of the study for the fight against the COVID-19 pandemic will be to understand what kinds of difficulties and obstacles of public responses may need to be faced depending on the spread of a particular type of pandemic-related conspiracy theory.

In two studies carried out on a sample of Polish society ($N_{\text{total}} = 2726$), we checked whether individual and collective control predict belief in COVID-19 conspiracies and the social consequences of belief in these theories. We covered a wide range of such consequences, from protective behaviour (Study 1) and pro-sociality (Study 2) to acceptance of xenophobic policy (Studies 1 and 2) and attitudes towards outgroups associated with the outbreak of the pandemic, specifically Chinese people and Italians (Study 2). The studies were approved by the Ethics Committee.

2. Method

2.1. Participants and procedure

Study 1 was part of broader research conducted on a nationwide sample ($N = 1046$) via an online research panel using computer-assisted web interviewing (CAWI). To provide compatibility with the structure of the Polish population, a random quota sample was invited in alignment with the demographic structure of the 18–70-year-old Polish population with respect to gender, age and size of residence. All participants were rewarded for their participation in the study with points exchangeable for rewards. The survey was carried out on 13–15 March during the implementation of the first major restrictions related to the pandemic in Poland (e.g. schools, restaurants and shopping malls lockdowns and social-distancing recommendations).

Study 2 was conducted in Poland between 19 and 24 March 2020 in the period when the COVID-19 pandemic further developed. We intended to recruit at least 1000 people until 24 March because the next day the Polish government was planning to introduce further restrictions. An online study of 1680 persons (74% women) was conducted on Facebook, and the sample consisted of people aged 18 to 69 ($M = 26.20$, $SD = 6.95$). All the measures were presented in randomised order, and not all the participants filled out the entire questionnaire (some withdrawing before the end), which is why the final samples vary for different measures.

2.2. Measures

The lack of control related to the coronavirus pandemic (Studies 1 & 2) was measured with three items, such as 'The coronavirus epidemic has made me feel less in control of my life' (Study 1: $\alpha = 0.76$, Study 2: $\alpha = 0.68$).

Collective control (Studies 1 & 2) was measured with three items, such as 'Poles are better able to protect themselves against a pandemic than other nations' (Study 1: $\alpha = 0.85$, Study 2: $\alpha = 0.79$).

General conspiracy theories on COVID-19 (Studies 1 & 2) were measured with three items (Study 1) and four items (Study 2), such as 'I think that the development of the epidemic may be beneficial to certain groups of whose interests we are unaware' (Study 1: $\alpha = 0.76$, Study 2: $\alpha = 0.75$).

Government-related conspiracies about COVID-19 (Studies 1 & 2) were measured with two items (Study 1) and three items (Study 2), such as 'I think that the government wants to limit the rights and freedoms of citizens using the pretext of fighting the pandemic' (Study 1, $r = 0.45$, Study 2: $\alpha = 0.76$).

Support for xenophobic policies (Studies 1 & 2) was measured with three items, such as 'During the pandemic, people from other ethnic groups should be subject to special control and surveillance in Poland' ($\alpha = 0.82$).

For all the above measures, answers were measured on a scale from 1 ('I strongly disagree') to 7 ('I strongly agree').

Protective Behaviour (Study 1) was measured with nine items ('yes'/'no' answers), such as 'I avoid large groups of people' or 'I don't go to restaurants, shopping malls, theatres, etc.' ($\alpha = 0.66$).

Pro-sociality (Study 2) was measured with five items, such as 'I give emotional support to people who are experiencing difficulties in the current situation' ($\alpha = 0.76$).

The full version of each scale is presented in the *Appendix*.

3. Results

3.1. Analytical strategy

First, we checked zero-order correlations in each study. Next, since we intended to explore the predictors of conspiracy theories and their social consequences, we specified structural equation models.

Table 1
Means, Standard Deviations, and Correlations between main variables in Study 1.

Measure	M (SD)	1	2	3	4	5
1. Lack of control	4.35 (1.34)					
2. Collective control	4.26 (1.35)	0.14**				
3. General conspiracy theories	4.33 (1.38)	0.28**	0.22**			
4. Government-related conspiracy theories	4.39 (1.66)	0.18**	-0.10*	0.46**		
5. Protective behaviour	0.45 (0.24)	0.09**	0.09*	0.01	0.05	
6. Support for xenophobic policy	4.39 (1.66)	0.26**	0.38**	0.35**	0.12**	0.09*

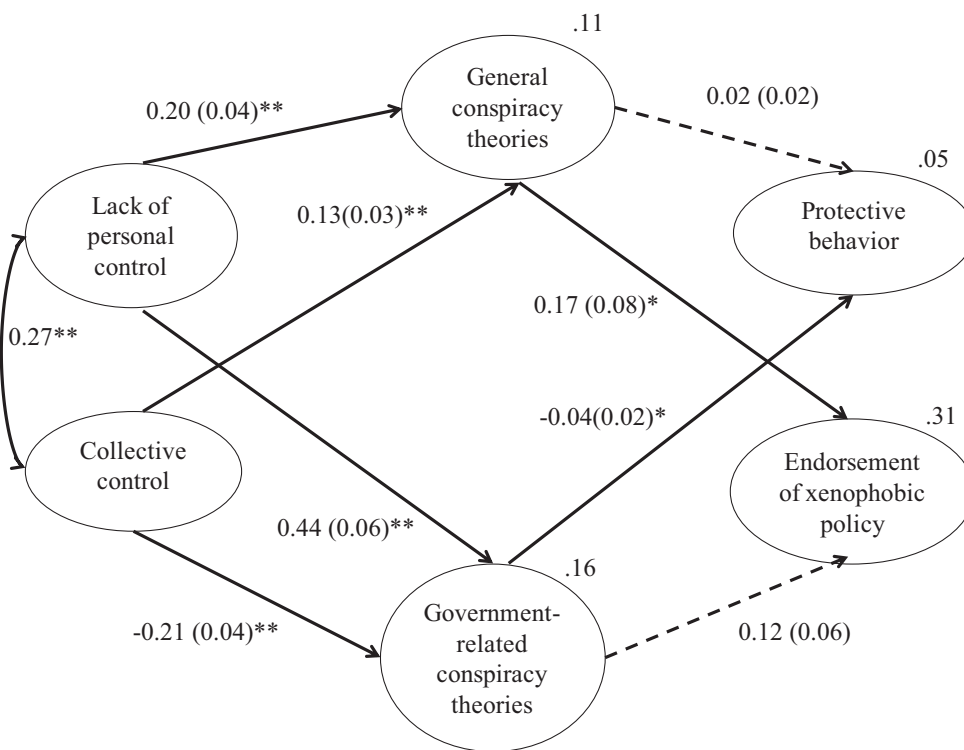
Note.
* $p < .005$.
** $p < .001$.

Table 2
Means, Standard Deviations, and Correlations between main variables in Study 2.

Measure	M (SD)	1	2	3	4	5	6
1. Lack of control	4.04 (1.50)						
2. Collective control	3.47 (1.36)	0.06*					
3. General conspiracy theories	3.76 (1.44)	0.19**	0.08**				
4. Government-related conspiracy theories	3.48 (1.47)	0.18**	-0.19**	0.51**			
5. Support for xenophobic policy	3.02 (1.68)	0.13**	0.20**	0.31**	0.13**		
6. Pro-sociality	5.09 (1.20)	0.06*	0.12**	-0.01	-0.05**	0.03	
7. Feeling thermometer	61.81 (23.14)	-0.12**	-0.10**	-0.14**	-0.09**	-0.32**	0.10**

Note.
* $p < .005$.
** $p < .001$.

Fig. 1. Indirect effect of two types of control on protective behaviour and endorsement of xenophobic policy by two types of conspiracy beliefs.
Note. Non-standardized coefficients with a standard error (in brackets) are presented. For reasons of clarity, the total and direct effects of independent variables were omitted. Dashed lines represent non-significant coefficients.



Structural equation modelling (SEM) enables estimation of model fit and uses latent variables to account for measurement error. The analyses were performed using Mplus 7.0 software (Muthén & Muthén, 2012).

3.1.1. Zero-order correlations

The correlations between main variables of two studies are presented in Tables 1 and 2. Both lack of control and collective control

were positively correlated with endorsement of general conspiracy theories. We observed the opposite effects of lack control and collective control on endorsement government-related conspiracy theories, i.e. the first correlated positively and the second negatively. Both general conspiracy theories and government-related conspiracy theories were positively related to endorsement of xenophobic policy. However, both types of conspiratorial thinking were not correlated with protective behaviour in Study 1. In Study 2 general conspiracy beliefs were

negatively correlated with feeling thermometer towards Chinese people and Italians while government-related ones were negatively related to prosocial behaviour.

3.2. Structural models

In each study structural equation modelling was estimated using Mplus 7.0 software (Muthén & Muthén, 2012).

In Study 1 the model included xenophobic tendencies and protective behaviour as dependent variables and other latent constructs as independent variables and mediators. Fit indices were acceptable, $\chi^2(215) = 862.86$, $p < .001$, CFI = 0.901, RMSEA = 0.054, SRMR = 0.050, however, identified three items from protective behaviour with factors loadings ≤ 0.30 . After removing these items ("I disinfect my hands with sanitizer", "I wear a face mask" and "I use rubber gloves") a fit of the model improved, $\chi^2(155) = 591.005$, $p < .001$, CFI = 0.930, RMSEA = 0.052, SRMR = 0.044.

The results of showed that while conspiracy theories about government were predicted positively by lack of personal control and negatively by sense of collective control, general conspiracy beliefs were positively predicted by both lack of personal control and sense of collective control. At the same time government related conspiracy theories (but not general conspiracy beliefs) were negatively related to protective behaviour, and general conspiracy theories (but not government related ones) were positively related to xenophobic tendencies. The exact coefficients are shown on Fig. 1.

Additionally, general conspiracy theories mediated the relation between lack of control and xenophobic tendencies, $IE = 0.04$, $SE = 0.02$, $p < .05$, and between sense of collective control and xenophobic tendencies, $IE = 0.02$, $SE = 0.01$, $p < .05$. However, direct effects of lack of control and collective control remained significant, $B = 0.26$, $SE = 0.05$, $p < .001$, $B = 0.42$, $SE = 0.04$, $p < .001$, respectively.

The structural equation model estimated in Study 2 had a good fit, $\chi^2(209) = 1140.605$, $p < .001$, CFI = 0.906, RMSEA = 0.052, SRMR = 0.046. Again conspiracy theories about government were predicted positively by lack of personal control and negatively by sense of collective control, and general conspiracy beliefs were positively predicted by both lack of personal control and sense of collective control. While both types of control and both types of conspiracy beliefs were included, neither of conspiracy theories predicted pro-social behaviour, however both lack of personal control and collective control were positively related to behaviour aimed at helping others. At the same time general conspiracy theories (but not government related ones) were positively related to xenophobic policy and negatively with feeling thermometer. The exact coefficients are shown on Fig. 2.

Additionally, general conspiracy theories mediated the relation between lack of control and xenophobic policy, $IE = 0.12$, $SE = 0.02$, $p < .01$, and between sense of collective control and xenophobic policy, $IE = 0.09$, $SE = 0.02$, $p < .01$. However, direct effects of lack of control and collective control remained significant, $B = 0.08$, $SE = 0.04$, $p < .01$, $B = 0.26$, $SE = 0.06$, $p < .001$, respectively. General conspiracy theories mediated also the relation between lack of control and feeling thermometer only at the trend level, $IE = -0.05$, $SE = 0.03$, $p = .06$, but indirect effect between sense of collective control and feeling thermometer was not significant, $IE = -0.04$, $SE = 0.07$, $p = .068$. Direct effects of lack of control and collective control remained significant, $B = -0.20$, $SE = 0.06$, $p < .01$, $B = 0.27$, $SE = 0.09$, $p < .001$, respectively.

4. Discussion

Is the content of conspiracy theories important for their social consequences? This question has so far been rarely present in studies on conspiracy thinking (Larsen et al., 2020, ;Imhoff and Lamberty, 2020) see also Imhoff & Bruder, 2013). The aim of our research was to

examine the potentially different results of believing in two distinct conspiracy theories related to COVID-19: (1) the general belief in the existence of hidden groups that use pandemics for their own purposes and (2) in-group conspiracy theories regarding the malevolent actions of one's own government. Additionally, we examined whether these two types of theory are differently related to individual and collective senses of control during the COVID-19 crisis.

Both studies confirmed that the content of conspiracy theories matters, as endorsing general and government-related theories had different consequences. As predicted, general conspiracy theories were related to the increased acceptance of undemocratic policies towards people of other ethnic groups (Studies 1 and 2) and more negative attitudes towards people from countries the media associates with the spread of COVID-19 (Study 2), which confirms Hypothesis 2a. Contrary to expectations, we did not observe a negative correlation between government-related conspiracies with the acceptance of xenophobic policies (Hypothesis 2b). It seems that suspicious attitudes towards one's government did not translate into questioning the government's potentially undemocratic actions towards the out-group and minorities. Future studies should examine in more detail the potentially very interesting issue of the different consequences of belief in government-related conspiracy theories for in-groups and out-groups.

We have observed different results in terms of protective behaviours recommended by the authorities. People who believed in conspiratorial governments less frequently admitted that they used prevention methods, such as social distancing or handwashing (which confirmed Hypothesis 1b). In turn, the relationship between general conspiracy theories and protective behaviour was positive but did not reach the level of significance (Hypothesis 1a not confirmed). It may be concluded that a decreased tendency to behave responsibly in times of pandemic may stem from denying the authorities' good intentions more than from believing in the existence of undefined conspiracies related to the disease. It is possible that believers in general conspiracy theories are more focused on seeking ways of protecting themselves from the virus that diverge from those recommended by authorities. This possibility could be confirmed by previous studies on the impact of belief in conspiracy theories on the use of alternative medicine either as a substitute (e.g. instead of getting vaccinated, Quinn et al., 2017) or complementary treatment (Oliver & Wood, 2014). Also, contrary to previous research (van der Linden, 2015), we did not find a relationship between belief in conspiracy theories and pro-sociality (Hypothesis 1b in Study 2). It is possible that a tendency to help others during COVID-19 may be explained by individual characteristics or, for example, social norms more so than compliance (or lack of compliance) with governmental recommendations.

The second main aim of our research was to disentangle the complex relationship between feelings of control (both individually and collectively) and endorsement of conspiracy theories. We found that lacking a sense of individual control is associated with a tendency to endorse both general and government-related conspiracy theories, which confirms Hypothesis 3. As predicted, collective control was positively associated with general conspiracy theories (Hypothesis 4a) and correlated negatively with government-related conspiracies (Hypothesis 4b). Thus, we contributed to the existing research by demonstrating that the relationship between feelings of collective control and believing in conspiracy theories may be dependent on these theories' content. These results may partially address the often-contradictory findings that threats to control are related to conspiracist thinking about the government, and at the same time, a lack of control can increase support for that same government (van Prooijen, 2018). Given the fact that a sense of collective control may be a tool to restore a lack of individual control (Fritsche et al., 2017), it is possible that support for one's government in times of uncertainty may stem from an enhanced sense of collective control rather than a lack of individual control.

Additionally, we found that both personal and collective control

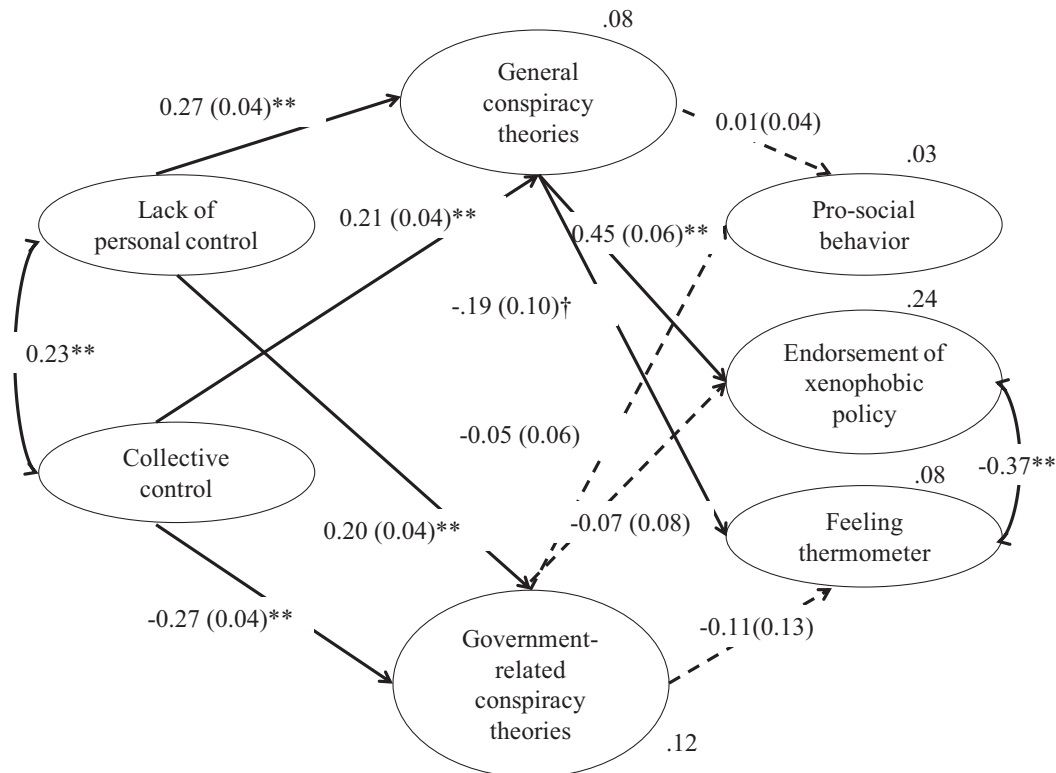


Fig. 2. Indirect effect of two types of control on pro-social behaviour, feeling thermometer and endorsement of xenophobic policy by two types of conspiracy beliefs. *Note.* Non-standardized coefficients with a standard error (in brackets) are presented. For reasons of clarity, the total and direct effects of independent variables were omitted. Dashed lines represent nonsignificant coefficients.

were indirectly related to attitudes towards out-groups and xenophobic policy through conspiracy beliefs. A lack of control predicted lower attitudes towards groups associated in the media with COVID-19 and endorsement of xenophobic policy through conspiracy thinking. Also, a sense of collective control was positively related to more negative attitudes and xenophobic policy. Although confirmation of the above mediation effect was not the main aim of our study, this result may also be important, especially during global crises such as the COVID-19 pandemic. Existing studies show that both a reduced sense of individual control (Bukowski, de Lemus, Rodriguez-Bailón, & Willis, 2017; Moya & Fiske, 2017) and the search for a sense of collective control (Fritsche et al., 2011, 2013, 2017) are typical experiences in times of uncertainty. Both feelings can have particularly negative consequences for intergroup relationships (Butz & Yogeeswaran, 2011; Fritsche et al., 2013; Sullivan, Landau, & Rothschild, 2010) and a specific conspiracy theory, namely the general belief in hidden groups that benefit from the crises, may explain these effects,

5. Limitations

Our studies were correlational, and we cannot establish causal relationships; thus, future research should include the experimental manipulation of different levels of control and types of conspiracy beliefs. Another limitation of our studies is that some variables were measured with the use of relatively short scales. Additionally, it would be worth examining whether the pattern of results obtained in our studies can be replicated in different cultures and contexts. It is also worth noting here that our research was carried out at a relatively early stage of the pandemic in Poland, which was associated – as in other countries – with a large degree of uncertainty and chaos. Further studies certainly should examine the consequences of believing in different types of COVID-19 conspiracy theories under the conditions of the ‘new normal’, when societies are more accustomed to the presence of the coronavirus.

6. Conclusions

Nowadays, the spread of conspiracy theories is becoming a growing social problem, threatening the health, safety and quality of public life. Our research has shown the importance of considering the content of various conspiracy theories for understanding their social effects and potential causes. We believe that this approach should be applied more often in research on conspiracies, not only in the context of the COVID-19 pandemic.

Our results have enhanced the existing knowledge of the relationship between belief in conspiracy theories for intergroup relations and acceptance of antidemocratic measures (e.g. Lamberty & Leiser, 2019; Uscinski & Parent, 2014) by indicating the particularly negative role of believing in a general unknown conspiracy, not in a conspiring government. Moreover, we have demonstrated that the content of an endorsed conspiracy theory may differently influence protective behaviour and adherence to governmental recommendations during pandemic. The obtained results can also help to understand the role of individual and collective control in the shaping of belief in various conspiracy theories. Finally, our research has not only theoretical but also practical consequences, as knowing what behaviours and reactions may be associated with the endorsement of specific conspiracy theories can help counteract their negative consequences in times of crisis.

CRedit authorship contribution statement

Tomasz Oleksy: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Visualization, Writing - original draft, Writing - review & editing. **Anna Wnuk:** Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Resources, Validation, Software, Visualization, Writing - original draft, Writing - review & editing.

Dominika Maison: Funding acquisition, Resources, Writing - review & editing. **Agnieszka Łyś:** Conceptualization, Writing - review & editing.

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Appendix A. Supplementary data

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