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The COVID-19 Pandemic, Authoritarianism and Rejection of Sexual Dissenters in Poland

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The COVID-19 Pandemic, Authoritarianism and Rejection of Sexual Dissenters in Poland

Abstract

In Poland, gender hierarchy restricting women's sexuality and hetero-normativity are rooted in traditional 'family values' supported by the teachings of the Polish Catholic Church and attached to Polish national identity. Dissenters to traditional norms regulating gender and sexual relations are rejected as threat to social order and national unity. Latent growth curve modeling performed on data from a three-wave longitudinal study indicated linear, inter-related increases in authoritarianism, a desire for national cohesion and rejection of sexual dissenters in the nationally representative sample of participants ($N = 889$) as the COVID-19 pandemic unfolded in Poland. Data were collected before and during the outbreak of the pandemic allowing us to link the changes in social attitudes to this naturally occurring threat. Cross-lagged panel analysis indicated that authoritarianism predicted desire for national cohesion, which resulted in rejection of dissenters. These results are in line with theoretical models of authoritarianism as a response to threat. They are also in line with findings linking death anxiety and the threat of infectious disease to increases in authoritarianism, traditional worldview defense, in-group cohesion and sexual restrictiveness.

Keywords: COVID-19 pandemic, authoritarianism, group cohesion, sexual norms and prejudice

Public Significance Statement: This study found that the average level of authoritarianism – a tendency to follow coercive leaders and traditional social norms – increased in response to the outbreak of the COVID-19 pandemic in Poland. This increase was followed by the amplified emphasis on national cohesion and resulted in the rejection of dissenters to traditional sexual norms. This suggests that the rights of sexual minorities and gender equality may be at risk during the times of increased threat of infectious disease.

The COVID-19 Pandemic, Authoritarianism and Rejection of Sexual Dissenters in Poland

In the midst of the coronavirus pandemic, another tendency spread like contagion—some authoritarian leaders rallied their electorates around prejudice towards nontraditional women and sexual minorities. Four weeks into the pandemic in Poland, the populist government brought back onto the agenda a proposition to tighten the anti-abortion law, already the strictest in Europe (Shukla & Klosok, 2020). In June, 2020, attacks on the 'LGBT ideology' became a central feature of the presidential campaign of Andrzej Duda, the candidate of Prawo i Sprawiedliwosc which is the ruling ultra-conservative populist party in Poland (Walker, 2020). In this paper, we examine whether there is more than anecdotal evidence that the threat posed by the COVID-19 pandemic increased submissive authoritarianism, desire for national in-group cohesion and rejection of dissenters of norms defining traditional worldviews: nontraditional women and sexual minorities.

Attitudes towards gender equality and sexual tolerance have become important battlegrounds differentiating the traditional and progressive worldviews worldwide (Inglehart & Norris, 2016). In Poland, national identity construed around the notions of endangered exceptionality has been linked to the defence of gender hierarchy and hetero-normativity rooted in traditional 'family values' based on the teachings of the Catholic Church (Ayoub, 2014; Golec de Zavala et al., 2020; Golebiowska, 2017). The populist government has used metaphors of external threat (Ayoub & Chetaille, 2020) and contamination by infectious disease to delegitimize LGBT+ and feminist activism (Korolczuk & Graff, 2018). Its rhetoric has construed postulates of sexual tolerance and gender equality as 'the Ebola for Poland from Brussels' (Korolczuk & Graff, 2018). We hypothesized that the actual outbreak of an infectious disease such as COVID-19 would increase right wing authoritarianism (i.e., attitudinal cluster of

submissiveness to authorities and conventionalism; Altemeyer, 1996; Duckitt & Sibley, 2009), and the desire for national cohesion (i.e., the need to see the nation as of the same mind, tightly knit and highly similar; Waytz & Young, 2012), and activate threats associated with such metaphors, thus increasing prejudice towards women, who do not obey traditional gender norms and sexual minorities, who do not obey traditional sexual norms.

These hypotheses are based on previous findings linking submissive authoritarianism to threat (in contrast to aggressive authoritarianism, tapped by the concept of social dominance orientation, i.e., preference for hierarchical organization of social groups, which originates from intergroup competition, Duckitt & Sibley, 2009). They are also in line with (1) terror management theory proposing that death anxiety motivates people to protect traditional worldviews and reject moral transgressors (Pyszczynski et al., 2015); (2) the pathogen stress hypothesis indicating that threat of infectious disease induces authoritarianism, a need for in-group cohesion and adherence to traditional group norms (Murray & Schaller, 2016; Tybur et al., 2016), including sexual restrictiveness and reduced support for gender equality (Thornhill et al., 2009; Tybur et al., 2015; Varnum & Grossmann, 2016); (3) the disease-spread lay theory of homosexual behaviour suggesting that anti-gay reactions to sexual dissenters are guided by the pathogen contamination metaphor (Filip-Crawford & Neuberg, 2016). In the current study, we built upon this research to investigate, for the first time, changes in submissive authoritarianism, desire for national cohesion and prejudice towards dissenters to sexual norms in the same sample of Polish respondents facing the threat of the COVID-19 pandemic.

The COVID Pandemic in Poland

On March 11th, the WHO declared the Covid-19 outbreak a pandemic, indicating the worldwide spread of a new disease. First cases of coronavirus infections in Poland were reported

on March, 4th and the first death on March, 10th. On March 12th, a state of epidemic was introduced followed by imposition of quarantine measures (Wanat, 2020). Figure 1 shows the frequency of coronavirus related searches in Polish Google. The peak can be noted between 11th and 13th of March. Poles searched for '*koronowirus*' 5 times as often on March, 12th as they did on March 7th. This converges with reports indicating a sharp increase in exposure to coronavirus coverage in traditional and social media noted between 9th and 13th of March. This boosted exposure marks increased concern with COVID-19 infection (Nowy Marketing, 2020). Thus, if there were COVID-19 related shifts in social attitudes, they should be most evident in data collected before and after the peak, i.e., before and after March 12th. The first wave of our data collection occurred between 28th of February and 4th of March, 2020. The next wave of measurement was collected during the pick of the media coverage between 13th – 18th of March, 2020 and the last one between 27th of March to 1st of April, 2020. Thus, the changes between those waves of measurements can be attributed to salience of the coronavirus disease and the threats it produced (Inbar et al., 2016).
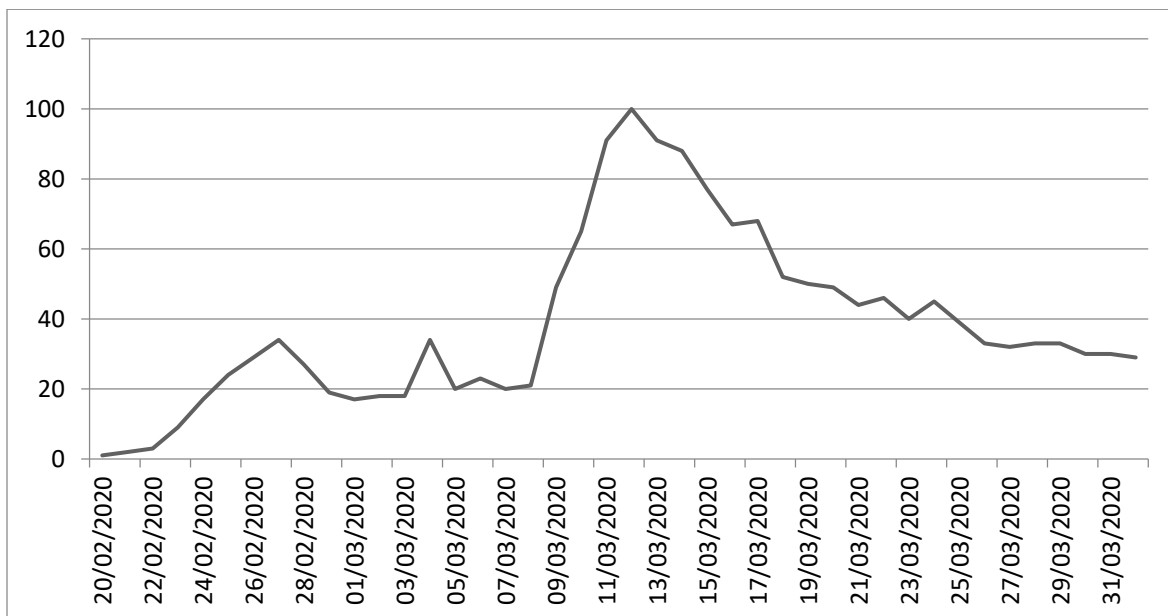
Figure 1. The intensity of COVID-19 (Koronowirus) related searches in Polish Google between 20.02.2020 and 01.04.2020. Generated by Google Trend. The peak corresponds to introduction of lockdown measures and corresponds to directly the second wave of measurement.

Authoritarianism and Threat

Dominant theories of authoritarianism interpret it as a desire for in-group's cohesion, conformity and heightened attachment to the in-group that result in prejudice and intolerance (Duckitt & Sibley, 2009; Feldman, 2003). Crucial to authoritarianism is in-group cohesiveness, which secures order and predictability of the social environment and reduces undesirable cognitive uncertainty. Somewhat inconsistently, authoritarianism is treated either as a result of external threat (Duckitt & Sibley, 2009) or as a moderator of the effects of threat on prejudice and intolerance (Feldman, 2003). According to the latter account, authoritarianism is linked to intergroup hostility, especially in interaction with perceived threat to societal and political order.

We capitalize on the longitudinal nature of our data and a naturally occurring pandemic threat to investigate the proposition that threat increases submissive (but not aggressive) authoritarianism. Moreover, we propose that the increased concern with in-group cohesion associated with submissive authoritarianism mediates the relationship between authoritarianism and prejudice towards transgressors of sexual and gender norms because authoritarians see diversity as a threat to social cohesion. In line with this prediction, right wing authoritarianism has been linked to homophobia, sexism and opposition to gender equity (Austin & Jackson. 2019; Crawford et al, 2016). Below we discuss the evidence suggesting that the intense media coverage related to the COVID-19 pandemic might have produced specific threats that previous

research linked to increases in authoritarianism, social cohesion and sexual restrictiveness: death anxiety and the threat of infectious disease.

The Pandemic as Mortality Salience

Previous studies showed that the intense coverage of the Ebola epidemic in the U.S. increased accessibility of death-related thoughts and produced an increase in traditional worldview defense (Arrowood et al., 2017). Terror management theory proposes that the uniquely human awareness of the finite nature of existence conflicts with evolved self-preservation motive and produces death anxiety people are motivated to avoid. They do so by defending their cultural worldview, deriving pride and self-esteem from following the values that define those worldviews (Pyszczynski et al., 2015) and by identifying with tight social groups that provide a sense of symbolic self-continuity (Sani et al., 2009). Indeed, after being reminded of their mortality, people enhance their psychological investment in their national groups (Castano et al., 2002; Jonas et al., 2005), support unifying national leaders (Cohen et al., 2004) and reify national groups (i.e., see them as solid, homogenous, unified entities, Herrera & Sani, 2013). Given such findings, we expected the increased exposure to information about COVID-19 would increase attachment to traditional values (tapped by the concept of right wing-authoritarianism) and desire for in-group cohesion followed by rejection of dissenters of traditional norms.

This prediction is also supported by research indicating that the sense of in-group cohesion after mortality salience is achieved not only by intensified emphasis on conformity and normative behaviors but also by efforts to undermine diversity through harsher punishment of moral transgressors (Rosenblatt et al, 1989). This research indicates that dissenters of traditional sexual and gender norms may be particularly targeted by prejudice after COVID in Poland as

attitudes towards those groups powerfully differentiate traditional and progressive worldviews in this country (Korolczuk & Graff, 2018). In addition, studies indicate that mortality salience increases sexual restrictiveness and derogation of sexually provocative women (Goldenberg, 2012).

Threat of Infectious Disease

Exposure to COVID-19 news coverage is also likely to increase the specific threat of infectious disease as indicated by previous studies showing that reminders of Ebola epidemic increased political conservatism (Beall et al., 2016) and implicit prejudice towards gay people in the US (Inbar et al., 2016). Pathogens pose a predatory threat to humans. Historically we have lacked an understanding of how infectious diseases spread. Thus, societies developed a vast array of approximate behavioural responses as 'prophylactic protection against pathogen infection' (Schaller, 2016, p. 207). Those responses pertain to increased adherence to group traditions and norms that increase in-group cohesiveness. Homogenous groups allowed people to efficiently distinguish and reject those individuals who were foreign or engaged in behaviours that might have increased the threat of infection by novel pathogens (Fincher & Thornhill, 2012). Indeed, studies showed that regional variation in pathogen prevalence is related to greater conformism, less innovation, and more conservatism. Authoritarian, single party, single rule of life governments dominate in geographic areas with high degrees of parasite stress (Murray & Schaller, 2016). Experimentally induced disease salience increases authoritarian attitudes, in-group conformity and rejection of in-group dissenters (Helzer & Pizarro, 2011).

Sexual Dissenters and the Metaphor of Contamination

Dissenters who deviate from traditional sexual norms are especially likely to be stigmatized during the outbreaks of infectious disease because they are construed metaphorically

as an contaminant (Filip-Crawford & Neuberg, 2016) and prejudice towards them is expressed as disgust (Cottrell & Neuberg, 2005). Disgust is an affective reaction to bodily contamination and a moral emotion characterizing responses to violation of values of purity (Haidt et al., 1997). Lesbians and gay men are among the social groups that have been most persistently framed as "a plague" and "unclean" (Herek, 2000). Individual sensitivity to disgust and physical contamination concerns predict anti-gay prejudice (Golec de Zavala et al., 2014; Hodson & Costello, 2007; Inbar et al., 2009; Olatunji, 2008; Terrizzi et al., 2010). Experimentally induced disgust increases dislike of gay men (Dasgupta et al., 2009; Inbar et al., 2012). Individual pathogen sensitivity is associated with sexual prejudice and sexual restrictiveness (Crawford et al., 2014; Olatunji, 2008; Tybur et al., 2015).

The concepts of 'purity' and 'contamination' are also used with reference to women and their sexual behavior. The Madonna-Whore Dichotomy describes polarized stereotypical perception of women as chaste, asexual, and motherly or impure and promiscuous. This false dichotomy serves to perpetuate patriarchal relations and the language of 'contamination' is used to justify sexual double standards for men and women and perpetuation of traditional gender-based hierarchies (Bareket et al., 2018).

Overview

We predicted that right wing authoritarianism, desire for national cohesion and rejection of sexual dissenters as threat to national identity would increase in response to the intense exposure to information about COVID-19 outbreak in March, 2020 (Hypothesis 1). We also predicted that these increases should be sequentially related: the increase in authoritarianism should predict rejection of sexual dissenters via increased desire for of national cohesion (Hypothesis 2). In line with the dual model of political attitudes (Duckitt & Sibley, 2009), we

specially expected the specific change in authoritarian submission and conformity (tapped by the concept of right wing authoritarianism) in response to the COVID-19 pandemic rather than a change in authoritarian aggression (tapped by the concept of social dominance orientation) or a general shift towards political conservatism.

We tested our hypotheses in three-waves of a longitudinal study conducted in Poland every two weeks starting on 28th of February, 2020 *before* the first coronavirus case was detected in Poland. In order to capture the growths predicted by Hypothesis 1 we used latent growth curve modeling, which allows detection of change in constructs over time, as well as variability of the rate and direction of this change within the sample (Bollen & Curran, 2006). In order to infer the directionality of the relationships between authoritarianism, desire for national cohesion and rejection of sexual dissenters predicted by Hypothesis 2, we specified a cross-lagged panel model (Selig & Preacher, 2009). The combination of those approaches allows us to observe the changes in all variables over time as well as the relationships between those changes.

Method

Participants and Procedure

We collected data from Polish adults via the Ariadna Research Panel (http://www.panelariadna.com) sampled from a poll of 150 000 verified panelists using the CAWI method. The random-quota sample is nationally representative in terms of age, gender and place of residence. The weighted data (weight based on self-reported voting in parliamentary elections of 2013) are representative in terms of political orientation.

The first data collection included 1060 participants (568 women, 492 men) ranging in age from 18 to 94 years ($M = 45.09$, $SD = 16.00$). The second data collection occurred two weeks later among 932 participants (500 women, 432 men; attrition rate = 12.08%) from the first wave.

Their age ranged from 18 to 93 years ($M = 45.62$, $SD = 15.79$). The third collection occurred two weeks after the second wave and included 849 participants from the previous wave (461 women, 428 men; attrition rate = 19.91%) with an age range of 18 to 93 years ($M = 45.97$, $SD = 15.86$). The sample size was sufficient to detect the planned correlations of slopes based on recommendation for latent curve models when the assumed correlations are modest (.25, Hertzog et al., 2006).

We compared participants who finished the study with those who dropped out after the first or second wave. Completers reported higher scores on variables included in the tested model: authoritarianism ($diff = 0.32$, $t(1058) = 2.03$, $p = .04$, $d = 0.17$), desire for national cohesion ($diff = 0.56$, $t(1058) = 2.87$, $p = .004$, $d = 0.25$), and prejudice ($diff = 0.56$, $t(1058) = 2.78$, $p = .006$, $d = 0.24$) than dropouts. However, completers did not show significant differences on variables that were *not* part of the model such as political conservatism ($diff = -0.14$, $t(1058) = 1.67$, $p = .09$, $d = -0.15$). This pattern is inconsistent with the missing completely at random (MCAR) mechanism assuming that missing cases are unrelated to any other variables in or out of the model (Rubin, 1976) but consistent with the missing at random (MAR) mechanism assuming that missing cases can be related to variables in the model, but not to variables omitted from the model (Graham, 2009; Rubin, 1976). Complete case analysis (i.e., deleting dropouts) is a viable method of handling missing values under MCAR, while advanced missing data techniques such as full information maximum likelihood are viable under MAR (Graham, 2009). Therefore, we used full information maximum likelihood to account for missing data. Additionally, to ensure the robustness of our findings, we performed sensitivity analyses in the R package *konfound* (Frank et al., 2013) separately for each of the hypothesized lagged paths of the cross-lagged model. These analyses indicated that for the different paths of the

unconstrained model, between 37% and 60% of the estimate would have to be due to bias to invalidate our inferences (37% - 57% for the constrained model). Thus, between 388 and 635 observations (or 388 – 607 for the constrained model) would have to be replaced with cases for which the effect is 0 for our conclusions to be invalid. This indicates that despite cases missing not at random, our analyses are reliable.

Materials

All measurements were presented to participants in a random order different for each participant. The order of items in each of the measures was also randomized for each participant. Participants provided their response on a scale ranging from 0 (totally disagree) to 10 (totally agree).

Right Wing Authoritarianism was assessed by means of the 6-item Very Short Authoritarianism Scale a shortened version of the measurement of the concept proposed by Altemeyer (1996, Bizumic & Duckitt, 2018; e.g., "What our country needs most is discipline, with everyone following our leaders in unity"); T1: α = .71, M = 3.79, SD = 1.89; T2: α = .69, M = 4.09, SD = 1.81; T3: α = .70, M = 4.10, SD = 1.83.

Desire for National Cohesion was assessed by three items: "Poland is united", "Poland has a common mind", and "Poles acts efficiently when they wants to improve their situation" (adapted from Waytz & Young, 2012). T1: α = .76, M = 4.26, SD = 2.34; T2: α = .80, M = 4.58, SD = 2.35; T3: α = .81, M = 4.65, SD = 2.37.

Prejudice towards sexual dissenters was measured as a concern that non-traditional women and gay people threaten national identity. This measure was composed of two scales: a scale measuring perception of non-traditional women as a national threat ("Women who do not have children threaten the survival of their nation", "For the sake of the nation, men should

control women", "Women should 'respect themselves' for the good of the nation", "Women's

equality is a threat to Poland") and a scale measuring the perception of gay people as a threat to

national survival ("Not having children, gays, and lesbians threaten the survival of their nation",

"Homosexuality is a threat to Poland", "Homosexuality is a Western import", "Gays do not

possess the traits needed for the military defence of the nation"; Mole et al., 2020). The two

measures were strongly, positively correlated in all measurement waves (T1: $r(1058) = .63$;

T2: $r(930) = .64$; T3: $r(892) = .69$, all $ps < .001$). In addition, the analyses with each of these

measurements as the outcome variable separately produced the same pattern of results[1]. Thus,

the measures were collapsed for the sake of brevity of presentation; T1: $\alpha = .89$, $M = 3.53$, $SD =$

2.43; T2: $\alpha = .90$, $M = 3.73$, $SD = 2.50$; T3: $\alpha = .91$, $M = 3.81$, $SD = 2.58$.

Social Dominance Orientation was measured by a 4-item, shortened version of the

social dominance scale (Pratto et al., 2013; e.g., "We should not push for group equality"), T1: α

$= .58$, $M = 3.61$, $SD = 1.77$; T2: $\alpha = .59$, $M = 3.66$, $SD = 1.95$; T3: $\alpha = .60$, $M = 3.66$, SD $= 1.77$.

Political conservatism was assessed by one question "How do you assess your political

beliefs in general?" (1 = *Liberal*; 2 = *Rather liberal*; 3 = *Hard to say, a bit conservative, a bit*

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[1] In cross-lagged models, the results were very similar for both outcomes, including the indirect

effect ($B = 0.030$, $SE = 0.009$, 95% *CI* [0.013, 0.049] for non-traditional women; $B = 0.025$, $SE =$

0.009, 95% *CI* [0.010, 0.045] for LGBT people). In both growth models, the mean values of the

intercept ($M = 3.306$, $SE = 0.007$, $p < .001$ for non-traditional women, $M = 3.769$, $SE = 0.091$, p

$< .001$ for LGBT people) and slope ($M = 0.097$, $SE = 0.07$, $p = .001$ for non-traditional women,

$M = 0.110$, $SE = 0.033$, $p = .001$ for LGBT people) were very similar, offering evidence that

these variables can be analyzed together.

liberal; 4 = *Rather conservative*; and 5 = *Conservative*), T1: $M = 2.84$, $SD = 0.99$; T2: $M = 2.86$, $SD = 1.00$; T3: $M = 2.87$, SD = 1.01.

Results

All variables of interest were positively associated in each wave of measurement (Table 1). Mean scores on all variables increased across times of measurement (Figure 2).
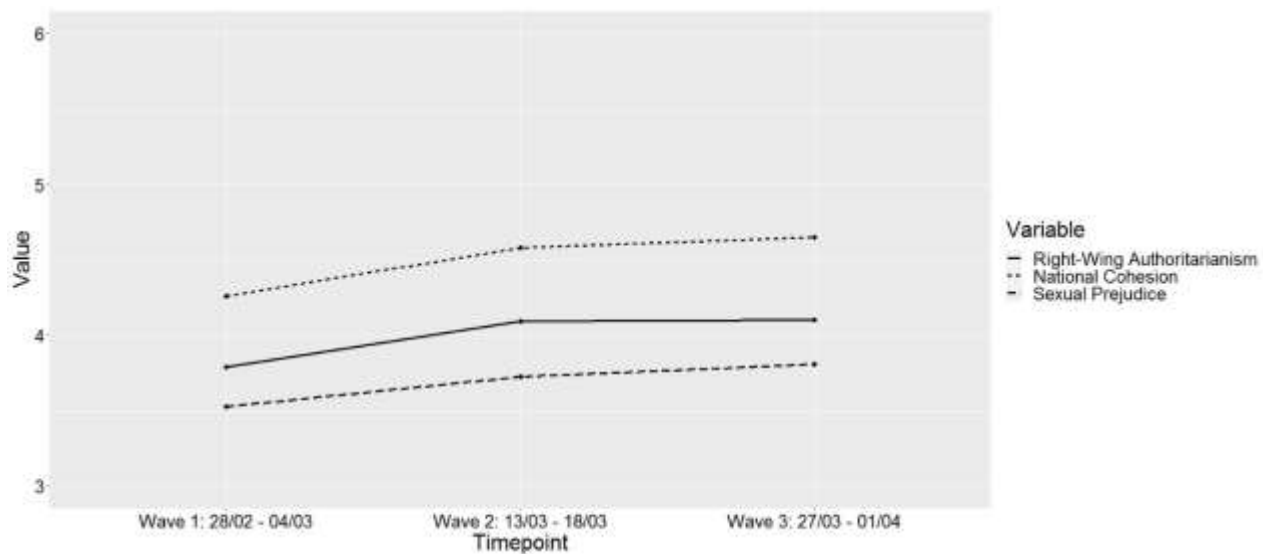
Figure 2: Means of authoritarianism, national cohesion and sexual prejudice across three waves of measurement.

Table 1

Correlations Among Key Variables

	N	*M*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1. Authoritarianism (T1)	1060	3.79	1.89	--							
2. National Cohesion (T1)	1060	4.26	2.34	.49***	--						
3. Prejudice (T1)	1060	3.53	2.43	.64***	.61***	--					
4. Authoritarianism (T2)	932	4.09	1.81	.80***	.46***	.61***	--				
5. National Cohesion (T2)	932	4.58	2.35	.47***	.71***	.55***	.47***	--			
6. Prejudice (T2)	932	3.73	2.50	.60***	.55***	.83***	.63***	.57***	--		
7. Authoritarianism (T3)	889	4.10	1.83	.81***	.46***	.60***	.82***	.46***	.60***	--	
8. National Cohesion (T3)	889	4.65	2.37	.49***	.69***	.56***	.50***	.72***	.56***	.51***	--
9. Prejudice (T3)	889	3.81	2.58	.61***	.57***	.83***	.59***	.58***	.84***	.61***	.63***

Note. ***$p < .001$, T = Time.

We used latent growth curve modeling (Bollen & Curran, 2006) in the R package *lavaan* 0.6-5 (Rosseel, 2012) to test Hypothesis 1 that right wing authoritarianism, desire for national cohesion and sexual prejudice increase over time during the outbreak of the COVID-19 pandemic. To account for non-normal distributions of the three variables (all Kolmogorov-Smirnov ps < .001), we used robust maximum likelihood estimation (MLR) with Yuan-Bentler χ^2 test statistics and Huber-White robust standard errors. Full information maximum likelihood was used to account for missing values.

First, we specified three univariate latent growth curve models with latent intercept factor only (no-growth models). Next, we added linear change slope factors to each of the three models (growth models). For all three variables, model fit improved significantly when the slope factors indicative of significant linear changes were added (Table 2). The slope factor means, but not slope factor variances, were positive and significant, indicating that these variables increased over time without any substantial variation in the direction and the rate of change between participants (Table 3). For comparison, we performed the same analyses on social dominance orientation and political conservatism and found no evidence of increase over time.

Table 2

Fit Indices for Univariate and Multivariate Latent Growth Curve Models

Variable	Model	χ^2	Df	P	CFI	SRMR	RMSEA
Authoritarianism							
	No growth	60.38	6	< .001	.97	.05	.10 (.079, .125)
	Linear growth	15.96	3	.001	.99	.02	.07 (.038, .104)
				$\Delta \chi^2(3) = 43.90, p < .001$			
National Cohesion							
	No growth	34.02	6	< .001	.98	.04	.07 (.050, .097)

Linear growth	4.80	3	.19	1.00	.01	.03 (.000, .065)
			$\Delta \chi^2(3) = 28.42, p < .001$			
Prejudice						
No growth	21.84	6	.001	.99	.03	.06 (.032, .082)
Linear growth	0.61	3	.90	1.00	.00	.00 (.000, .027)
			$\Delta \chi^2(3) = 23.04, p < .001$			
Social Dominance Orientation						
No growth	12.86	6	.05	.99	.02	.03 (.005, .062)
Linear growth	7.38	3	.06	1.00	.02	.04 (.000, .078)
			$\Delta \chi^2(3) = 5.47, p = .14$			
Political Conservatism						
No growth	0.96	6	.99	1.00	.01	.00 (.000, .000)
Linear growth	0.65	3	.89	1.00	.01	.00 (.000, .000)
			$\Delta \chi^2(3) = 0.32, p = .96$			
Multivariate Growth Model for Key Variables						
	59.49	24	< .001	.99	.02	.04 (.029, .056)

Note. Robust fit statistics for each model and robust difference test based on standard (not robust) statistics are reported; $p(\Delta \chi^2) < .05$ indicates that the linear growth model fit was significantly better than the no-growth model fit.

Table 3

Means and Variances in Univariate and Multivariate Latent Growth Models

Variable		Mean	p	Variance	p
Authoritarianism					
	Intercept	3.82	< .001	2.85	< .001
	Slope	0.14	< .001	0.01	.86
National Cohesion					
	Intercept	4.29	< .001	3.92	< .001
	Slope	0.17	< .001	0.10	.22
Prejudice					

	Intercept	3.54	< .001	4.85	< .001
	Slope	0.10	< .001	0.03	.50
Social Dominance Orientation					
	Intercept	3.63	< .001	2.00	< .001
	Slope	0.01	.59	0.09	.07
Political Conservatism					
	Intercept	2.84	< .001	0.82	< .001
	Slope	0.00	.83	0.00	.85

Note. [***] $p < .001$. [*] $p < .05$. Intercept factor means and variances, as well as slope factor means and variances for any given variable are identical in univariate and multivariate models.

Next, we specified a multivariate latent growth curve model including intercept factors and linear change slope factors of the three variables, and we estimated the covariances between all intercepts and all slopes (Table 4). We found significant associations between the slope factors (indicating growth across time of measurements) of authoritarianism, desire for national cohesion, and sexual prejudice. Moreover, the intercept factors of the three variables were significantly and positively interrelated, indicating that participants who scored higher on one of these variables at the initial measurement, also scored higher on the remaining two variables at the initial measurement.

Although positively related with the slopes of national cohesion and sexual prejudice, the slope of authoritarianism was negatively related with the intercepts of both variables. This indicates that while the three variables grew in relation to each other, the increase of authoritarianism was less accentuated for those participants who started from higher levels of desire for national cohesion and for those who started from higher levels of sexual prejudice. Similarly, the slope of desire for national cohesion was negatively associated with the intercept of sexual prejudice, indicating that while both variables grew in relation to each other, the increase of desire for national cohesion was less accentuated for those participants who started

from higher levels of sexual prejudice. The remaining associations between intercept factors and

slope factors were not significant. In the next step, we tested our prediction regarding direction

of the associations between the three variables.

Table 4

Slope and Intercept Covariances in Multivariate Latent Growth Model

	σ	$SE(\sigma)$	P
RWA Intercept ↔RWA Slope	-0.05	0.04	.21
RWA Intercept ↔ NC Intercept	2.14	0.13	< .001
RWA Intercept ↔ NC Slope	0.00	0.06	.96
RWA Intercept ↔ P Intercept	2.87	0.13	< .001
RWA Intercept ↔ P Slope	0.00	0.04	.97
RWA Slope ↔ NC Intercept	-0.15	0.04	.001
RWA Slope ↔ NC Slope	0.07	0.02	.001
RWA Slope ↔P Intercept	-0.12	0.04	.004
RWA Slope ↔P Slope	0.05	0.02	.005
NC Intercept ↔NC Slope	-0.07	0.10	.44
NC Intercept ↔P Intercept	3.36	0.19	< .001
NC Intercept ↔P Slope	-0.06	0.06	.30
NC Slope ↔P Intercept	-0.15	0.07	.03
NC Slope ↔P Slope	0.18	0.03	< .001
SP Intercept ↔P Slope	0.13	0.07	.05

Note. NC = Desire for national cohesion. RWA = Right-wing authoritarianism. SP = Prejudice

towards sexual dissenters.

To test Hypothesis 2 that authoritarianism predicts prejudice towards sexual dissenters

because it is associated with desire for national cohesion, we specified a cross-lagged panel

model (Selig & Preacher, 2009) including authoritarianism as the predictor, desire for national

cohesion as the mediator and prejudice as the outcome. We regressed the T2 score of each

variable on its own T1 value and on the T1 values of the remaining variables, and the T3 score of each variable on its own T2 value and on the T2 values of the remaining variables, while also allowing for correlations between all variables within each measurement wave. To account for non-normal distributions, we used bootstrap with 10,000 samples and 95% percentile confidence intervals. Full information maximum likelihood was used to account for missing values[2].

Cross-lagged panel models allow for drawing inferences about directionality of variables by controlling for auto-regressions. As such, they allow the answering of different research questions than growth models and may be used as a complementary approach (Schlueter et al., 2007). Cross-lagged panel models have been criticized for confounding within- and between-subjects growth (Hamaker et al., 2015; Mund & Nestler, 2019). However, we showed that the analyzed constructs are dynamic between participants, which suggests that this critique may not apply to our analyses. Moreover, alternative statistical approaches including random intercept cross-lagged models (i.e., RI-CLPM; Hamaker et al., 2015) or autoregressive latent trajectory models (Mund & Nestler, 2019) are complex and hence plagued by convergence issues especially when more than two constructs are analyzed simultaneously (Golec de Zavala et al., 2019). Accordingly, we were not able to obtain an admissible solution with these alternative approaches.

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[2] To ensure robustness in our findings regarding the directionality of the relationships between key variables, we re-conducted the cross-lagged analysis controlling for age, gender, education and place of residence. The model held and the results did not change significantly (see Supplementary Materials, Table S1, for details), although model fit appeared to be worse ($\chi^2(21) = 560.82$, $p < .001$, CFI = .93, SRMR = .07).

As expected, when controlling for auto-regressions and within-wave correlations, authoritarianism at T1 and T2 positively predicted desire for national cohesion at T2 and T3, respectively. Desire for national cohesion at T2, in turn, positively predicted prejudice at T3, but desire for national cohesion at T1 did not predict sexual prejudice at T2 (Figure 3). The indirect effect of authoritarianism on prejudice towards sexual dissenters via national cohesion was significant ($B = 0.02$, $SE = .01$, 95% $CI = [.006, .033]$), supporting Hypothesis 2 that authoritarianism leads to prejudice towards sexual dissenters because it is associated with desire for national cohesion.

While we were mostly interested in structural relations between variables, we also examined model fit. The initial model with no equality constraints showed acceptable fit with the data ($\chi^2(9) = 394.51$, $p < .001$, CFI = .95, SRMR = .03)[3]. Because one of the hypothesized paths was not significant (desire for national cohesion at T1 to sexual prejudice at T2), we additionally evaluated whether directional relations between the variables are stable over time. To do so, we constrained cross-lagged paths between each pair of variables to be equal from T1 to T2 and from T2 to T3. With these constraints, the path from national cohesion at T1 and T2 to prejudice at T2 and T3 was significant ($B = 0.10$, $SE = .02$, 95% $CI = [.060, .132]$) and model fit did not change ($\Delta \chi^2(6) = 11.06$, $p = .09$), indicating that the effects were equal across time. In particular, authoritarianism predicted desire for national cohesion with the same strength between T1 and T2 as between T2 and T3, and desire for national cohesion predicted prejudice with the same strength between T1 and T2 as between T2 and T3 (Table S3).

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[3] We did not consider RMSEA (.16, 90% CI [.144, .170], $p < .001$) while evaluating the fit of this model because this index tends to be inflated and should not be used in models with $df < 10$ (Kenny et al., 2015).
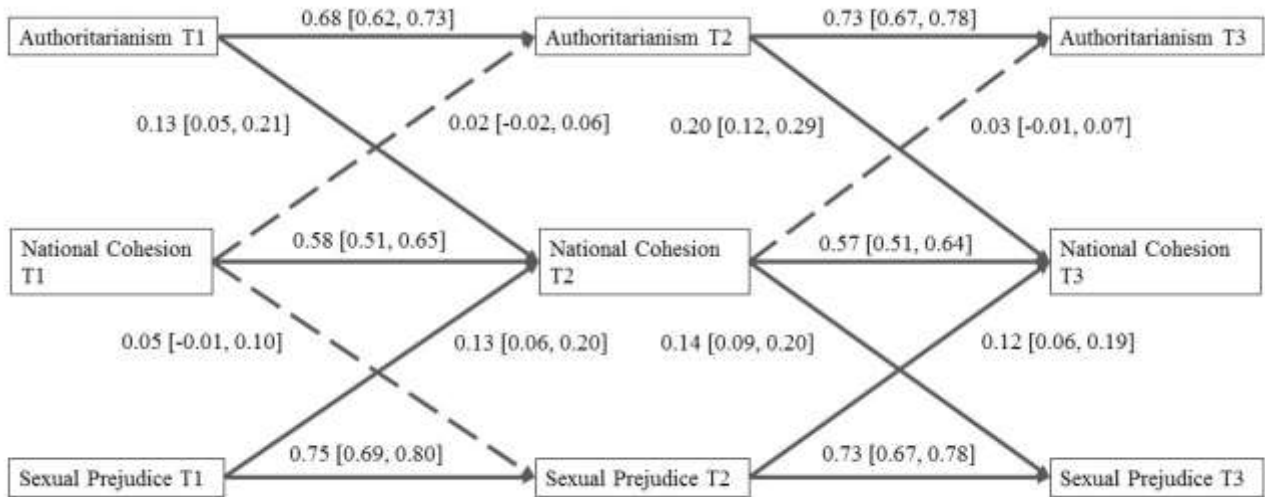
Figure 3. Cross-lagged panel model across three time points. The figure presents unstandardized path coefficients and 95% percentile bootstrap confidence intervals.

Discussion

The present results are consistent with our predictions indicating that the threat of the COVID-19 pandemic increase right wing authoritarianism followed by rejection of moral transgressors via increased desire for in-group cohesion. In line with Hypothesis 1, the present results indicated a linear growth in all variables across three waves of measurement; starting just before the outbreak of the COVID-19 pandemic in Poland, repeated two weeks later when the first lock-down measures were introduced and the exposure to COVID-19 media coverage sharply increased, and then repeated again four weeks into the pandemic when the lock down measures were tightened. Moreover, in line with Hypothesis 2, the increase in submissive authoritarianism predicted rejection of transgressors of sexual and gender norms because it was associated with increased concerns with national cohesion.

Those results are in line with the theoretical models interpreting authoritarianism as a desire for social order and in-group cohesion as means to protect individuals from external threats (Duckitt & Sibley, 2009; Feldman, 2003). The present results clarify that authoritarianism

increases in response to threat and leads to rejection of in-group dissenters because of the associated desire for in-group cohesion. In line with the dual model of political conservatism (Duckitt & Sibley, 2009), the present results clarify that the increase in right wing authoritarianism was *not* accompanied by an increases in general political conservatism or the aggressive and dominant aspect of authoritarianism tapped by social dominance orientation. The model proposes that right wing authoritarianism increases as a reaction to threat, whereas social dominance orientation increases in reaction to intergroup competition.

The present results are in line with previous findings indicating that specific threats occurring during the pandemic—death anxiety (Pyszczynski et al., 2015) and pathogen threat (Murray & Schaller, 2016)—result in stricter adherence to cultural norms, greater in-group cohesion and sexual restrictiveness. Those reactions have also been linked specifically to the intense media coverage of outbreak of infectious disease (Arrowood et al., 2017; Beall et al., 2016; Inbar et al., 2016). Going beyond previous studies that used cross-national, geographical (Murray & Schaller, 2016; Tybur et al., 2016), archival comparisons (Varnum & Grossmann, 2016) or investigated trends in repeated cross sectional measurements before and after the outbreak of the Ebola epidemic (Arrowood et al., 2017; Beall et al., 2016; Inbar et al., 2016), we leveraged the longitudinal design of our study to observe a true change in authoritarianism, desire for national cohesion and prejudice in response to the exposure COVID-19 pandemic among the same group of people.

The present results are in line with research indicating that prejudice and behaviours towards sexual minorities harvests reactions to bodily contamination (Filip-Crawford & Neuberg, 2016; Golec de Zavala et al., 2014). Results from longitudinal data are important complement to previous data that observed increases in sexual prejudice in response to

experimentally primed pathogen threat (Dasgupta et al., 2009) or examined geographic variation in pathogen threats in association with sexual restrictiveness (Fincher & Thornhill, 2012). They further indicate that there is a change in sexual prejudice in response to imminent pathogen contamination threat.

The limitation to generalizability to our results is that they pertain to a specific national context. Although similar attempts to stigmatize nontraditional women and sexual minorities occurred in several countries during the pandemic, further studies would do well to examine whether our findings generalize to different populations. In addition, our results are correlational which limits our ability to infer about causality. Nevertheless, given that our study is longitudinal we can confidently infer about the directionality of the change and the relationships between variables of interest. Another limitation is that we did not control for participants' sexual identity. Thus, the analyses were conducted inclusive of participants representing sexual minorities. Future studies would do well replicating our findings controlling for participants' sexual orientation.

Finally, the current study looked at psychological predictors of prejudice towards sexual dissenters. It did not examine how those predictors might interact with institutional regulations regarding diversity (Riggle et al., 2010) or participant's experience and exposure to diversity (Gorska et al., 2017). Further research would do well investigating such interactions. Nevertheless, results supporting our hypotheses remain unchanged after we consider control variables tapping into issues of education and diversity such as participants' level of education and their place of residence. Those results increase our trust in robustness of our findings. It is important to note that our analyses pertain to changes in the key variables in response to the outbreak of the COVID-19 pandemic. As the pandemic unfolded, emphasis on solidarity and

international collaboration also increased (Pickup, 2020), which might have affected the variables of interest. Thus, future studies would do well complementing our findings with analyses of changes in the later stages of the pandemic.

References

Altemeyer, B. (1996). *The authoritarian specter*. Harvard University Press.

Arrowood, R. B., Cox, C. R., Kersten, M., Routledge, C., Shelton, J. T., & Hood, R.W. Jr. (2017). Ebola salience, death-thought accessibility, and worldview defense: A terror management theory perspective. *Death Studies, 41*(9), 585-591. https://doi.org/10.1080/07481187.2017.1322644

Austin, D. E., & Jackson, M. (2019). Benevolent and hostile sexism differentially predicted by facets of right-wing authoritarianism and social dominance orientation. *Personality and Individual Differences*, *139*(1), 34-38. https://doi.org/10.1016/j.paid.2018.11.002

Ayoub, P. M. (2014). With arms wide shut: Threat perception, norm reception, and mobilized resistance to LGBT rights. *Journal of Human Rights, 13*(3), 337-362. https://doi.org/10.1080/14754835.2014.919213

Ayoub, P. M., & Chetaille, A. (2020). Movement/countermovement interaction and instrumental framing in a multi-level world: rooting Polish lesbian and gay activism. *Social Movement Studies, 19*(1), 21-37. https://doi.org/10.1080/14742837.2017.1338941

Bareket, O., Kahalon, R., Shnabel, N., & Glick, P. (2018). The Madonna-Whore Dichotomy: Men who perceive women's nurturance and sexuality as mutually exclusive endorse patriarchy and show lower relationship satisfaction. *Sex Roles, 79*(9-10), 519–532. https://doi.org/10.1007/s11199-018-0895-7

Beall, A. T., Hofer, M. K., & Schaller, M. (2016). Infections and elections: Did an Ebola outbreak influence the 2014 US federal elections (and if so, how)?. *Psychological Science*, *27*(5), 595-605. https://doi.org/10.1177/0956797616628861

Bizumic, B., & Duckitt, J. (2018). Investigating Right Wing Authoritarianism with a Very Short Authoritarianism scale. *Journal of Social and Political Psychology, 6*(1), 129–150. https://doi.org/10.5964/jspp.v6i1.835

Bollen, K. A., & Curran, P. J. (2006). *Latent curve models: A structural equation perspective.* John Wiley & Sons.

Castano, E., Yzerbyt, V., Paladino, M. P., & Sacchi, S. (2002). I belong, therefore, I exist: Ingroup identification, ingroup entitativity, and ingroup bias. *Personality and Social Psychology Bulletin*, *28*(2), 135-143. https://doi.org/10.1177/0146167202282001

Cohen, F., Solomon, S., Maxfield, M., Pyszczynski, T., & Greenberg, J. (2004). Fatal attraction: The effects of mortality salience on evaluations of charismatic, task-oriented, and relationship-oriented leaders. *Psychological Science*, *15*(12), 846-851. https://doi.org/10.1111/j.0956-7976.2004.00765.x

Cottrell, C. A., & Neuberg, S. L. (2005). Different Emotional Reactions to Different Groups: A Sociofunctional Threat-Based Approach to "Prejudice". *Journal of Personality and Social Psychology, 88*(5), 770–789. https://doi.org/10.1037/0022-3514.88.5.770

Crawford, J. T., Brandt, M. J., Inbar, Y., & Mallinas, S. R. (2016). Right-wing authoritarianism predicts prejudice equally toward "gay men and lesbians" and "homosexuals". *Journal of Personality and Social Psychology*, *111*(2), e31–e45. https://doi.org/10.1037/pspp0000070

Crawford, J. T., Inbar, Y., & Maloney, V. (2014). Disgust sensitivity selectively predicts attitudes toward groups that threaten (or uphold) traditional sexual morality. *Personality and Individual Differences, 70*(1)*,* 218–223. https://doi.org/10.1016/j.paid.2014.07.001

Dasgupta, N., DeSteno, D., Williams, L., & Hunsinger, M. (2009). Fanning the flames of prejudice: The influence of specific incidental emotions on implicit prejudice. *Emotion, 9*(4), 585-591. https://doi.org/10.1037/a0015961

Duckitt, J., & Sibley, C. G. (2009). A dual-process motivational model of ideology, politics, and prejudice. *Psychological Inquiry*, *20*(2-3), 98-109. https://doi.org/10.1080/10478400903028540

Feldman, S. (2003). Enforcing social conformity: A theory of authoritarianism. ==*Political Psychology*,== *24*(1), 41-74. https://doi.org/10.1111/0162-895X.00316

Filip-Crawford, G., & Neuberg, S. L. (2016). Homosexuality and pro-gay ideology as pathogens? Implications of a disease-spread lay model for understanding anti-gay behaviors. *Personality and Social Psychology Review, 20*(4), 332-364. https://doi.org/10.1177/1088868315601613

Fincher, C. L., & Thornhill, T. (2012). Parasite-stress promotes in-group assortative sociality: the cases of strong family ties and heightened religiosity. *Behavioral and Brain Sciences, 35*(2), 61-79. https://doi.org/10.1017/S0140525X11000021

Frank, K. A., Maroulis, S. J., Duong, M. Q., & Kelcey, B. M. (2013). What would it take to change an inference? Using Rubin's causal model to interpret the robustness of causal inferences. *Educational Evaluation and Policy Analysis, 35*(4), 437–460. https://doi.org/10.3102/0162373713493129

Goldenberg, J. L. (2012). A body of terror: Denial of death and the creaturely body. In P. R. Shaver & M. Mikulincer (Eds.), *Meaning, mortality, and choice: The social psychology of existential concerns* (pp. 93–110). American Psychological Association. https://doi.org/10.1037/13748-005

Golebiowska, E. (2017). The links between gender role beliefs, conceptions of the family, attitudes toward Poland's membership in the European Union, religiosity, and Polish support for gay and lesbian rights. *Politics, Groups, and Identities, 5*(4), 599-617. https://doi.org/10.1080/21565503.2016.1146151

Golec de Zavala, A., Bierwiaczonek, K., Baran, T., Keenan, O. & Hase, A., (2020, May 11). Pandemic and the Concerns of National Survival: Sexual Prejudice Increase in Poland During the COVID-19 Pandemic. Retrieved from osf.io/xv2gp

Golec de Zavala, A., Federico, C. M., Sedikides, C., Guerra, R., Lantos, D., Mroziński, B., Cypryańska, M., & Baran, T. (2019). Low self-esteem predicts out-group derogation via collective narcissism, but this relationship is obscured by in-group satisfaction. *Journal of Personality and Social Psychology.* Advance online publication. https://doi.org/10.1037/pspp0000260

Golec de Zavala, A., Waldzus, S., & Cypryanska, M. (2014). Prejudice towards gay men and a need for physical cleansing. *Journal of Experimental Social Psychology, 54*, 1-10. https://doi.org/10.1016/j.jesp.2014.04.001

Golec de Zavala, A., Lantos, D., & Keenan, O. (2020, in press). The Angry Men: What can the association between collective narcissism, homophobia and sexism tell us about the cultural backlash explanation of populism? In J. Forgas, B. Crano and K. Fiedler (Eds). *The Psychology of Populism.* New York: Routledge

Górska, P., van Zomeren, M., & Bilewicz, M. (2017). Intergroup contact as the missing link between LGB rights and sexual prejudice. *Social Psychology, 48*(6), 321–334. https://doi.org/10.1027/1864-9335/a000313

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60*, 549-576. https://doi.org/10.1146/annurev.psych.58.110405.085530

Haidt, J., Rozin, P., Mccauley, C., & Imada, S. (1997). Body, Psyche, and Culture: The Relationship between Disgust and Morality. *Psychology and Developing Societies, 9*(1), 107–131. https://doi.org/10.1177/097133369700900105

Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. P. P. (2015). A critique of the cross-lagged panel model. *Psychological Methods, 20*(1), 102–116. https://doi.org/10.1037/a0038889

Helzer, E. G., & Pizarro, D. A. (2011). Dirty liberals! Reminders of physical cleanliness influence moral and political attitudes. *Psychological Science*, *22*(4), 517-522. https://doi.org/10.1177/0956797611402514

Herek, G. M. (2000). The psychology of sexual prejudice. *Current Directions in Psychological Science, 9*(1), 19–22. https://doi.org/10.1111/1467-8721.00051

Herrera, M., & Sani, F. (2013). Why does ingroup identification shield people from death anxiety? The role of perceived collective continuity and group entitativity. *Social Psychology, 44*(5), 320–328. https://doi.org/10.1027/1864-9335/a000128

Hertzog, C., Lindenberger, U., Ghisletta, P., & von Oertzen, T. (2006). On the power of multivariate latent growth curve models to detect correlated change. *Psychological Methods, 11*(3), 244-252. https://doi.org/10.1037/1082-989X.11.3.244

Hodson, G., & Costello, K. (2007). Interpersonal disgust, ideological orientations, and dehumanization as predictors of intergroup attitudes. *Psychological Science, 18*(8), 691–698. https://doi.org/10.1111/j.1467-9280.2007.01962.x

Inbar, Y., Pizarro, D. A., & Bloom, P. (2012). Disgusting smells cause decreased liking of gay men. *Emotion, 12*(1), 23–27. https://doi.org/10.1037/a0023984

Inbar, Y., Pizarro, D. A., Knobe, J., & Bloom, P. (2009). Disgust sensitivity predicts intuitive disapproval of gays. *Emotion, 9*(3), 435–439. https://doi.org/10.1037/a0015960

Inbar, Y., Westgate, E., Pizarro, D. A., & Nosek, B. (2016). Can a naturally occurring pathogen threat change social attitudes? Evaluations of gay men and lesbians during the 2014 Ebola epidemic. *Social Psychological and Personality Science, 7(5)*, 420-427 https://doi.org/10.1177/1948550616639651

Inglehart, R., & Norris, P. (2016). *Gender equality and cultural change around the world*. Cambridge University Press. https://www.cambridge.org/de/academic/subjects/politics-international-relations/politics-general-interest/rising-tide-gender-equality-and-cultural-change-around-world?format=PB

Jonas, E. , Fritsche, I. , & Greenberg , J. (2005). Currencies as cultural symbols - An existential psychological perspective on reactions of Germans toward the Euro. *Journal of Economic Psychology, 26*(1), 129-146. https://doi.org/10.1016/j.joep.2004.02.

Kenny, D. A., Kaniskan, B., & McCoach, D. B. (2015). The performance of RMSEA in models with small degrees of freedom. *Sociological Methods & Research, 44*(3), 486-507. https://doi.org/10.1177/0049124114543236

Korolczuk, E., & Graff, A. (2018). Gender as "ebola from Brussels": the anticolonial frame and the rise of illiberal populism. *Signs: Journal of Women in Culture and Society, 43*(4), 797-821. https://doi.org/10.1086/696691

Mole, R., Golec de Zavala, A., & Adraq, M. (2020). *Polish collective narcissism and homophobia*. Revision under review.

Mund, M., & Nestler, S. (2019). Beyond the cross-lagged panel model: Next-generation statistical tools for analyzing interdependencies across the life course. *Advances in Life Course Research*, *41*, 100249. https://doi.org/10.1016/j.alcr.2018.10.002

Murray, D. R., & Schaller, M. (2016). The behavioral immune system: Implications for social cognition, social interaction, and social influence. In J. M. Olson & M. P. Zanna (Eds.), *Advances in experimental social psychology: Vol. 53. Advances in experimental social psychology* (p. 75–129). Elsevier Academic Press.

Nowy Marketing (2020, March 13). Koronawirus. Ponad milion publikacji w mediach społecznościowych i 235 tysięcy w tradycyjnych w niespełna dwa miesiące. *Nowy Marketing*. https://nowymarketing.pl/a/25433,koronawirus-ponad-milion-publikacji-w-mediach-spolecznosciowych-i-235-tysiecy-w-tradycyjnych-w-niespelna-dwa-miesiace?_r=1

Olatunji, B. O. (2008). Disgust, scrupulosity and conservative attitudes about sex: Evidence for a mediational model of homophobia. *Journal of Research in Personality, 42*(5), 1364-1369. https://doi.org/10.1016/j.jrp.2008.04.001

Pickup, F. (2020, April 23). How COVID-19 fosters support and solidarity. *United Nations Development Programme.* https://www.undp.org/content/undp/en/home/blog/2020/how-covid-19-fosters-support-and-solidarity.html

Pratto, F., Çidam, A., Stewart, A. L., Zeineddine, F. B., Aranda, M., Aiello, A., Chryssochoou, X., Cichocka, A., Cohrs, J. C., Durrheim, K., Eicher, V., Foels, R., Górska, P., Lee, I-C., Licata, L., Liu, J. H., Li, L., Meyer, I., Morselli, D., . . . Henkel, K. E. (2013). Social dominance in context and in individuals: Contextual moderation of robust effects of

social dominance orientation in 15 languages and 20 countries. *Social Psychological and Personality Science, 4*(5), 587–599. https://doi.org/10.1177/1948550612473663

Pyszczynski, T., Solomon, S., & Greenberg, J. (2015). Chapter one - thirty years of terror management theory: From genesis to revelation. *Advances in Experimental Social Psychology, 52,* 1-70. https://doi.org/10.1016/bs.aesp.2015.03.001

Riggle, E. D. B., Rostosky, S. S., & Horne, S. (2010). Does it matter where you live? Nondiscrimination laws and the experiences of LGB residents. *Sexuality Research & Social Policy, 7*(3), 168–175. https://doi.org/10.1007/s13178-010-0016-z

Rosenblatt, A., Greenberg, J., Solomon, S., Pyszczynski, T., & Lyon, D. (1989). Evidence for terror management theory: I. The effects of mortality salience on reactions to those who violate or uphold cultural values. *Journal of Personality and Social Psychology, 57*(4), 681-690. https://doi.org/10.1037//0022-3514.57.4.681

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1–36. http://www.jstatsoft.org/v48/i02/

Rubin, D. B. (1976). Inference and missing data. *Biometrika*, *63*(3), 581-592. https://doi.org/10.1093/biomet/63.3.581

Sani, F., Herrera, M., & Bowe, M. (2009). Perceived collective continuity and ingroup identification as defence against death awareness. *Journal of Experimental Social Psychology, 45*(1), 242-245. https://doi.org/10.1016/j.jesp.2008.07.019

Schaller, M. (2016). The behavioral immune system. In D. M. Buss (Ed.), *The Handbook of Evolutionary Psychology* (2nd ed., pp. 208-224). Wiley.

Schlueter, E., Davidov, E., & Schmidt, P. (2007). Applying autoregressive cross-lagged and latent growth curve models to a three-wave panel study. In K. van Montfort, J. Oud, & A.

Satorra (Eds.), *Longitudinal models in the behavioral and related sciences* (p. 315–336). Lawrence Erlbaum Associates Publishers. https://doi.org/10.4324/9781315091655-13

Selig, J. P., & Preacher, K. J. (2009). Mediation models for longitudinal data in developmental research. *Research in Human Development, 6*(2-3), 144–164. https://doi.org/10.1080/15427600902911247

Shukla, S., & Klosok, A. (2020, April 16). Poland debates abortion bill amid coronavirus lockdown. *CNN World*. https://edition.cnn.com/2020/04/15/world/poland-abortion-law-intl/index.html

Terrizzi, J. A., Jr., Shook, N. J., & Ventis, W. L. (2010). Disgust: A predictor of social conservatism and prejudicial attitudes toward homosexuals. *Personality and Individual Differences, 49*(6), 587–592. https://doi.org/10.1016/j.paid.2010.05.024

Thornhill, R., Fincher, C. L., & Aran, D. (2009). Parasites, democratization, and the liberalization of values across contemporary countries. *Biological Reviews, 84*(1), 113-131. https://doi.org/10.1111/j.1469-185X.2008.00062.x

Tybur, J. M., Inbar, Y., Aarøe, L., Barclay, P., Barlow, F. K., Barra, M. d., Becker, D. V., Borovoi, L., Choi, I., Choi, J. A., Consedine, N. S., Conway, A., Conway, J. R., Conway, P., Adoric, V. C., Demirci, D. E., Fernández, A. M., Ferreira, D. C. S., Ishii, K., . . . Žeželj, I. (2016). Parasite stress and pathogen avoidance relate to distinct dimensions of political ideology across 30 nations. *PNAS Proceedings of the National Academy of Sciences of the United States of America, 113*(44), 12408–12413. https://doi.org/10.1073/pnas.1607398113

Tybur, J. M., Inbar, Y., Güler, E., & Molho, C. (2015). Is the relationship between pathogen avoidance and ideological conservatism explained by sexual strategies? *Evolution and Human Behavior, 36*(6), 489-497. https://doi.org/10.1016/j.evolhumbehav.2015.01.006

Varnum, M. E. W., & Grossmann, I. (2016). Pathogen prevalence is associated with cultural changes in gender equality. *Nature Human Behaviour, 1*, 003. https://doi.org/10.1038/s41562-016-0003

Walker, S. (2020, June 12). Polish president issues campaign pledge to fight 'LGBT ideology'. *The Guardian.* https://www.theguardian.com/world/2020/jun/12/polish-president-issues-campaign-pledge-to-fight-lgbt-ideology

Wanat, Z. (2020, March 21). Poland declares coronavirus 'epidemic'. https://www.politico.eu/article/poland-declares-coronavirus-epidemic/

Waytz, A., & Young, L. (2012). The group-member mind trade-off: Attributing mind to groups versus group members. *Psychological Science, 23*(1), 77-85. https://doi.org/10.1177/0956797611423546

Supplementary Material

Table S1

Estimates of The Cross-Lagged Panel Model with Covariates

	Path		B	SE	p	CI_{low}	CI_{high}
Sexual Prejudice T2	→	Sexual Prejudice T3	0.70	0.031	.000	0.640	0.763
National Cohesion T2	→	Sexual Prejudice T3	0.15	0.028	.000	0.093	0.205
Authoritarianism T2	→	Sexual Prejudice T3	0.16	0.037	.000	0.085	0.228
Age	→	Sexual Prejudice T3	0.00	0.003	.607	-0.007	0.004
Place of Residence	→	Sexual Prejudice T3	0.03	0.033	.351	-0.034	0.096
Gender	→	Sexual Prejudice T3	-0.35	0.096	.000	-0.539	-0.159
Education	→	Sexual Prejudice T3	0.00	0.033	.951	-0.062	0.066
Sexual Prejudice T1	→	Sexual Prejudice T2	0.72	0.031	.000	0.660	0.783
National Cohesion T1	→	Sexual Prejudice T2	0.04	0.029	.141	-0.013	0.100
Authoritarianism T1	→	Sexual Prejudice T2	0.16	0.034	.000	0.088	0.224
Age	→	Sexual Prejudice T2	-0.01	0.003	.074	-0.011	0.000
Place of Residence	→	Sexual Prejudice T2	-0.03	0.033	.344	-0.097	0.034
Gender	→	Sexual Prejudice T2	-0.19	0.097	.055	-0.377	0.004
Education	→	Sexual Prejudice T2	-0.03	0.033	.428	-0.091	0.039
National Cohesion T2	→	National Cohesion T3	0.56	0.033	.000	0.497	0.625
Sexual Prejudice T2	→	National Cohesion T3	0.12	0.035	.000	0.053	0.190
Authoritarianism T2	→	National Cohesion T3	0.20	0.045	.000	0.109	0.284
Age	→	National Cohesion T3	-0.01	0.003	.037	-0.014	0.000
Place of Residence	→	National Cohesion T3	-0.04	0.039	.338	-0.114	0.041
Gender	→	National Cohesion T3	0.16	0.112	.157	-0.065	0.379
Education	→	National Cohesion T3	-0.02	0.036	.538	-0.095	0.048
National Cohesion T1	→	National Cohesion T2	0.57	0.036	.000	0.495	0.637
Sexual Prejudice T1	→	National Cohesion T2	0.13	0.04	.001	0.057	0.212
Authoritarianism T1	→	National Cohesion T2	0.13	0.043	.004	0.042	0.210
Age	→	National Cohesion T2	-0.01	0.003	.125	-0.012	0.002
Place of Residence	→	National Cohesion T2	0.01	0.039	.840	-0.067	0.085
Gender	→	National Cohesion T2	0.17	0.116	.153	-0.058	0.396
Education	→	National Cohesion T2	-0.04	0.036	.266	-0.110	0.032
Authoritarianism T2	→	Authoritarianism T3	0.73	0.03	.000	0.665	0.782
Sexual Prejudice T2	→	Authoritarianism T3	0.10	0.023	.000	0.057	0.148
National Cohesion T2	→	Authoritarianism T3	0.04	0.022	.117	-0.009	0.078
Age	→	Authoritarianism T3	0.00	0.002	.100	-0.001	0.009
Place of Residence	→	Authoritarianism T3	0.00	0.026	.917	-0.048	0.053
Gender	→	Authoritarianism T3	0.01	0.072	.888	-0.129	0.151
Education	→	Authoritarianism T3	0.01	0.025	.828	-0.043	0.054

			B			CI_{low}	CI_{high}
Authoritarianism T1	→	Authoritarianism T2	0.67	0.029	.000	0.613	0.725
Sexual Prejudice T1	→	Authoritarianism T2	0.11	0.024	.000	0.058	0.151
National Cohesion T1	→	Authoritarianism T2	0.02	0.021	.338	-0.021	0.061
Age	→	Authoritarianism T2	0.00	0.002	.664	-0.003	0.005
Place of Residence	→	Authoritarianism T2	-0.04	0.027	.101	-0.097	0.007
Gender	→	Authoritarianism T2	0.05	0.073	.530	-0.097	0.187
Education	→	Authoritarianism T2	0.01	0.024	.829	-0.042	0.052
Indirect Effect			0.02	0.007	.011	0.006	0.035

Note. *B* represents unstandardized path coefficients. CI_{low} and CI_{high} refer to 95% percentile bootstrap intervals estimated with 10000 samples. Gender was dummy coded as 1 - female, 0 - male. Place of residence was measured on a 5-point scale referring to the size of location, where 1 - village and 5 - city with more than 500,000 inhabitants. Education was measured on a 6-point scale where 1 - primary education and 6 - postgraduate diploma.