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Citizens in democratic countries have more benevolent traits, fewer malevolent traits, and greater well-being

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Research suggests that the degree of democracy in countries is correlated with certain characteristics of its citizens. A question is whether different types of government (e.g., autocratic vs. democratic) are associated with specific personality dispositions and the well-being of citizens. We addressed this question with a sample of over 200,000 persons from 75 countries. Using structural equation modeling and a strong measurement invariance approach we tested the association between national government type (autocratic, hybrid, flawed democracy, full democracy) and citizens report of socially aversive (malevolent) versus affiliative (benevolent) traits. As governments varied from autocratic to full democracy there were lower malevolent traits and higher benevolent traits. Further, established quantitative democracy indices predicted higher benevolent and lower malevolent traits in the total sample, while only benevolent traits were strongly associated with well-being. The findings highlight associations between governments and personality traits and how democratic practices might influence the well-being of its citizens.

For over a decade, democracy has declined worldwide[1,2]. The decline is frequently linked to a rise in authoritarian governments and authoritarian leaders[3–5]. Research shows that autocrats manifest socially aversive personality, especially antagonism, unstable emotions, and elevated malevolent traits such as narcissism, psychopathy, and Machiavellianism[6]. Although there has been a growing interest in the personality traits of politicians[7], it is insufficient to focus on the personality of elites alone to understand democratic backsliding[8]. Substantive research documents that ordinary people play a critical role in democratization[9,10]. For instance, voters with malevolent traits support candidates with similar traits[11,12]. Yet, the proportions of persons with malevolent traits are generally smaller than those with benevolent propensities[13], who may embrace democratic ideals. Here, we examine the associations between citizens' personalities and their respective governments' degree of democracy.

In the scientific literature, various terms are used to discuss opposing human dispositions, such as "dark" vs. "light", "aversive" vs. "affiliative," or "malevolent" vs. "benevolent traits[13–16]." Since dark vs. light traits could be viewed as reflecting implicit bias, we refrain from using them. Instead, we refer to malevolent (or aversive) vs. benevolent (or affiliative) dispositions. Generally, a malevolent disposition involves ill will or intent to do harm, whereas a benevolent disposition entails goodwill or kindness toward others. Studies show that these two broad domains are continuous dimensions of personality rather than strict categories, and are operationally defined and measured using psychometrically sound assessments[13,17,18]. Specifically, malevolent dispositions are assessed via aversive personality traits[15,19] of Machiavellian manipulativeness, psychopathic callousness, and narcissistic self-absorption, all negatively associated with empathy[13] and positively associated with antisocial behavior[14]. In contrast, benevolent dispositions are measured via a scale[20] that taps affiliative traits that entail seeing the goodness of others (Faith in humanity), valuing the dignity and worth of humans (Humanism), and treating people as they are rather than as a means to an end (Kantianism), all are positively associated with empathy and prosocial behavior[13,20]. These affiliative and aversive traits can be modeled and accounted for via latent benevolent and malevolent variables[16]. Figure 1 displays these broad trait domains within the statistical model. It is important to highlight that individuals should not be viewed as either good or bad; rather, some people are more caring and selfless, while others are more callous and selfish, with many gradations in between[21,22].

Studies suggest that personality and other characteristics among citizens are correlated with societies level of democracy. Nichols[8] argues that a democracy cannot long survive without citizens who embody civic virtue

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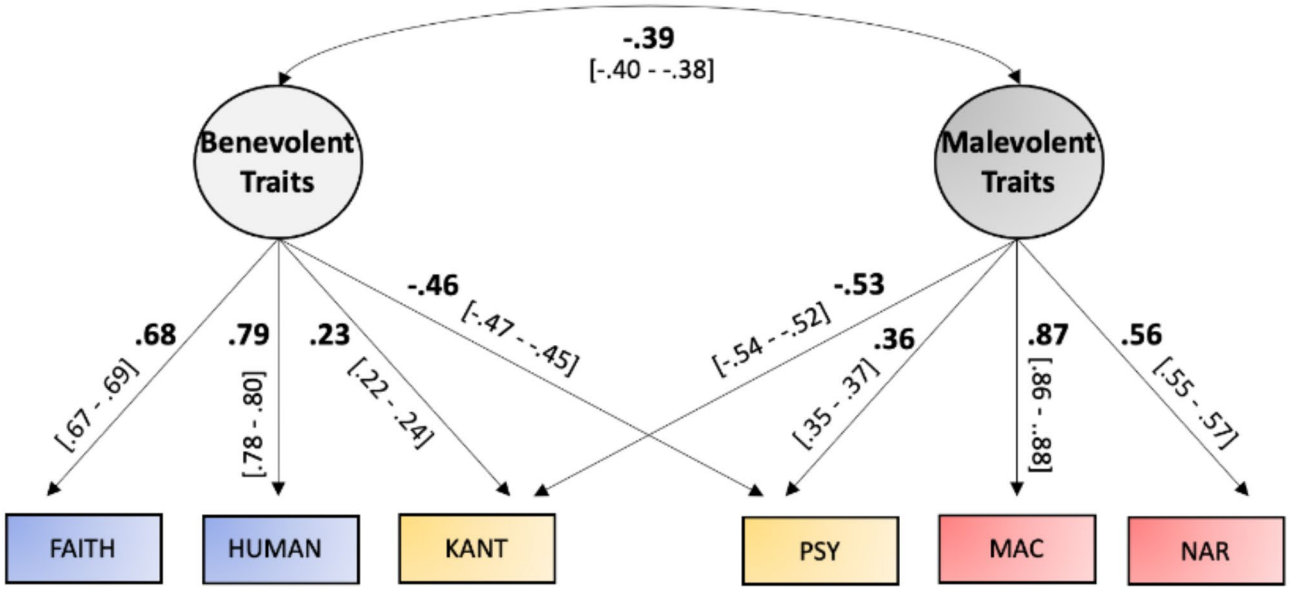

Fig. 1. Exploratory structural equation modeling results. Two-dimensional model representing latent benevolent and malevolent trait domains. Circles represent estimated latent variables. Boxes represent observed variables. Blue are strong benevolent dispositions; Red are strong malevolent dispositions; Yellow boxes highlight cross-over dispositions. Parameters next to single arrow lines are factors loadings (95% CIs in brackets) showing the strength of the link between the observed (manifest) personality trait and the underlying (latent) variable (*p's* < 0.001). The correlation between the two latent factors ($r = -.39$, $p < .001$) is represented by the curved line. *Faith* Faith in humanity, *Human* Humanism, *Kant* Kantianism, *PSY* Psychopathy, *MAC* Machiavellianism, *NAR* Narcissism.

(e.g., prioritizing the common good, selfless service). Similarly, Welzel[23] suggests that people's moral orientations grant greater legitimacy to democracy. Importantly, these relationships can be understood as dispositional tendencies shaped by social context—not as moral judgments of entire cultures. Even in less-democratic settings there are caring, altruistic persons, just as even the most democratic societies must contend with some degree of selfish or hostile behavior. Thus, while benevolent and malevolent dispositions can influence and be influenced by democratic conditions, they are best viewed as spectrum-based human traits present to varying extents in all populations[13].

The emergence of democracy has been described by Welzel and Inglehart[10] as resulting from three necessary elements for human empowerment: action resources, self-expression values, and democratic institutions. Action resources include economic security and educational assets that provide a basis for independent thinking. As societies experience growing prosperity, they focus less on survival and more on autonomy and self-expression[9]. Societies that have high self-expression values put emphasis on participation in politics and group-life more generally, support for equality and tolerance of out-group members, as well as high interpersonal trust. These values are thought to give rise to democratic institutions. Using the World Values Survey, Inglehart and Welzel[24] found that national variation in effective democracy in 2000–2002 was strongly predicted by self-expression values endorsed by citizens in the 1990s. These findings suggest that the values of individuals play a critical role in the emergence and sustainability of an effective democracy[25–29]. Values are "desirable goals … that serve as guiding principles in people's lives"[30]. Values are strongly linked to individuals personality—their characteristic way of thinking, feeling, and behaving[31,32]. Further, longitudinal research suggests that personality traits play a role in shaping subsequent values[33].

Extensive research has been conducted on general personality traits (e.g., agreeableness, openness, honesty-humility) since they account for variation in societal roles[34–36]. Personality plays a critical role in how individuals interact in society. People with agreeable traits tend to endorse values reflecting concern for others and acceptance of civil norms[37]. In contrast, low honesty-humility traits are linked to interpersonally aversive (malevolent) traits[38]. While general traits are correlated with malevolent and benevolent traits, the latter two domains account for additional outcomes beyond general personality[13,39,40]. Also, malevolent, and benevolent interpersonal styles, respectively, are linked to decreased vs. increased sensitivity to moral norms[16,41]. Norris and Inglehart[9] highlight that an "authoritarian reflex" involves "the rejection of diverse lifestyles, political views, and *morals* of 'out-groups' ." (p.18 italics added).

As noted, studies on malevolent personality focus on psychopathic, narcissistic, and Machiavellian traits[14,15]. Malevolent personality traits are associated with self-interest versus collective interests[42]. Also, the beliefs and attitudes associated with a malevolent disposition are antithetical to the self-expression values that Welzel and Inglehart[10] consider necessary for democratic institutions to thrive. Malevolent personality traits are positively associated with right-wing authoritarianism (RWA) and social dominance orientation (SDO)[40,43]. RWA entails a dangerous world view and valuing social control and conformity[5,44], while SDO involves a competitive world

view and preference for social hierarchies[45,46]. Studies that link national and individual levels of analysis find that lower national level of democracy is associated with higher RWA and SDO among citizens[44,45]. Relatedly, research of over 66,000 persons from 38 countries found that the propensity to "assign a higher weight to one's own utility above others' (i.e., socially aversive personality)" were directly or indirectly related to higher SDO and RWA, as well as conservative political ideology and voting behavior[40]. Notably, there is robust evidence of an affinity between conservative ideology and authoritarianism[47], as evident in the current American political system[3,48]. Finally, Nichols[8] provided a cogent proposal that characteristics of malevolent personality are fundamentally linked with a decline in democracy. Thus, it is reasonable to suggest that societies characterized by increased numbers of persons with malevolent personality traits may correlate with an increasingly authoritarian government.

Only recently has research focused on benevolent or affiliative personality (e.g., everyday saints), initially discussed as the light triad[20]. In this research, three broad inter-related benevolent domains have been established and are referred to as *Humanism* (i.e., valuing the dignity and worth of individuals), *Faith in Humanity* (i.e., believing in the fundamental goodness of humans), and *Kantianism* (i.e., treating people as ends unto themselves). These affiliative (benevolent) traits are not simply the converse of aversive (malevolent) traits, given the two domains are inversely correlated at only a low-moderate level[16,20].

Importantly, affiliative traits are associated with altruistic values such as equality and concern for others[49], consistent with the self-expression values that Welzel and Inglehart[10] highlight as critical for effective democracy. Further, research on nearly 500,000 persons from 109 countries found that greater openness toward others (e.g., trust of out-groups, respect for individual rights), akin to benevolent traits, was associated with a national longitudinal shift toward democracy[50]. These results indicate that citizens benevolent-related traits are positively correlated with national level of democracy and provide a potential antidote to authoritarianism and malevolent traits.

Finally, there is another consideration in examining the association between democracy status of governments and the personality characteristics of citizens. There is a common saying, of dubious veracity, that "nice guys finish last." Thus, one might ask whether there is any benefit to the association between malevolent traits and anti-democratic practices, versus the association between benevolent traits and democratic practices. To examine whether personality characteristics were associated with any such benefit, we assessed well-being. Based on our previous research, we expected that benevolent traits would be positively associated with well-being and malevolent traits negatively associated with well-being[13]. We also included religious/spiritual experiences, as a contrast to well-being, assuming there should be less of an association between citizens personality and religious/spiritual experiences, compared to well-being, based on previous meta-analytic findings[36].

Purpose and aims of the current study

It is reasonable to expect significant associations between the malevolent and benevolent dispositions of citizens with the government status (e.g., autocratic vs. democratic) of their respective countries. Norris and Inglehart[9] and others[45,51,52] have shown that it is meaningful to link broad national indices of counties with person level data in terms of manifest (observed) variables. However, manifest variables are confounded with measurement error[53]. In the current study, we used latent variable modeling, an approach that accounts for error, along with the Economist Intelligence Unit (EIU)[1] and Freedom House (FH)[2] democracy indices of countries, to robustly test the associations of malevolent and benevolent traits with the type of government in the country where citizens resided. The EIU and FH democracy indexes, respectively, reflect "thick" versus "thin" definitions of democracy[54], and thus allowed us to check the robustness of our results. In follow-up analyses using the total sample, we employ the EIU and FH quantitative democracy aggregate scores for each country to determine how they accounted for malevolent and benevolent traits, and to examine if the democracy scores and trait domains accounted for well-being.

Previous research[13,20] finds that benevolent and malevolent traits, respectively, are positively and negatively associated with well-being. Interestingly, research also suggests that higher level of democracy may be positively linked with well-being[55,56]. As noted above, we sought to further explore the validity of the associations between democracy, personality, and well-being, by including a second dependent variable reflecting religious/spiritual experiences to assess discriminate validity. Given the literature on democracy and well-being[56], as well as benevolent traits and well-being[13], we expected benevolent traits would have a stronger association with well-being than religious/spiritual experiences. Also, we expected democracy scores to be positively associated with well-being. In contrast, the association between democracy and religion/spirituality is unclear[55]. Research findings in support of the predicted associations between democracy, well-being, and benevolent personality, compared to the associations between democracy, religious/spiritual experiences, and personality, would provide evidence of convergent and discriminative validity, respectively. The association between malevolent traits and religious/spiritual experiences is largely unexplored and therefore we did not have a hypothesis for this association.

Latent variable modeling was used to summarize the structure of benevolent-malevolent traits. Statistical models of personality help to 'see the forest from the trees' by accounting for individuals self-report of many different traits. Dimensions of general personality[57], psychopathic personality[58], malevolent personality[15], and benevolent traits have been successfully modeled[20]. Recently, we have shown that malevolent and benevolent personality trait profiles can be extracted from large samples of persons, including special populations such as U.S. Senators[13], and that a two-dimensional structure accounts for these traits[16]. However, to compare groups of individuals on a set of trait domains, it is critical to first test for measurement invariance via multi-group modeling to show that the parameters equally differentiate among individuals who vary on the traits and at the same level of the underlying latent trait across groups. Specifically, a strict scalar model that holds discrimination (loadings) and threshold (intercept) parameters equal across groups should not show meaningful difference in

fit from a configural model that allows parameters to be free across groups. Thus, good fit of the scalar model is the goal. Latent variable modeling is an ideal approach for modeling constructs and testing for measurement bias[15,59].

Results

Based on a sample of 247,981 participants from 75 different countries collected between 2019 and 2020, we tested a two-factor model of benevolent versus malevolent dispositions in line with our previous research[16]. Participants self-reported their benevolent traits (Faith in Humanity, Humanism, Kantianism) and malevolent traits (Machiavellianism, psychopathy, narcissism). These trait domains were modeled using exploratory structural equation modeling (ESEM), an optimal method for modeling personality data[57]. Specifically, confirmatory factor analytic (CFA) models can be too restrictive (i.e., factor cross-loadings set to zero), which results in inflated factor correlations and potentially biased associations with other latent constructs, particularly for personality data[60]. The ESEM approach offers a viable alternative by incorporating the rigor of confirmatory testing with item cross-loadings and generates comparable results to CFA[15]. In addition, given that participants were nested within countries, we checked all model analyses using the Mplus COMPLEX procedure which accounts for stratification, non-independence of observations. There were no differences in results between models tested with versus without this procedure.

Figure 1 displays the structural model and standardized parameters for the two-factor ESEM. Model fit was excellent (CFI = 0.99; RMSEA = 0.06) and in line with our previous research[16]. The results indicate that a benevolent disposition reflects elevated affiliative traits, but also lower psychopathic callousness. In contrast, a malevolent disposition is typified by elevated aversive traits, but also lower Kantianism (e.g., low moral sensitivity toward others). The latent correlation between the benevolent and malevolent domains revealed a low-moderate association ($r = -.39$, $p < .001$).

Next, we used the Economist Intelligence Unit (EIU) 2021[1] quantitative determination of each country's government status—i.e., autocratic, hybrid, flawed democracy, or full democracy. National government status of each country (grouping variable) was linked to the person level trait data to test for measurement invariance of citizen benevolent and malevolent traits across the government types in which they resided. Using standard methodology to compare models with unconstrained versus constrained parameters (i.e., configural vs. scalar models), our results provided evidence of strong (scalar) invariance (ΔCFI = 0.007). Figure 2 (Panel A) provides the latent mean comparisons of the benevolent and malevolent domains as a function of national government. Relative to citizens in autocratic countries (set to zero for statistical comparisons), there are lower malevolent traits and higher benevolent traits going across the hybrid, to partial democracy, and full democracy groups (latent mean *p's* < 0.001). Moreover, the same pattern of results held when accounting for age, gender, income, education level, and large sub-samples were removed from the analysis (See more in Robustness Analyses in Methods).

We re-ran the multi-group model analysis using the 2021 Freedom House[2] democracy status of each country's government. See Panel B in Fig. 2. Model fit was excellent (CFI = 0.98; RMSEA = 0.04) and the pattern of results match those from the EIU multi-group analyses (latent mean *p's* < 0.001). Note that the Freedom House index uses a three-group designation—i.e., Not Free, Partly Free, and Free. (Not Free countries latent means set to zero for statistical comparison.). The pattern of results comparing the Autocratic/Not Free governments with the Full Democracy/Free governments indicates that there is approximately a one-half or greater unit change in latent benevolent and malevolent traits as a function of government type, indicative of a moderately large effect size.

Using the total sample, a structural equation model (SEM) was specified to determine whether EIU democracy score could account for citizens latent benevolent and malevolent domains, and well-being (SATI) and religious/spiritual experiences (SOUL). Model fit was good (CFI = 0.97; RMSEA = 0.04). The EIU score predicted lower malevolent (*Beta* = − 0.12, $p < .001$) and higher benevolent traits (0.11, $p < .001$), with small effect sizes ($r^2_{Benevolence} = 1.2\%$; $r^2_{Malevolence} = 1.5\%$). Also, benevolent traits (*Beta* = 0.40, $p < .001$) accounted for higher well-being, compared to malevolent traits (− 0.02, $p < .001$) which modestly (negatively) predicted well-being. Democracy scores also accounted for well-being (0.05) and religious/spiritual experiences (− 0.14) (*p's* < 0.001). Overall, the model accounted for 17% of well-being and 8.4% of religious/spiritual experiences (medium-to-large and medium effect sizes in terms of variance accounted for). Benevolent traits had stronger associations with SATI than SOUL, compared to malevolent traits, and were more strongly associated with SATI than SOUL, as we expected.

In the SEM we also included indirect effects, examining how democracy score accounted for SATI and SOUL latent variables through the benevolent and malevolent latent variables. All indirect effects were significant (*p's* < 0.001). The indirect effects of democracy score on SATI and SOUL, respectively, through benevolent traits were stronger (*Betas* = 0.04, 0.03), compared to the indirect effects of malevolent traits (− 0.005, − 0.004). Taken together, more democratic practices in a country were directly associated with lower malevolent and higher benevolent traits among citizens' and greater well-being, with democratic practices also showing an indirect effect through benevolent traits on well-being.

To test the robustness of the SEM results, another SEM was specified to determine whether Freedom House (FH) democracy score could account for latent benevolent, malevolent domains, as well as citizens well-being and religious/spiritual experiences. Model fit was good (CFI = 0.96; RMSEA = 0.05). Results matched the SEM with EIU score, but the FH score had slightly weaker effects for malevolent (*Beta* = − 0.11, $p < .001$) and benevolent traits (0.09, $p < .001$), with small effect sizes ($r^2_{Benevolence} = 1.0\%$; $r^2_{Malevolence} = 1.4\%$). The other predictive effects remained the same as the EIU SEM.

Given the same pattern of results for the EIU and FH scores, we specified a final SEM using these scores as indicators of a democracy latent variable. Model fit was excellent (CFI = 0.98; RMSEA = 0.05). Results indicated that the EIU and FH indicators had strong loadings (EIU = 0.99; FH = 0.95), and the democracy latent

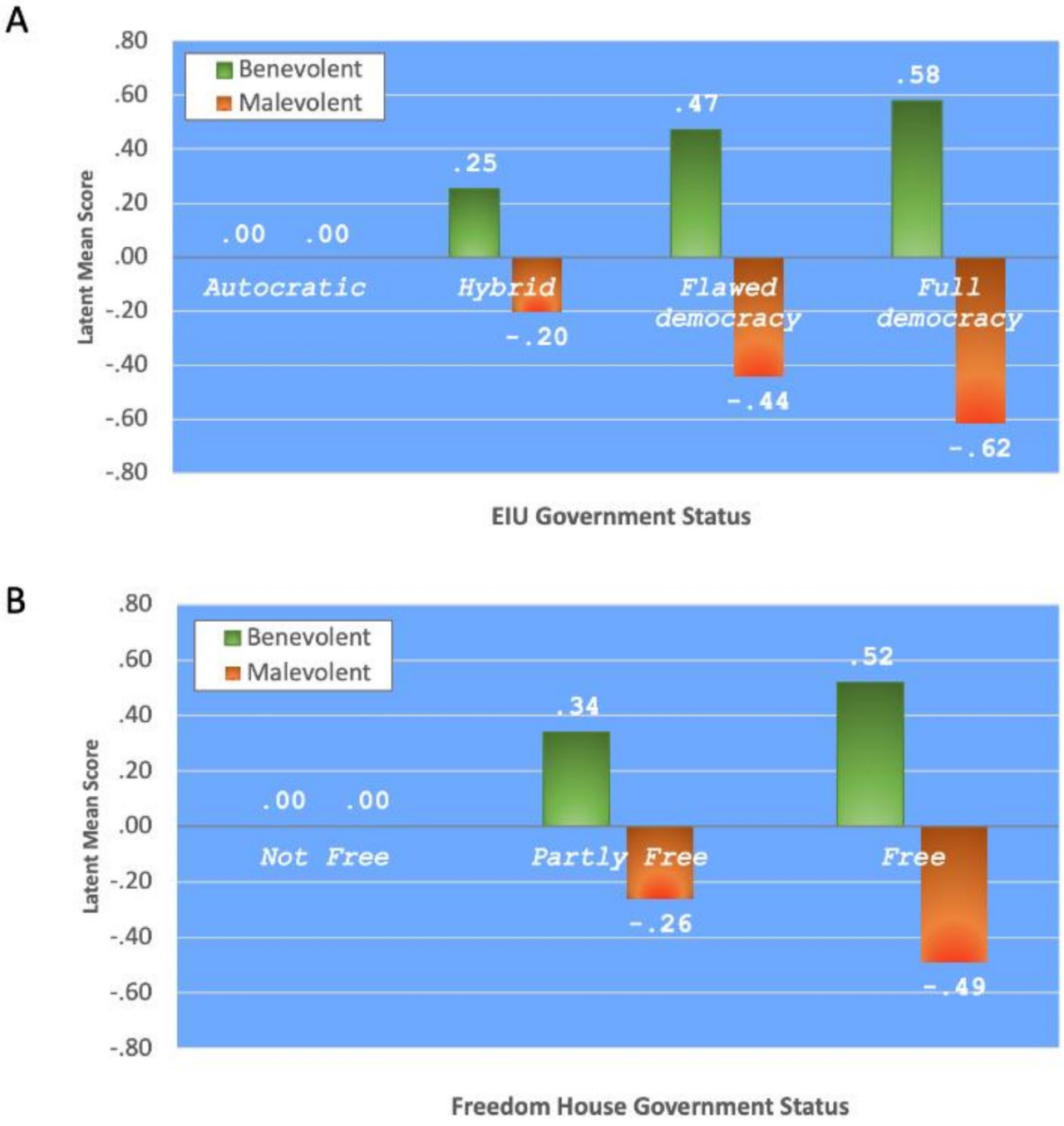

Fig. 2. Latent benevolent and malevolent trait means as a function of government type, (**A**, **B**) respectively, show citizens benevolent and malevolent latent means vary as a function of Economist Intelligence Unit (**A**) and Freedom House (**B**) national government specification. Autocratic latent means set to zero to statistically compare with other governments (**A**). Not Free governments latent means set to zero for comparison with Partially Free and Free government latent means (**B**).

variable predicted malevolent (*Beta* = −0.12, $p < .001$) and benevolent traits (0.11, $p < .001$), with small effect sizes ($r^2_{Benevolence} = 1.3\%$; $r^2_{Malevolence} = 1.5\%$), and the same other effects as the EIU SEM. Figure 3 displays the standardized parameters (95%CIs in brackets) for this final SEM.

Discussion

In line with the influential world survey research of Inglehart and colleagues demonstrating that the characteristics of citizens are linked to the societies they live in[9], our findings indicate that benevolent and malevolent dispositions of citizens are associated with the types of government they live in. Citizens' socially aversive (malevolent) traits were lower, and affiliative (benevolent) traits higher as the government they lived in

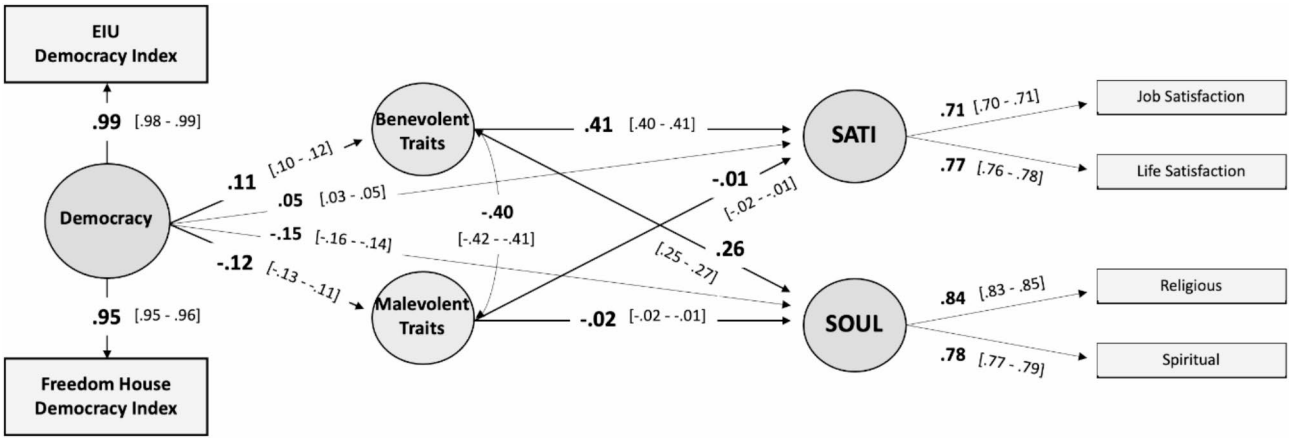

Fig. 3. Structural equation model results. SEM results indicating higher latent democracy (EIU & FH) scores (more democratic practices) predict higher and lower levels, respectively, of benevolent and malevolent traits. Also, the democracy latent variable predicted greater latent life/job satisfaction (SATI) but lower religious/spiritual experiences (SOUL). Benevolent traits had a stronger effect on latent levels of SATI and SOUL. Note. Democracy level is based on Economist Intelligence Unit (EIU) and Freedom House (FH) 2021 rankings as indicators for a democracy latent variable.

varied from autocratic to full democracy. In addition, democracy scores predicted lower malevolent traits and higher benevolent traits. Finally, benevolent traits were strongly associated with higher well-being, compared to malevolent traits which were modestly (though significantly) negatively associated with well-being. Generally, these results are in line with previous research on correlations between governments level of democracy and citizens openness to others[50], RWA/SDO[44,45], and well-being[55,56]. Our results add to this literature by extending the findings to malevolent (aversive) versus benevolent (affiliative) personality dispositions.

Our results should not be taken to suggest that *all* citizens living within an autocratic government display aversive personalities, or that *all* those living in a full democracy show affiliative personalities. Previous research suggests that the proportion of persons displaying specific personality traits is associated with the conditions in various societies[52]. In this context, our findings of lower benevolent latent means for citizens living in autocratic governments is in line with research that finds living in places with greater threat is correlated with citizens lower personality traits of openness to others[61].

While our primary focus of this study was on governments degree of democracy and citizens personality and their well-being, we also included a latent variable reflecting religious/spiritual experiences. This was done to assess convergent and discriminative validity, respectively, of the associations between personality and well-being versus personality and religious/spiritual experiences. The results confirmed our expectation of a stronger association between citizens personality and their well-being, consistent with the findings from meta-analytic research[36]. A more important reason for examining the personality/well-being association is to assess whether there may be any benefit in the association between malevolent dispositions and anti-democratic practices compared to benevolent dispositions and democratic practices. Our findings highlight that more democratic practices among governments are correlated with benevolent dispositions and greater well-being among citizens.

Further understanding of these dispositions is found in our total sample ESEM results. A malevolent disposition involves *elevated* aversive traits but also *reduced* affiliative (Kantianism) traits. This pattern suggests callous use of people for one's benefit. In contrast, a benevolent disposition involves *elevated* affiliative traits and *reduced* aversive traits reflecting callousness (psychopathy). The pattern of these results fit with experimental moral judgement research that finds malevolent traits are associated with reduced sensitivity to moral norms[16,41]. Conversely, benevolent traits are correlated with increased sensitivity to moral norms[16], as well as increased empathy (i.e., reduced callousness)[13]. Relatedly, other research has found replicable person profiles that follow this same respective pattern of elevated versus reduced affiliative/aversive traits across large world samples, as well as U.S. Senators[13]. As discussed below, this pattern may be influenced by neurobiological systems[21,22]. Recent imaging research suggests that a benevolent disposition may reflect a neural system focused on care and fairness, while a malevolent disposition associated with RWA may be tied to a neural system designed to detect otherness[62].

Our findings raise a question about directionality of our effects; that is, whether governments shape their citizens' dispositions or vice versa (or whether there is bidirectionality). Although our methodology precludes conclusions about cause and effect, other research provides insight into the causality question. Martins and Baumard found that the rise of pro-sociality in fiction preceded democratic revolutions in Early Modern Europe, suggesting that citizens values may cause shifts in governance[63]. Similarly, research by Ruck et al. found that citizens greater openness toward others preceded shifts toward national democracy[50]. In contrast, Nichols highlights the citizens malevolent dispositions play a role in the decline of democracies[8].

One way in which citizens dispositions may lead to less democratic governments is through their voting preferences and views of political figures. Indeed, a U.S. political figure with aversive traits[64] influenced his followers to alter the normal course of democratic procedures[65]. Research finds that citizens with elevations in

RWA and lower moral intuitions of care and fairness have positive views of tyrannical leaders[66]. Individuals who voted for Trump in the 2016 election viewed the former president as extroverted and emotionally stable, though at the same time both Trump and Clinton voters recognized the narcissistic and psychopathic propensities of Trump[67]. If both Clinton and Trump voters recognized the malevolent traits of Trump's personality, what led the latter to vote for him? Research suggests that persons with malevolent traits tend to prefer malevolent political 'leaders'[11,12].

There is also evidence to support the opposite causal pattern (i.e., adverse conditions shaping personality), given that personality disposition is not fixed at birth[68]. Instead, personality changes over time[69], in response to major life events[70,71], and personality varies as a function of place[72,73]. For instance, research indicates that American states with greater external threat find that individuals in those states report lower trait levels of openness and conscientiousness[61]. Similarly, individuals in states with greater inequality report lower levels of agreeableness[51]. These findings are consistent with theory and research that suggests personality involves characteristic styles of adaption to life's circumstances[74,75]. In further support, a study of over 30,000 persons across major global regions found that lower national GDP, lower progressive sex-role ideology, greater national pathogen levels and higher cultural masculinity were linked to higher person level expression of psychopathic traits[52]. The pattern of results highlights that greater adversity at the state or national level are associated with citizens displaying socially aversive personality traits. Future research might focus on the degree of adversity associated with declines in democracy and how this is associated with citizens personality.

Taken together, it appears that citizens' personality dispositions within various governments regimes may be important to study to better understanding how autocratic leaders entice citizens to embrace less democratic systems. Our previous research finds that there are not insignificant proportions of individuals with elevated malevolent propensities[52], including those with professional degrees and U.S. Senators[13]. Voters with malevolent traits may be numerous enough to tip close elections in favor of politicians who also manifest similar traits. Once in power, these politicians may violate democratic norms or even re-write laws to entrench themselves in power—moving countries further away from democratic ideals and closer to authoritarianism[76,77]. Also, the socio-economic conditions associated with authoritarian governments might influence the display of aversive traits among citizens and increase voter support for aversive autocratic leaders. In other words, a bidirectional effect may create a downward spiral toward authoritarianism.

Extensive research documents that malevolent traits are correlated with a host of antisocial outcomes[14], as well as decreased sensitivity to moral norms[16,41]. Thus, such traits are positively correlated with antisocial behaviors and negatively with prosocial behaviors[14]. Theory and research indicate that prosocial and antisocial tendencies have been shaped by our evolutionary history such that some individuals are inclined to be more caring (benevolent) and others more callous (malevolent) due to the integrity of a care-base neurohormonal system[21]. Societal conditions may reinforce such tendencies[52].

Similarly, Sonne and Gash[22] (p. 1) discuss benevolent versus malevolent human dispositions with respect to "neuroplasticity and the dopaminergic reward systems in forming and reforming neural circuitry in response to personal experience and cultural influences in determining behavior in the selfish–selfless spectrum." A key subcortical region involved in the care-based and selfish-selfless neural systems is the limbic system, a region dedicated to emotion, self-regulation, and personality[78]. Notably, Kleppesto et al.[79] found that the genetic underpinnings of RWA, SDO, and political ideology are linked with neuroticism, in line with research showing that malevolent traits are associated with emotional dysregulation[80], and conservative ideology[81]. Regulation of negative emotions could in theory influence the functioning of these neural systems. However, malevolent propensities are also correlated with spite and contempt of others[82], much in line with malevolent leaders' tendencies to disparage groups of people[3,4]. Thus, a decline in democracy may lead to a vicious cycle of more malevolence, more contempt of others and support of autocratic leaders, with further declines in democracy. Increases in democratic practices would of course break this vicious cycle. However, if citizens personality is important for future democracies[50], then it is helpful to recognize the role that early experiences may play in the development of affiliative versus aversive personality, which are also moderated by neurobiology[83].

Limitations

There are some limitations to our research that should be taken into consideration. Our sample was very large yet still it was a convenience sample, and this could potentially affect the nature of our results. However, the precise parameter estimates, and strong model fit, further supported by an extensive series of follow-up robustness checks, provide some confidence in the validity of our overall results. Also, while the MG-ESEM results across government types resulted in moderately large effect sizes, the total sample SEM results indicated small effects of latent democracy scores on level of benevolent and malevolent traits. Still, given the size of our sample, such small effect can nonetheless have big impact on societies[84,85], and whether they move toward or away from democracy, especially given the razor thin margins of many elections in today's world.

We controlled for several critical covariates (e.g., age, gender, income, education). While we did not control for additional variables (e.g., country-level health systems), we believe that the covariates we did include are often found as some of the most impactful on well-being[86,87]. In addition, the other potential covariates tend to be significantly associated with age, education, and income. Our survey questions were administered in English, and this may affect the nature of our results. At the same time, a multi-group ESEM analyses for English and non-English countries provided evidence that language did not substantively bias the model fit results or model parameters. This is perhaps not surprising given that large segments of the world also speak English[88,89]. Relatedly, large scale world-wide personality survey research cannot reasonably accommodate all spoken languages, and thus often defaults to common ones (English, Spanish, Dutch, German) yet provides valid results despite some participants having to choose a particular language to read survey questions[40,90].

Methods

Procedures

All methods were carried out in accordance with the U.S. Department of Health and Human Services guidelines for exempt research, such that the research posed no more than minimal risk to the subjects to the extent that the probability and magnitude of harm is no greater than what people normally experience in daily life. Individuals provided anonymous voluntary responses between 2019 and 2020. This study was reviewed and approved as exempt by the Institutional Review Board (IRB) of the University of North Texas, Denton Texas, USA, given the anonymous nature of survey responses. Informed consent was obtained from all subjects and/or their legal guardian(s). Participants provided consent by agreeing with the website terms of service and choosing to provide responses to the survey. The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request. The strategy of collecting massive personality data online has been successfully employed previously[51,73], and provides the opportunity to advance psychological science on real-world issues[91]. Moreover, the validity of self-reports of personality, as well as political ideology, via web-based assessment is methodologically sound and generalizable[92,93] and comparable to face-to-face methodology[94].

Data sourcing and processing

Data were collected as part of an ongoing web-based study of personality (https://scottbarrykaufman.com/lighttriadscale/) focused on benevolent and malevolent traits across the globe[13]. The website survey is one of a larger set of surveys about human potential (selfactualizationtests.com). The survey was administered using the GuidedTrack.com platform, which is a tool for creating interactive surveys and other studies. The platform collects and transmits data securely using SSL encryption and best practices in data storage. The website receives considerable internet traffic and substantial percentages of people complete the anonymous surveys. In the period between 2019 and 2020 there were over 400,000 persons who visited the personality trait website. Potential participants could find out about the website via various search engines, podcasts, or news outlets. The Altmetric tool (https://www.altmetric.com/) indicates that two of our malevolent/benevolent publications[13,20] have been discussed by over 40 different American and international news organizations. Participants were likely intrinsically interested in the personality trait survey given they sought out this website, completed all personality items, and most chose to provide demographic information (age, gender, education, income, country of residence).

The small set of straightforward benevolent and malevolent trait survey questions presented on the website can be completed in 2–5 min. As it turned out, the mode (3.95 min) and the median (5.00 min.) for minutes spent at the survey were consistent with our expectation, though the average minutes spend was approximately 30 min, due to a small percent of persons taking much longer. Thus, we conducted additional model analyses using minutes spent to omit from our analysis participants with times that were well outside of the median and mode. In addition, we also excluded those who reported ages that were unreasonable (e.g., age = 0 or 1000), as an indicator of questionable responding. In total ~ 16% of participants were excluded to check on the integrity of the MG-ESEM results: there were no substantive changes in the results. Critically, we also found that there were no differences in minutes spent at the survey site for participants living in one of the four government types ($F(3,230565) = 2.06$, $p = .10$, $\eta^2 = 0.000$).

Malevolent and benevolent traits tend to be slightly positively and negatively skewed, respectively, within general population samples[13]. Still, visual inspection of the personality data revealed distributions that did not depart dramatically from normality. Specifically, skew (malevolent trait range = 0.073 to 0.670; benevolent trait range = − 0.56 to − 0.86) and kurtosis (malevolent trait range = − 0.347 to 0.240; benevolent trait range = 0.167 to 1.54), respectively, were below the recommended ± 1 and ± 2 values, and the means and standard deviations were in line with previous research with other mega-samples[13]. Thus, initial processing of the data provides evidence of its integrity. At the same time, we relied on the Mplus COMPLEX procedure which incorporates a parameter estimation method (MLR) that is robust to departures from normality and is optimal for data where twins are nested within families, or individuals nested within countries[83,95]. Further, the validity of the study results is not only supported by data checks, but also evident from the additional robustness analyses (see below robustness sections), as well as the use of robust estimation methods for model testing and parameter estimation; all of which help to provide confidence in our findings. Given our goal of obtaining a viable world sample with large numbers of participants per country within each government type, we choose to analyze all participant data for the current study. This decision is compatible with the full information maximum likelihood approach used by Mplus—i.e., to use all available data for estimating models[95]. The excellent model fit reported in the results and the small 95% confidence intervals for all model parameters (see Figures) suggests our approach and the data we used for the current study are sound.

Participants

All individuals who visited the survey website were eligible to participate in the study if they were 18 years of age or older and agreed to the terms of service. The total sample of participants ($N = 247,981$) resided in one of 75 countries (See Supplementary Material). The sample of participants (47.3% female) had a wide range of ages (18–29 yrs., 35.6%; 30–39, 23.8%; 40–49 16.4%; 50–59, 12.6%; 60–69, 8.4%; 70–79, 2.8%; 80+, 0.5%), levels of education (high school, 20.8%; College, 39.6%; graduate masters, 21.6%; PhD, 5.8%; JD/MD, 4.9%; other 7.2%), and income levels (< 35k, 40.6%; 35-49k, 15.3%; 50-74k, 16.4; 75-99k, 10.9%; 100k + 16.8%). Note that the entire sample was used to test the two-factor model of benevolent-malevolent traits. However, not all participants provided responses for the country in which they resided. We checked to see if there were substantive differences between the full sample and those missing the country variable. Results indicated trivial differences ($\eta^2 = 0.000$–0.002) and thus missingness was unlikely to influence the results.

Democratic status

The Economist Intelligence Unit (EIU; https://www.eiu.com/n/) provides annual comprehensive quantitative reports on the status of governments for countries across the globe[1]. We relied on the EIU 2021 definitions for the four government types and their classification of countries into one of these types (https://www.eiu.com/n/campaigns/democracy-index-2021/). We used the EIU 2021 index to ensure that we did not assess democratic status for a period before a person lived in a respective country. Also, our decision was based on the results Ruck et al.[50] where individuals' openness toward others was found to precede national democracy status. The number of participants from countries with a designated EIU government type were autocratic $N = 3{,}318$; hybrid $N = 3{,}422$; flawed democracy 127,150; full democracy $N = 88{,}053$. The EIU also provides a quantitative index score for each country, assessing the overall level of critical democratic processes within a given country. This index score was linked to each participant with respect to the country they reported living in. Not unexpectedly, given our large sample sizes there were significant differences of citizen demographics across the government types in terms of gender proportions. Full democracy governments had slightly less males (49%) compared to the other government types (53%). With respect to age groups, citizens in the autocratic and hybrid governments were on the lower side of 30–39 age group versus citizens living in the partial and full democracy governments who were on higher side of 30–39 age group. For education level, the autocratic and hybrid government types on average had citizens with slightly lower proportions of those with college degrees (33%) but higher proportion with Masters (29%), compared to citizens in partial/full democracy governments (40%, 21%). The most notable difference between citizens living in the four government types were in income with 68% of those in autocratic and hybrid governments earning 35k or less, compared to 39% of those in partial or full democracies. Nevertheless, these demographic differences had little overall effect (mean $\eta^2 = 0.006$). Furthermore, in follow-up robustness analyses, we verified that citizens living in the different government types continued differ in malevolent and benevolent traits when taking gender, age, education, and income into account as covariates via multivariate analyses of covariance (MANCOVA). Also, a series of MG-ESEM follow-up analyses were conducted to establish the government type effect even when accounting for these variables and sub-sample size differences (see Robustness analyses). In addition, we ran a series of MG-ESEMs after randomly drawing percentages (33, 40, 50, & 70%) of cases from each government group. Finally, to further check the robustness of our findings, we replicated our analyses using 2021indices from Freedom House (https://freedomhouse.org)[2].

Malevolent and benevolent personality

The Dirty Dozen (DD) was used to assess malevolent traits[19], given its concise nature, acceptable construct validity[96,97], and evidence of invariance across sex and global regions[98]. The DD contains three scales (Machiavellianism, Psychopathy, Narcissism), and each DD scale has four items. Examples of the DD items are "manipulate others to get my way" (Mac.), "tend to be callous" (Psy.), "want others to admire me" (Nar.). To assess benevolent traits, we used the Light Triad Scale (LTS)[20], also a concise twelve item scale, with three scales (Faith in Humanity, Humanism, Kantianism). Examples of the LTS items are "see the best in people" (Faith), "treat others as valuable" (Human), "prefer honesty over charm" (Kant). While the LTS is a relatively new scale, it has been shown to have good construct validity[13,16]. Both scales use a 5-point scale (1 = strongly disagree to 5 = strongly agree).

Well-being (life, job satisfaction)

For assessment of well-being, we used an item consistent with the Satisfaction with Life Scale[99], a well-established measure that has been used in previous research on national well-being[55,56]. Specifically, we asked participants "How satisfied are you with your life in general?" Also, to be consistent with other studies on nation well-being[55], we included a measure of Job satisfaction (i.e., "How satisfied are you with your current job in general?"). Both items used a 7-point scale (1 = strongly disagree 7 = strongly agree).

Religious/spiritual experiences

Consistent with previous research[20], degree of religiosity was rated on a 7-point item ("How religious do you consider yourself?") which focused on religious experience and not institutionalized religious practice. Spiritual experience also rated on 7-point scale using the following, "Have you had what you consider to be a spiritual experience? Spiritual experiences are generally considered brief, intense, and vivid subjective experiences involving perceiving an unseen order or connecting to something larger than yourself. People of all belief systems (e.g., secular, spiritual, and religious) report having had such experiences."

Model analyses

Structural models not only provide statistical representation of different personality dimensions but can also be used to test for measurement bias (error) of specific traits across different groups[15,59], as well as provide precise estimation of latent means of these dimensions across different groups[100,101]. Before valid comparison of groups can be carried out, it is critical to formally test for evidence of measurement bias[59,102]. Specifically, it must be shown that trait parameters discriminate similarly across groups of people who vary on a given trait (e.g., differentiating people in terms of benevolent propensities), and at the same level of a given latent trait (i.e., similar response or threshold parameters)[103]. A SEM approach was employed for all analyses given its methodological rigor and capacity to provide evidence of construct validity[104]. Model analyses were conducted using Mplus[95] with maximum likelihood estimation and GEOMIN (oblique) rotation for the ESEM specification of the model. To assess model fit a standard two-index strategy was relied on[105]; the incremental Comparative Fit Index (CFI) and the absolute Root Mean Square Error of Approximation (RMSEA) index. The former indicates how well the hypothesized model fits compared to a null (unstructured) model and the latter provides information on how well the hypothesized model reproduces the observed data, relative to model complexity. We relied on the traditional

CFI > 0.90 and RMSEA < 0.08 as indicative of acceptable model fit to avoid falsely rejecting viable latent variable models, since model complexity increases the difficulty of achieving conventional fit[106]. To ensure measurement equivalence of the benevolent and malevolent trait items across individuals within specific government types, a strong measurement invariance approach was employed[59,107]. Consistent with our previous research on the malevolent and benevolent domains[16], all benevolent and malevolent trait indicators were allowed to freely load onto the two factors (benevolent, malevolent) in a multiple group ESEM with discrimination (factor loadings) and extremity (intercept) parameters constrained to be equal across the government type groups. This constrained model was compared to an unconstrained (or configural) model where the estimated parameters were free to vary across individuals in the specific government groups. To compare the two models, we did not rely on the traditional chi-square difference test since large N's produce significant chi-square values even when the discrepancies between two models are trivial. West et al.[106] suggest using guidelines laid out by Cheung and Rensvold[108] to assess statistical differences in model fit. If the incremental change in the comparative fit index (ΔCFI) between the unconstrained and a (nested) more-constrained model is ≤ 0.01, then the two models do not differ in statistical fit, and therefore evidence for the scalar model (strong invariance) is obtained. Finally, for the SEM, using the total sample, the same ESEM was specified for the benevolent and malevolent factors, which were specified to predict the well-being (satisfaction) and religious/spiritual latent variables.

Robustness analyses

A MANCOVA was conducted with total scores for the benevolent and malevolent domains as dependent variables and government type as independent factor, along with planned contrasts testing whether citizens in the EIU full democracy government differed from each one of the three other government types. Age, gender, and income, education levels were used as covariates. Effect sizes are reported as η^2. The results showed a significant multivariate effect for the covariates, $F(8,311908) = 1791.81$, $p < .001$, $\eta^2 = 0.04$, as well as significant univariate effects for each covariate (all *p's* < 0.001). Nevertheless, the multivariate effect of government type remained significant, $F(6,311908) = 187.04$, $p < .001$, $\eta^2 = 0.004$, and all planned comparisons were significant (*p's* < 0.001, η^2's = 0.005 − 0.006). Mean scores (scaled as percent endorsement) adjusted for the covariates continued to show that citizens in the full democracy had the highest means for the benevolent domain (mean = 71.41) and lowest for the malevolent (36.41) domain, respectively, relative to those in the partial democracy (70.71, 37.13), hybrid (67.48, 40.88), and autocratic (65.06, 44.93) governments.

Supplemental robustness ESEMs

As displayed in Fig. 4, a series of strong invariance MG-ESEMS were conducted to check how sample size, gender, income, and education level might influence the modeling results with respect to the four-government type latent means (See Fig. 4). Since there were substantially fewer people who responded from countries with autocratic and hybrid governments, compared to flawed and full democracies, we re-ran the MG-ESEM invariance analyses restricting it to the individuals in the autocratic and hybrid countries and another invariance test between the flawed and full democracies. The pattern of results remained the same such that malevolent traits were lower and benevolent traits were higher in hybrid countries, compared to autocratic countries, and similarly when comparing flawed to full democracies. Also, since there were several countries that had considerably large samples sizes (Australia, Brazil, Canada, Great Britain, and the USA), relative to other countries, the invariance ESEM was conducted again leaving these specific countries out of the analysis, which again revealed the expected pattern of differences. Separate ESEMs were also run for males versus females, lower income versus higher income, and lower education versus higher education groups, all of which showed that benevolent traits were higher and malevolent traits lower in moving from autocratic to full democracies. Model fit was good for all ESEMs (CFI's = 0.97 − 0.99; RMSEA's = 0.04 − 0.07) and all latent means were significant (*p's* < 0.001).

Random cases sampling multi-group (MG) ESEMs

To further check the robustness of our modeling results, given our sample is a convenience sample, we randomly selected certain percentages of cases (70%, 50%, 40%, and three random draws of 30%). Model fit was excellent (CFI_{mean} = 0.98, $RMSEA_{mean}$ = 0.05) and for the three 30% random draws, the latent means for the hybrid ($Benevolent_{mean}$ = 0.28, $Malevolent_{mean}$ = − 0.21), flawed democracy ($Benevolent_{mean}$ = 0.49, $Malevolent_{mean}$ = − 0.44), and full democracy ($Benevolent_{mean}$ = 0.60, $Malevolent_{mean}$ =− 0.61) countries were concordant with our initial full sample results (--recall autocratic means set to zero for statistical comparisons), as well as our supplementary MG-ESEMs displayed in Fig. 4. As would be expected, a similar pattern of government type latent means also held for the 40%, 50%, and 70% random draw MG-ESEMs, hybrid ($Benevolent_{mean}$ = 0.22, $Malevolent_{mean}$ = − 0.20), flawed democracy ($Benevolent_{mean}$ = 0.45, $Malevolent_{mean}$ =-0.42), and full democracy ($Benevolent_{mean}$ = 0.56, $Malevolent_{mean}$ = − 0.59).

English versus non-English speaking countries MG-ESEM

Given that the survey items were administered in English, we checked whether there was evidence of measurement bias between those from English speaking countries and those from non-English speaking countries. Results provided evidence for measurement invariance and indicated little difference in the model parameters as a function of speaking group (Configural model fit: CFI = 0.98, RMSEA = 0.07; Scalar model fit: CFI = 0.97, RMSEA = 0.06).

SEM with covariates

On average, age, education, and income had low associations with the personality variables (mean $r = -.02$). However, when included as covariates, the EIU democracy index no longer predicted the well-being (SATI) latent

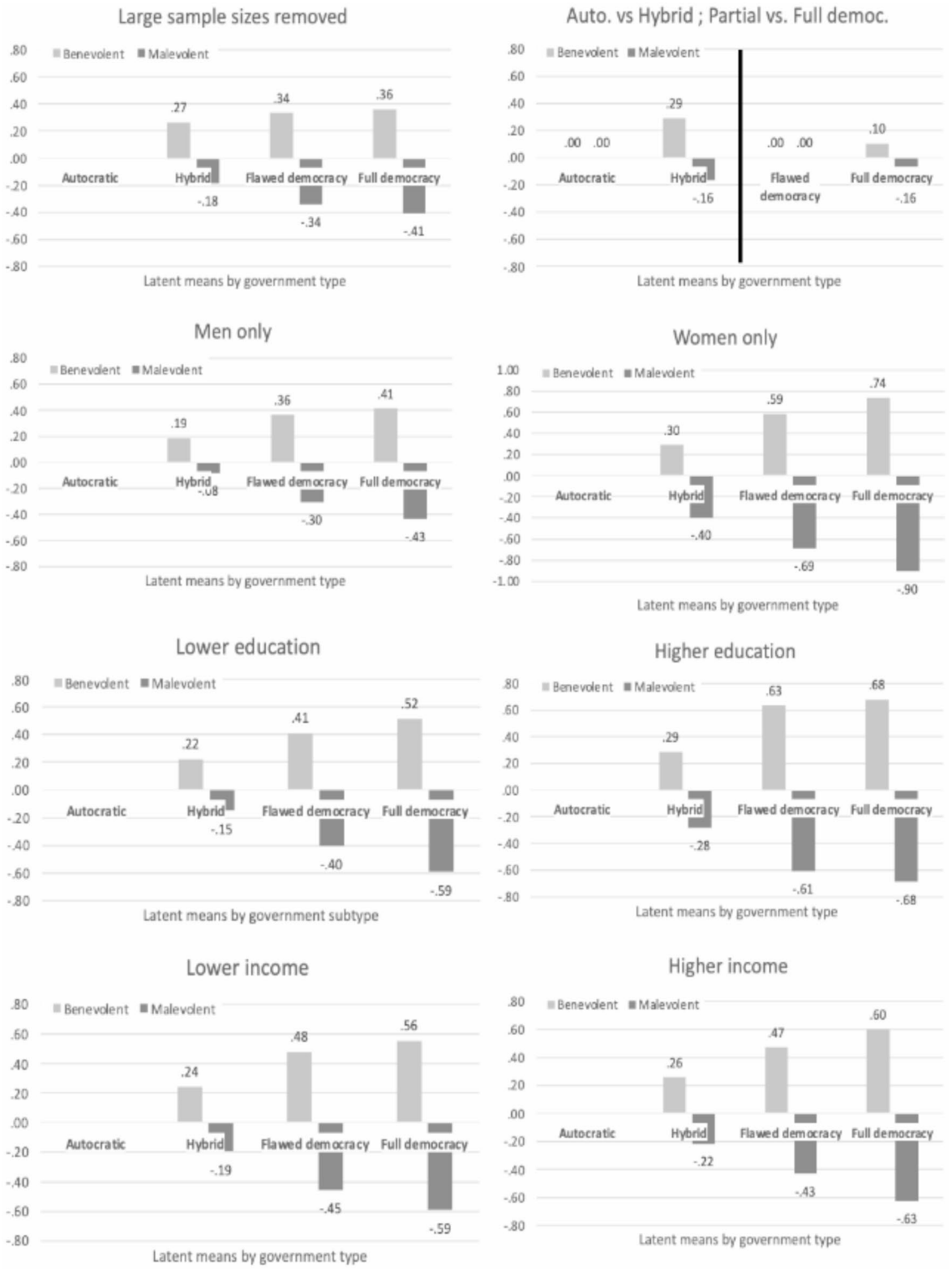

Fig. 4. Additional ESEM robustness analyses. A series of separate ESEMs showing that the effect of government type remains when accounting for the influence of sample sizes, gender, education & income. All benevolent and malevolent latent means significantly different from zero (*p's* < 0.038–0.001).

variable, while age (*Beta* = 0.11), education (0.04), and income (0.25) significantly predicted SATI (*p's* < 0.001). The democracy index continued to predict SOUL (– 0.16) along with age (0.21), education (0.02), and income (– 0.05) (*p's* < 0.001). Including the covariates did not alter the pattern of associations between personality and the EIU index or personality with SATI and SOUL. When the democracy latent variable (LV) was employed with the covariates a similar pattern of results was found, however, the democracy LV was positively associated

with income ($r = .19$, $p < .001$) and age ($r = .14$, $p < .001$). The same substantive pattern of results was found when conducting the SEM separately for men versus women. Finally, we also incorporated national GDP for each country in an additional SEM but found that it had little predictive value, particularly with respect to the other covariates of income, education, and age.

Data availability

The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

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Author contributions

SBK set up the website to collect the data in collaboration with GuidedTrack. CSN originated the manuscript, conducted all analyses, and wrote the initial draft. SBK and LTB edited and provided valuable insights.

Declarations

Competing interests

The authors declare no competing interests.

Additional information

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