Does System Justification Mediate the Relations between Epistemic, Relational and Existential Needs and Pro-environmentalism?

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Abstract

This study investigates whether system justifying attitudes mediate the relations between epistemic, relational and existential needs and pro-environmentalism. We used an online survey with a sample of 1000 Americans. Results showed that individuals with higher epistemic and existential needs were more likely to justify the existing system, which in turn related to lower pro-environmentalism. However, individuals with higher epistemic and existential needs were still more pro-environmental overall. Meanwhile, individuals with higher relational needs were less pro-environmental, but this was unrelated to system justification. Findings indicate the possibility that perceived threats to fundamental needs induced by climate change lead individuals to resist systemic changes necessary for climate resolution. Importance of framing climate change communication as to increase, rather than to discourage mobilization is highlighted.

Keywords: System justification, epistemic needs, relational needs, existential needs, pro-environmentalism, rally effect, societal change, climate change

Does System Justification Mediate the Relations between Epistemic, Relational and

Existential Needs and Pro-environmentalism?

Climate change poses one of the biggest threats to human existence. Being of a particularly immense scale, it cannot be resolved by individual effort, instead demands a drastic restructuring of the socioeconomic system as a collective (Amel et al., 2017). However, greater need to avoid threat may paradoxically result in public resistance against systemic changes. In his book *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*, Marshall contends that "...we do not accept climate change because we wish to avoid the anxiety it generates and the deep changes it requires" (2014, p. 228). Polarization of beliefs regarding climate change and preference for climate policies amongst the public is especially drastic in the USA (McCright et al., 2014). For some, climate denial and resistance against institutional changes may be attributable to the deeper anxiety that climate change induces. System-justification theory argues that when people's needs for epistemic certainty, connection with others and existential security are threatened, they are motivated to perceive the status quo as being legitimate and good (Jost & Banaji, 1994). In some cases, this support for the existent system may directly counter pro-environmental efforts such as policy reforms. The existential threat, epistemic uncertainty and social unrest that climate change imposes may hence motivate individuals who feel vulnerable to justify the incumbent sociopolitical system (van der Toorn et al., 2014a). This study seeks to examine the needs that may underlie Americans' support or the lack thereof for the US sociopolitical and economic system and further environmentalism.

Epistemic, Relational and Existential Needs

Perceived threats to fundamental human needs may lead individuals to opt for the stability of the existing system over change. According to the Terror Management Theory

(Greenberg et al., 1990) and Meaning Maintenance Model (Heine et al., 2006), the uncertainty and unpredictability of life is inherently threatening, motivating individuals to establish systems of meaning and order that they can comprehend and predict. Stability within sociopolitical institutions can provide a sense of security and familiarity, while changes within them may be perceived as threatening. The following are the three fundamental needs that we will explore.

Epistemic needs are needs for cognitive closure, that is, the desire to attain clear conclusions and to the tendency to fixate on them rather than to tolerate uncertainty (Webster & Kruglanski, 1994). This process is complemented by comparatively low need for cognition – lower need to engage in cognitively challenging activities and think longer and harder to form opinions (Cacioppo & Petty, 1982). Previously, it has been argued that in uncertain situations, individuals psychologically compensate by preferring expressions of epistemic certainty. For example, expressed certitude in social media posts increased following triggers of existential threat such as the COVID pandemic and terrorist events (Simchon et al., 2021).

Relational needs reflect the desire to align one's worldview to that of others, especially those within one's community. This need to affiliate with others stems from how as a social species, maintaining successful relationships with others is directly related to survival likelihood for humans (Heine et al., 2006). While conformity refers to an external measure of behavioral alignment with others, a higher relational need is the internalized wish to share reality with others so that social cohesion is achieved (Hardin & Higgins, 1996).

Existential needs, which are the most directly related to terror management, are reflected in individuals' tendency to avoid death-evoking stimuli and to view the world as dangerous. While a primary goal for all species is self-preservation, humans are aware of their imminent mortality, which induces a constant anxiety and the motivation to reduce it (Heine et al., 2006).

As humans cannot attain literal immortality, they seek to compensate for this failure by seeking symbolic immortality. This symbolic immortality consists of an enduring cultural worldview of one's own and one's association with it (e.g. being able to live up to the standards and values that the individual's perceived culture upholds; Greenberg et al., 1990).

According to Heine and colleagues (2006), these needs are substitutable– increased salience of a need due to a specific perceived threat does not have to be resolved by the removal of that particular threat. Instead, individuals may seek all possible ways to increase epistemic certainty, connection with others or existential security to compensate for one of the needs being threatened. This implies that needs are flexibly compensable across domains. Therefore in our context of pro-environmentalism or the lack thereof, individuals who are not threatened by specifically environmental factors, but have salient aforementioned needs for other reasons, may still compensate for this by endorsing a status quo position with regards to environmentalism. This motivates the validity of examining individual differences in chronic and general salience of aforementioned needs in relation to pro-environmentalism.

System Justification Attitude and Reduced Pro-environmentalism

Individuals with higher salience of the above needs are expected to support existing societal structures and institutions to a greater extent. System justification refers to this "process by which existing social arrangements are legitimized, even at the expense of personal and group interest" (Jost & Banaji, 1994). It reflects the tendency to perceive the incumbent institutions, authorities and other systemic structures as being legitimate, good, fair, natural or even inevitable (Jost & Banaji, 1994). System justification distinguishes itself from ego justification or group justification in that it pertains to how one perceives the societal structure that one finds themselves in at large (Jost & Banaji, 2004).

System justification theory argues that the tendency to endorse existing sociopolitical structures addresses the aforementioned needs in their respective ways (Hennes et al., 2012). A coherent and enduring social system of meaning satisfies epistemic needs, while the social cohesion fostered among individuals upon shared meaning satisfies their relational needs. Lastly, the order and stability within a society imposed by such a system secures existential needs.

System-justifying attitudes can prevail even when they prevent the fulfillment of these needs in the longer term. Support for the incumbent system is counter-effective when it provides inadequate or incompetent response to unprecedented crises such as climate change. In fact, due to the proposed relations between salience of needs – which tend to be higher among socioeconomically marginalized or otherwise threatened populations – and system justification attitudes, such attitudes are sometimes the strongest among those who are harmed the most by the status quo (Jost & Banaji, 2004; van der Toorn et al., 2014a).

Pro-environmentalism

Endorsement of the status-quo may therefore directly relate to lower pro-environmentalism, defined as a conscious belief that one must protect the environment, as well as behaviors that minimize one's negative impact on the environment and improve its sustainability (Tian & Liu, 2022). This is because in this study, pro-environmentalism consists of both acknowledgement of human harm on the environment and its consequences, and support for social and individual changes to mitigate this harm. The former entails that individuals abandon the sense of false security, while the latter necessitates that individuals embrace significant changes in their society and livelihood, both which are threatening to the maintenance of existing structures.

System Justification Theory: How Threats to Needs Motivate System Justification

The above proposed relations between needs and system justification attitudes lead to the argument that higher salience of needs may induce higher endorsement of the status-quo which then prevents pro-environmentalism. Previous observations across the world often demonstrated how public support for seemingly incompetent leaders and institutions increases at times of crises, a recent example being the popularity of world leaders during the COVID-19 pandemic (Yam et al., 2020). Contrary to the intuition that bigger negative impact of crises due to ineffective governmental responses would lead to greater public dissatisfaction and lower support, individuals are more likely to opt for existing systems and authorities in difficult times (Hetherington & Nelson, 2003; Arena & Bak, 2015). Climate crisis may not be exempt from this phenomenon in which increased perception of threat and powerlessness lead people to seek stability (Jost & Hunyady, 2005; Jost et al., 2004; van der Toorn et al., 2014a). While the consequences of the climate crisis are grim, there is little reassurance provided regarding individuals' ability to control them. A similar explanation concerning public support for environmental policies or the lack thereof is found in Inglehart and Welzel's postmodernization hypothesis (2010). Here, it is described that nations' environmental and economic conditions create unique contexts of opportunities and threats that result in different values that citizens uphold to support themselves within their landscapes. Threatful contexts result in citizens valuing authoritarianism and protection, whereas contexts with more perceived opportunities lead to values that focus on emancipation from authority and individual self-expression, such as accumulation of new knowledge and environmental protection. This argument relates to the proposition that individuals who perceive greater threat from the climate crisis, or have higher

chronic salience of fundamental needs in general, may endorse more system-protecting values and less emancipatory and environmental values.

In the past decades, scholars have attempted to identify the relations between individual factors such as political orientation, perceived threat, needs and their responses to crises. For example, research shows a connection between greater perceived threat and greater political conservatism (Jost et al., 2003; Schimel, et al., 1999; Thórisdóttir & Jost, 2011; Ullrich & Cohrs, 2007). Defining conservatism as "resistance to change and the tendency to prefer safe, traditional and conventional forms of institutions and behavior" (Wilson, 1973), Jost and colleagues (2003) argued that as mortality salience increases, people behave more conservatively, i.e. become less tolerant to deviant perspectives that threaten their worldview (Greenberg et al., 1990; Rosenblatt et al., 1989). Similarly, Jost and colleagues (2003) suggested that different levels of individuals' epistemic and existential needs predicted their political conservatism. For example, greater fear of death was associated with greater tendency to form stereotypes of women and minorities that enabled the individual to justify the discriminatory system (Schimel et al., 1999). Lastly, Jost and colleagues (2008) found that conservative individuals endorse system justifying attitudes more readily than do liberals.

More recently, however, the contention that greater needs necessarily associate with greater political conservatism, which in turn predicts system-justifying attitudes, has been challenged. Greenberg and Jonas (2003) argued that it is not the content of the ideology, but the rigidity with which one adheres to their ideology that associates with greater needs. They disagreed with Jost and colleagues (2003) that political conservatism consists of resistance against sociopolitical change. While conservatism was originally conceived as such in contrast to liberalism, its meaning shifted throughout history. Providing accounts of how some right-wing

ideologies made promises for drastic societal changes (e.g. Nazism) on the one hand, and how left-wing ideologies were upheld with rigidity in the regime (e.g. socialism in the Soviet Union) on the other, Greenberg and Jonas argued that crises and accompanying salience of needs associated with the extremity and not the direction to which ideologies prevailed. Supporting this argument, Yam and colleagues (2020) found that the rise in COVID-19 cases predicted increased support for leaders regardless of the incumbent political ideology. Moreover, van der Toorn and colleagues (2014b) found that exposure to threat leads to greater system justification in both liberal and conservative individuals. Importantly, this argument motivates the value of investigating needs in relation to system justification within the current study's context of climate crisis. The link between political conservatism and low pro-environmentalism has already been identified (Azevedo & Jost, 2021; Dunlap et al., 2001; McCright & Dunlap, 2000; McCright et al., 2014), particularly in the USA, where this study takes place. However, if needs do not necessarily relate to a particular political ideology, they may contribute independent predictive power to how people react to environmental crises.

We argue that the independent predictive potential of needs on pro-environmentalism controlling for political orientation, as well as the mechanism behind this relationship are yet to be investigated. Hennes and colleagues (2012) found that individuals with lower needs for cognition (comparable to higher epistemic needs for closure; Jost et al., 2003), higher relational needs, and higher existential needs were more likely to support status quo positions with regards to climate change. Furthermore, this relationship was mediated by higher economic system justification. On the other hand, Azevedo and Jost (2021) found that those with higher general system justification attitudes trust climate science experts more, albeit this being a small correlation. This can be explained by that general system justification entails support for all

institutions within one's country, which includes scientific authorities. This discrepancy calls for clarifying the role of system justification attitudes at large in relation to not only climate science beliefs, but also behaviors such as support for pro-environmental policies. This study examines the relations between the three needs studied in Hennes and colleagues (2012), system justification attitudes and climate change behaviors among US citizens during President Donald Trump's term prior to the 2018 midterm election. The first research question of this study is "How do different needs relate to pro-environmentalism?" to which we predict (figure 1):

H1a. Higher epistemic need predicts lower pro-environmentalism.

H1b. Higher relational need predicts lower pro-environmentalism.

H1c. Higher existential need predicts lower pro-environmentalism.

Figure 1.
*Proposed Relationship between Needs and Pro-environmentalism*

The second research question concerns the role of system justification in the above relationships, "Does system justification mediate the negation relations between needs and pro-environmentalism?", to which we predict (figure 2):

H2a. System justification mediates the relation between epistemic need and pro-environmentalism, as higher epistemic need is associated with higher system justification and hence lower pro-environmentalism.

H2b. System justification mediates relational need and pro-environmentalism, as higher relational need is associated with higher system justification hence lower pro-environmentalism.

H2c. System justification mediates existential need and pro-environmentalism, as higher existential need is associated with higher system justification hence lower pro-environmentalism.

Figure 2.
Proposed Relationships between Needs, System Justification and Pro-environmentalism
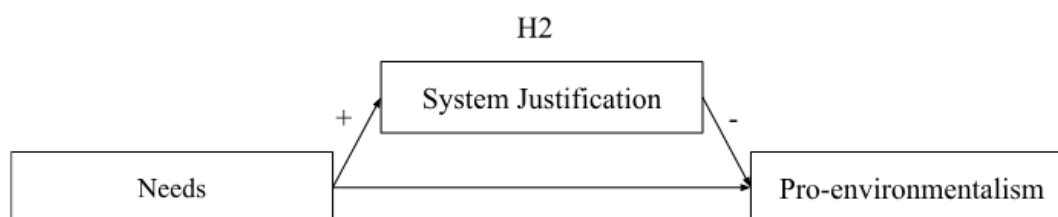
The current study hypothesizes that higher epistemic, relational and existential needs predict higher system justifying attitudes, which consequently predicts lower pro-environmentalism. We expect these relationships based on a set of theoretical arguments that salience of needs increases the motivation to maintain status quo, which in turn prevents supporting social changes for pro-environmental causes. We test this hypothesis by analyzing data from a questionnaire distributed to American citizens in 2018 during President Donald Trump's term. It should be noted that the incumbent sociopolitical structures, institutions and policies during the time of data collection would have been especially likely to preclude climate actions (Hejny, 2018) compared to during other presidential terms in the USA. In order to test the robustness of the proposed mechanism, that needs have independent predictive power on system justification attitudes and pro-environmentalism after controlling for political ideology, political ideology will be included as a covariate. In addition, a non-leftist outcome variable – general satisfaction regarding the sociocultural situation in one's country – will be added for comparison. We believe that general satisfaction is more politically neutral than pro-environmentalism. For example, regardless of whether one is satisfied with the issue of gender relations in the US

because of leftist reasons (one perceives gender relations in one's country to be progressive) or rightist reasons (one perceives it to be traditional), one can indicate the same degree of satisfaction. If the above explanation for the relationship between needs, system justification and preference for the status quo holds, not only should system justification mediate the negative relationship between needs and pro-environmentalism, but it should also mediate the positive relationship between needs and general satisfaction.

Epistemic, existential and relational needs are fundamental needs that underlie a substantial part of human behavior. Understanding individual differences in the salience of these needs in relation to the climate crisis provides a firmer ground to explain resistance against pro-environmentalism and climate policies. This in turn is expected to guide researchers and policymakers to reducing such reactance and fostering pro-environmentalism at a time when all the public support one can garner is necessary.

Methods

The following methods and data are derived from Azevedo (2018; https://ppbs.flavioazevedo.com/ppbs2018_pre), a part of an ongoing series of cross-sectional studies of public political behavior and beliefs in the United States. This study relies upon a subset of a larger survey data collected before the midterm elections in 2018 during incumbent Republican President Donald Trump's term between November 2nd, 2018 and November 6th, 2018. Only the details relevant to the sample and constructs used in this study will be mentioned below. Description of the entire data can be found in the link provided above.

Participants

Cint (www.cint.com) was used to recruit participants. Participants were offered $5 per completed survey. Quotas of the sample were designed to match the 2018 US Census' Current

Population Survey (CPS) on age, income, education and gender, with maximum percentage difference of 5% per attribute. Here, a total of 1588 Americans participated, among which 1205 completed the procedure. 205 participants were excluded as they failed more than two attention check items and completed the full survey in under 22 minutes. The remaining 1000 participants completed the survey in 133.57 minutes on average. The average deviation of this sample from the desired quota was 3.49%, achieving high national representativeness. Inspection of this sample also revealed good regional representativeness.

The age distribution of the final sample was: 18–24 years (11.1%), 25–34 (17.2%), 35–44 (16.6%), 45–54 (17%), 55–65 (17.4%), and older than 65 (20.7%). The education level of the sample was distributed as follows: highest education achievement is high-school graduation or lower (10.1%), college (29.1%), completion of Bachelor or Graduate degree (28.4%). Income distribution was as follows: Less $15,000 (11.1%), $15,000 to $24,999 (10%), $25,000 to $34,999 (9.5%), $35,000 to $49,999 (13.2%), $50,000 to $74,999 (18.1%), $75,000 to $99,999 (12.3%), $100,000 to $149,999 (13.2%) and $150,000 more (12.6%). 52.8% of participants were women as indicated in the binary gender item. The ethnic composition was: White (78.2%), Black/African American (10.3%), Latino (4.9%), Asian/Pacific Islander (3.4%), Native American (1.3%), Middle Eastern (0.3%), and Other (1.6%). Lastly, religious affiliations were as following: Catholic (25.1%), Protestant (39.2%), Jewish (3%), Muslim (1.1%), Atheist or Agnostic (16.8%), and 14.8% responded they were unsure or refused to answer.

Political ideology was measured using the item "Overall, where would you place yourself, on the following scale of liberalism-conservatism?" whereupon participants responded on a 9-point Likert scale with 1 = Extremely Liberal and 9 = Extremely Conservative. The average political orientation was almost exactly neutral ($Mdn = 5.000$, $M = 5.150$, $SD = 2.510$).

Procedure

The collection of data was approved by the ethics committee of Faculty of Behavioral and Social Sciences of University of Groningen. All participants were informed of the purpose of the survey to investigate their political attitudes, values and political participation. A CAPTCHA question at the beginning of the survey that determines whether the respondent is a human (not a bot) as well as 8 random attention items and 8 page-time controls throughout the survey were employed to minimize careless response and satisficing behavior. The measures included in this study were administered in the order of Satisfaction (items 154-159, 164 of the full questionnaire), System justification attitudes (360-367), Existential needs (393-396, 404, 408), Epistemic needs (400-403, 405, 407, 410), Relational needs (397-399, 406, 409, 411-413) and Pro-environmental attitudes (579, 584, 585-587).

Measures

For all measures except for political ideology and satisfaction, participants responded on a 9-point Likert scale with 1 = Strongly Agree and 9 = Strongly Disagree. These were then recoded so that higher response value indicates stronger alignment with the item in question.

Epistemic needs were measured using 7 items, such as "I don't find satisfaction in deliberating hard and for long hours" (Zhang et al., 2016), "I enjoy task that involves using already known solutions to problems" (Hennes et al., 2012) and "I feel irritated when one person disagrees with what everyone else in a group believes" (Kruglanski et al., 2013). The scale demonstrated acceptable internal consistency with a Cronbach's alpha coefficient of .752. The items showed high correlation with one another, with an average inter item correlation of .302 ($M = 3.868$, $SD = 1.306$). All reliability analyses results are shown in Table 1.

Relational needs were measured using 8 items, such as "I don't like viewing the world in the same way as everyone around me does" (reversed; Hennes et al., 2012), "My feelings are easily hurt when I feel that others do not accept me" (Leary et al., 2007) and "I believe it is important that I see the world in a similar way as people who generally share my beliefs do" (Stern et al., 2014). The scale demonstrated poor internal consistency with a Cronbach's alpha coefficient of .517. The items also showed low correlation with one another, with an average inter item correlation of .115 ($M = 3.509$, $SD = .982$). As a result, only a subset of the scale consisting of 3 items that were adapted from Hennes and colleagues (2012), was included in the main analyses. This was because the research design used by Hennes and colleagues (2012) was the closest to our own. The resulting scale demonstrated acceptable internal consistency with a Cronbach's alpha coefficient of .654. The items showed high correlation with one another, with an average inter item correlation of .387 ($M = 2.912$, $SD = 1.495$).

Existential needs were measured using 6 items, such as "The sight of a corpse deeply shocks me" (Tomás-Sábado et al., 2005), "I get upset when I am in a cemetery" (Hennes et al., 2012) and "Whenever the thought of death enters my mind, I try to push it away" (Zhang et al., 2016), measuring individuals' motivation to avoid existential threats and death-reminding situations or objects. The scale demonstrated high internal consistency with a Cronbach's alpha coefficient of .855. The items showed high correlation with one another, with an average inter item correlation of .495 ($M = 3.660$, $SD = 1.982$).

System justification attitudes were measured using 8 items, such as "In general, you find society to be fair" (Kay & Jost 2003). These items measured individuals' motivation to perceive the existing social, political and economic order as fair, legitimate, and justified and therefore to support the present social, economic and political structures. The scale demonstrated high

internal consistency with a Cronbach's alpha coefficient of .823. The items showed high correlation with one another, with an average inter item correlation of .365 ($M = 4.185$, $SD = 1.462$).

Pro-environmental attitudes were measured using 5 items corresponding to different aspects of environmentalism (support for the rights of animals, support for taxation of goods produced in environmentally harmful manner, beliefs regarding human responsibility for environmental harm, perception of catastrophic consequence of environmental harm, support for mandatory national recycling) (Laméris, 2015; Dunlap et al., 2000). The scale demonstrated high internal consistency with a Cronbach's alpha coefficient of .860. The items showed very high correlation with one another, with an average inter item correlation of .560 ($M = 5.344$, $SD = 1.835$).

Satisfaction regarding the concurrent situation in the USA for various sociocultural issues was measured using 7 items, one of them measuring general satisfaction, i.e. "The way things are going in America", and the other six each correspond to a sociocultural issue, such as "Healthcare legislation". Participants responded on a continuous scale from Extremely Dissatisfied (coded as 0) to Extremely satisfied (coded as 100), with intermediate markers (Moderately dissatisfied, Slightly dissatisfied, Neither satisfied nor dissatisfied, Slightly satisfied, Moderately satisfied). The scale demonstrated very high internal consistency with a Cronbach's alpha coefficient of .904. The items showed very high correlation with one another, with an average inter item correlation of .573. ($M = 36.658$, $SD = 24.385$).

Method of Analysis

The hypotheses were tested through mediation regression analyses using PROCESS package Model 4 (Hayes, 2017) in SPSS. We concluded that system justification attitudes have a

mediational effect when the bias-corrected 95% CI constructed around the mediator from 5000 bootstrap samples excluded zero.

Statistical assumptions of the regressions were tested as the following: absence of multicollinearity was checked via ensuring that the Variation Inflation Factor (VIF) value is less than 5; residual normality was tested through visual inspection of the normal P-P plot; linearity was visually inspected using scatterplots of predictors (needs and system justification) against outcome variables (pro-environmentalism and satisfaction) and residual plot; homoscedasticity was also visual inspected using the residual plot and Breusch-Pagan test (a significant F-test for $\alpha = .05$ indicates violation of the assumption).

Results

Tests of Assumptions

All aforementioned assumptions were met except for the assumption of homoscedasticity, which were violated for path a (needs and political ideology on system justification) and c (total effect; needs and political ideology on pro-environmentalism and satisfaction) of the mediation model. Hence, further analyses ensued with heteroscedasticity-consistent inference using HC2 provided in PROCESS. Detailed results of the assumption tests can be found in the appendices.

Correlation Analyses

Prior to testing the hypotheses, we examined the zero-order correlations between all variables (Table 1).

Table 1

Zero-order Pearson Correlations for All Variables

Variable	M(SD)	1	2	3	4	5	6	7
1. Epistemic Need		-	-.246*	.281*	.178*	.242*	.064*	.225*
2. Relational Need		-.246*	-	-.131*	.009	-.037	-.196*	-.017
3. Existential Need		.281*	-.131*	-	-.030	.087*	.119*	.100*
4. Political Ideology		.178*	.009	-.030	-	.419*	-.368*	.547*
5. System Justification		.242*	-.037	.087*	.419*	-	-.220*	.520*
6. Pro-environmentalism		.064*	-.196*	.119*	-.368*	-.220*	-	-.286*
7. Satisfaction		.225*	-.017	.100*	.547*	.520*	-.286*	-

*Correlation is significant at α = .05

Some striking relations can already be observed from the zero-order correlations. In line with our expectations, epistemic and existential needs positively correlate with system justification (.242 and .087 respectively), which in turn negatively correlate with pro-environmentalism (-.220) and positively with general satisfaction (.520). However, contrary to our expectations, these needs still positively correlate with pro-environmentalism at large (.064 and .119 respectively). Meanwhile, relational needs have a predicted negative relationship with pro-environmentalism (-.196), but have no significant relation with system justification (-.037). Moreover, relational need correlates negatively to epistemic (-.246) and existential (.-131) needs while the latter two correlate positively (.281).

Testing the Hypotheses

Mediation analyses were performed to test the hypotheses that epistemic, relational and existential needs negatively predict pro-environmentalism (H1) and that this is mediated by system justification attitudes (H2). We included individual needs separately as the predictor

variable, political ideology as covariate, system justification as the mediator, and pro-environmentalism as the outcome variable.

The first mediation analysis examined the relation between epistemic need, system justification and pro-environmentalism with political ideology as the covariate. The overall regression was significant, $R^2 =.162$, $F(HC2) = 67.666$, $p <.001$. There was a significant total effect of epistemic need on pro-environmentalism but in the opposite direction to our expectation, namely epistemic need positively predicted pro-environmentalism ($B =.189$, $p <.001$). This implied that individuals with higher epistemic need were also more pro-environmental, hence H1a was not supported. There was a significant path a (epistemic need on system justification; $B =.194$, $p <.001$) and path b (system justification on pro-environmentalism; $B =-.139$, $p =.002$) in directions that were expected. Furthermore, there were both significant direct effect ($B =.215$, $p <.001$) and indirect effect mediated by system justification ($B =-.027$, $95\% CI [-.048, -.009]$). The indirect effect supports our expectation that system justification is a mediator of epistemic need and pro-environmentalism, such that epistemic need positively predicts system justification, which negatively predicts pro-environmentalism (H2a). However, the positive effect of epistemic need directly onto pro-environmentalism seems to outweigh this indirect effect, resulting in an overall positive association between epistemic need and pro-environmentalism.

The second mediation analysis examined the relation between relational need, system justification and pro-environmentalism with political ideology as the covariate. The overall regression was significant, $R^2 =.179$, $F(HC2) = 70.715$, $p <.001$. There was a significant total effect of relational need on pro-environmentalism, namely relational need negatively predicted pro-environmentalism ($B =-.237$, $p <.001$). H1b was supported. Path a was not

significant (relational need on system justification; $B =-.040, p =.235$) but path b was (system justification on pro-environmentalism; $B =-.112, p =.013$) in the direction that was expected, also from the previous finding with epistemic need. Furthermore, while there was a significant direct effect ($B =-.241, p <.001$) there was no indirect effect mediated by system justification ($B =.004, 95\% CI [-.003, .014]$). This does not support our expectation that system justification mediates the negative relationship between relational need and pro-environmentalism (H2b). There is no support that relational need is related to system justification. Instead, the negative effect of relational need directly on pro-environmentalism seems to be the only contributor to the relationship.

The third mediation analysis examined the relation between existential need, system justification and pro-environmentalism with political ideology as the covariate. The overall regression was significant, $R^2 =.154, F(HC2) = 56.348, p <.001$. Similar to epistemic need, there was a significant total effect of existential need on pro-environmentalism but in the opposite direction to our expectation, namely existential need positively predicted pro-environmentalism ($B =.100, p =.001$). Hence, H1c was not supported. There was a significant path a (existential need on system justification; $B =.073, p =.002$) and path b (system justification on pro-environmentalism; $B =-.112, p =.012$) in directions that were expected. Furthermore, there were both significant direct effect ($B =.109, p <.001$) and indirect effect mediated by system justification ($B =-.009, 95\% CI [-.019, -.001]$). Similar to epistemic need, the indirect effect supports our expectation that system justification is a meditator of existential need and pro-environmentalism, such that existential need positively predicts system justification, which negatively predicts pro-environmentalism (H2c). However,

the positive direct effect of existential need on pro-environmentalism seems to outweigh this indirect effect in the total effect.

We also conducted an exploratory analysis of all three needs as simultaneous predictors of pro-environmentalism with system justification as mediator and political ideology as covariate. We used Baron and Kenny's method (1986) to test multiple predictors at once. The overall regression of needs on pro-environmentalism was significant (

$R^2 = .184$, $F(4, 995) = 56.003$, $p < .001$), with significant coefficients of all of epistemic (

$B = .101$, $p = .021$), relational ($B = -.204$, $p < .001$) and existential needs (

$B = .061$, $p = .029$). Regression for path a (needs on system justification) was significant (

$R^2 = .208$, $F(4, 995) = 65.176$, $p < .001$), with significant coefficient of epistemic needs (

$B = .177$, $p < .001$), marginally significant existential needs ($B = .040$, $p = .064$) but not relational needs ($B = .006$, $p = .840$). Regression for path b and c' (needs and system justification together on pro-environmentalism) was also significant (

$R^2 = .194$, $F(5, 994) = 47.903$, $p < .001$) with significant coefficients of system justification ($B = -.144$, $p < .001$; indicates path b of indirect effect), as well as of epistemic (

$B = .127$, $p = .004$), relational ($B = -.204$, $p < .001$) and existential needs (

$B = .067$, $p = .016$), each representing the direct effect of the respective needs on pro-environmentalism. Hence, findings of the exploratory analysis with all needs simultaneously included in the regression model were in line with those of aforementioned individual tests of hypotheses.

Exploring General Satisfaction as the Outcome Variable

We then analyzed three needs as simultaneous predictors for satisfaction as the outcome variable, to test the robustness of the proposed system justification theory explanation. Generally, effect sizes found for satisfaction were larger than those of pro-environmentalism. The overall regression of needs on satisfaction was significant (

$R^2 = .323$, $F(4, 995) = 118.866$, $p < .001$), with significant coefficients of epistemic (

$B = 2.063$, $p < .001$) and existential needs ($B = 1.070$, $p = .001$) but not relational needs (

$B = .272$, $p = .538$). As already mentioned, regression for path a (needs on system justification) was significant, with significant coefficient of epistemic needs, marginally significant existential needs, but non-significant relational needs. Regression for path b and c' (needs and system justification together on satisfaction) was also significant (

$R^2 = .412$, $F(5, 994) = 139.064$, $p < .001$) with significant coefficients of system justification ($B = 5.566$, $p < .001$; indicates path b of indirect effect), as well as of epistemic (

$B = 1.078$, $p = .032$) and existential needs ($B = .845$, $p = .007$), each representing the direct effect of the respective needs on satisfaction, but not relational needs ($B = .239$, $p = .560$). Again, findings of the analysis with all needs simultaneously included in the regression model were in line with those of individual analyses[1].

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[1] Results for analyses without including political ideology as the covariate were largely similar with no theoretical discrepancies. The differences were: the total effect of epistemic need on pro-environmentalism became insignificant, but its direct effect was still significantly positive and indirect effect was significantly negative, and; the direct effect of existential need on satisfaction became insignificant, but its total and indirect effects were still significantly positive. Detailed results of mediation analyses without the covariate can be found in the appendices.

Figure 3.

Relationships between Needs, System Justification, Pro-environmentalism and Satisfaction
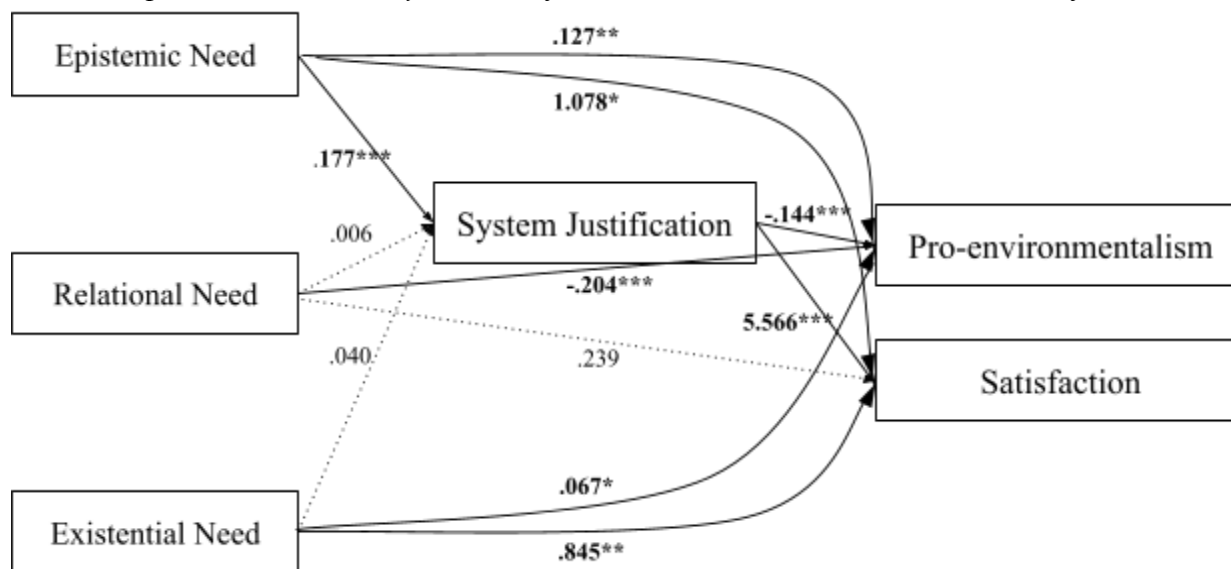
Discussion

This study investigated the role of system justification attitudes as a mediator of negative relationships between epistemic, relational and existential needs with pro-environmentalism. We proposed that individuals with high chronic levels of these needs may justify the incumbent system to a greater extent, which in turn prevents them from being pro-environmental. The main results mostly supported our hypotheses. We found that individuals with higher epistemic and existential needs were indeed more likely to endorse system justification attitudes, which then predicted lower pro-environmentalism.

Contrary to our hypotheses, however, individuals with higher epistemic and existential needs were still more pro-environmental, despite the negative indirect effect via system justification attitudes on pro-environmentalism. Another unexpected finding was the lack of mediation by system justification for relational needs.

Despite these unforeseen outcomes, results of the exploratory analyses using general satisfaction as the outcome variable further supported a system justification theory account of

individual variability in their preference for existing structures. That is, individuals with higher epistemic and existential needs were more likely to be satisfied regarding different sociocultural issues in the USA, and this was mediated by higher system justification attitudes. Hence that higher needs correlate with higher endorsement of the incumbent system can also be argued for attitudes that are more politically neutral than pro-environmentalism.

Lastly, the aforementioned results held even when controlling for political ideology, which bolsters the claim that needs and system justification attitudes are not necessarily associated with particular ideologies so much as their extremity (Greenberg & Jonas, 2003; van der Toorn et al., 2014b; Yam et al., 2020). Thereby, this study challenges prior research that saw a direct relationship between political conservativeness with needs and system justification attitudes (Greenberg et al., 1990; Jost et al., 2003; Jost et al., 2008; Rosenblatt et al., 1989; Schimel et al., 1999). The findings of the current study leads us to question Jost and colleagues' (2003) contention that "Knowing someone's political party says a great deal about a whole complex of beliefs they are likely to hold, including system justification beliefs…" (p. 180), as it risks reducing individual motivations and variability into solely their political affiliations.

How Both Crises and Chronically High Fundamental Needs Associate with System Justification Attitudes

Our findings concerning epistemic and existential needs support system justification theory (Jost & Banaji, 1994), which argues that threats to fundamental human needs motivate people to adhere to the existing structures (Jost & Hunyady, 2005; Jost et al., 2004; van der Toorn et al., 2014a). Results showed that epistemic and existential needs were indeed associated with tendencies to legitimize the existing policies and institutions. These associations not only predicted lower pro-environmentalism with its demands for societal changes, but also higher

general satisfaction regarding the current sociocultural situation. The findings with regards to general satisfaction demonstrated the applicability of system justification theory for behavioral outcomes with varying degrees of politicization.

Past literature concerning motivated cognition (Kihlstrom, 2019; Lord et al., 1979) suggests that the fundamental needs and their translation into motivation for ideological beliefs and behavioral intentions (e.g. system justification attitudes) form at a subconscious level. Nevertheless, we observe that these subconscious processes carry tangible consequences at a societal level. For example, when these needs are threatened at a collective scale, such as during crises, public support for incumbent sociopolitical systems and authorities increases, even when those systems are directly accountable for the negative impacts of the crises. This phenomenon of mass resistance against societal change has led some to coin the term "rally effect" (Hetherington & Nelson, 2003). While the rally effect tends to be short-lived (Hetherington & Nelson, 2003), they can have long-lasting, even irreversible effects due to operating at a systemic level of policies and institutions. In connection to the observance of rally effect during crises, i.e. when fundamental needs of entire populations are threatened, we propose that chronically high fundamental needs may result in similar breeding grounds for individuals to resist systemic change by means of justifying the current system.

Climate Change as a Uniquely Epistemic and Existentially Appealing Crisis

Interestingly, however, we found that overall, epistemic and existential needs correlated positively with pro-environmentalism. The reason for this may be due to characteristics unique to climate change that result in mobilization of those with higher epistemic and existential needs. It could be that climate change is attributed to more epistemically certain causes with a greater existential appeal than most crises. Crises vary in their causes and contexts and also their most

prominently perceived characteristics in their framing (Brinks & Ibert, 2020). Some may be perceived to pose a bigger existential threat than others, and some may be attributed to clear causes while others have more abstract and/or ambiguous causes. Climate change is an oft-discussed major crisis. Political rhetoric surrounding climate change has often emphasized its anthropogenic causes buttressed by scientific evidence, and the threat that it poses to human existence as a whole (Huggel et al., 2022; Stollberg & Jonas, 2021). By comparison, other crises like financial crises have causes that are more speculative and consequences less dire. Previous research indicates that attribution of a threat to clear causes and personal relevance can motivate mobilization. For example, a survey of inhabitants in regions affected by gas-extraction-induced earthquakes showed that higher threat perceptions of earthquakes to one's personal safety correlated with higher intention for collective action for individuals in vulnerable regions (Kutlaca et al., 2019). The existentially and epistemically motivated discussion of the climate crisis may encourage individuals with higher corresponding needs to resolve the issue, even as it simultaneously encourages their tendency to form system justifying attitudes.

It is important to remember that the fundamental needs have evolved in order to protect the individuals from threats in the first place, although in some cases prioritizing them can prevent meaningful resolution. Previous findings demonstrate how communicating information about the climate crisis can incur denial (Morton et al., 2021), unless the communication also entails solutions or possibilities of averting negative consequences. The latter is presumed to lead to higher perception of self and collective efficacy (Morton et al., 2021; Prentice-Dunn and Rogers, 1986; Ruiter et al., 2001; Stollberg & Jonas, 2021), which increases individuals' intention to act upon the threats (Morton et al., 2021). In other words, individuals resort to denial only when they perceive little "way out" of a problem, through a self-protective mechanism

(Ruiter et al., 2001; Stollberg & Jonas, 2021). A sense of powerlessness is what drives system justification attitudes (van der Toorn, 2014a). We suggest that it is because climate change is attributed to concrete causes and mandates, and is framed as an existential issue but not as urgent as to be an imminent cause of death, unlike wars or natural disasters, that it still motivates individuals with high epistemic and existential needs to address the problem. Meanwhile, threats that are more abstract and uncertain or have overwhelmingly dire consequences may only result in denial and system justification-driven resistance against change.

System Justification Does Not Mediate Relation between Relational Needs and Pro-environmentalism

Another unexpected finding was that the indirect effect on pro-environmentalism via system justification observed for epistemic and existential needs, did not hold for relational needs. Relational needs did not correlate with system justification attitudes. This contradicts past literature that fundamental needs, and particularly relational needs (Jost et al., 2008) positively relate to system justification.

Several factors may explain this unforeseen absence of association between relational needs and system justification. For instance, due to the popular perception that the US political climate is highly polarized and its accompanying affective polarization (Kleinfield, 2023; Pepermans & Maeseele, 2016), individuals with high relational needs may be dissatisfied with the existing system, which counterbalances the general tendency of those with higher needs to opt for stability. This can be related to the finding that unlike epistemic or existential needs, relational need does not predict general satisfaction either. Related to this argument is that individuals with high relational needs for shared reality seek to self-categorize through group prototypes, and as a result are more likely to stay in echo chambers of opinions (Hogg & Rinella,

2018; Jost et al., 2018). That individuals shift their attitudes away from those of their outgroups and towards those of their ingroups is consistent with shared reality theory (Jost et al., 2008). Some of these echo chambers may not identify with the rest of American society and may even disagree with the dominant values and power relations[2]. Dissatisfaction with the existing hegemony and wish for societal change may be the group norm in such cases. However, this explanation fails to account for the fact that in this study, relational needs correlated negatively with pro-environmentalism with an effect size greater than either of epistemic or existential needs; if different echo chambers differ in their opinions towards the incumbent system, there is no apparent reason as to why their attitudes towards the environment should be uniformly negative. An alternative explanation is that unlike crises whose resolutions can be individually reached, such as moving to a different area in response to earthquakes or isolating oneself during a pandemic, climate crisis is unique in that resolutions can only be collectively achieved. For this reason, an individual that seeks to prevent the climate crisis must resolve to involve others, so that they too undergo both lifestyle and institutional changes. Individuals with high needs to relate to others may find this necessity for advocacy particularly unattractive, as it pressures them to engage in confrontations and possibly conflicts with others. The apathy towards pro-environmental causes hence may not necessarily indicate support for the existing system, instead may be attributed to an aversion towards collective resolutions.

Furthermore, we found that relational needs correlate negatively with epistemic and existential needs. This is particularly puzzling considering Hardin and Higgins's shared reality account (1996), that sharing a similar worldview with others is a combined necessity of the relational need to be socially included, and the epistemic need for a stable, coherent, predictable

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[2] However, an exploratory analysis with political ideology as moderator and system justification as outcome variable resulted in no interaction effect. Hence if such echo chambers exist in relation to system justifying attitudes, they must be contingent on factors other than political orientation.

and hence controllable world. One possible explanation is that relational needs are actually diametrically opposed to epistemic and existential needs, particularly epistemic needs for certainty, as having higher relational needs may involve a pluralistic worldview, and acknowledgement of ambiguity across contradictory viewpoints. Higher relational needs may also imply a compromise to one's existential needs when individuals are motivated to prioritize other people's needs before their own. However, due to our operationalization of relational needs as a lack of tolerance for dissonant worldviews, and an egocentric focus of one's need to affiliate with others rather than an allocentric altruism, this explanation seems unlikely. The possibility that these interpretations are compromised due to relational needs having had a poor internal consistency and having been reduced to a subset of items, cannot be disregarded. This and other factors to consider are discussed below.

Strengths and Limitations

The current study demonstrated the predictive power of fundamental needs on pro-environmentalism independent of political ideology. Thereby, it corroborated the understanding of individual variances in pro-environmentalism and the mechanism through which these variances can be explained. Furthermore, it ensured a fuller coverage of pro-environmentalism as a measure not limited to belief in climate change and the anthropogenic cause of climate change but also support for policy changes.

While this study relies on a well-powered questionnaire with high constructive validity, it only discusses the relationship between individual variances in needs and pro-environmentalism in correlational terms. However, it is possible that pro-environmentalism affects the salience of needs rather than vice-versa. The possibility that participants were primed to consider environmental issues when they expressed their needs and attitudes towards the system can be

safely eliminated, due to the order of the items presented in the questionnaire. However, it is possible that engagement in pro-environmental beliefs, actions and particularly climate advocacy in everyday life encourages individuals to be more salient of existential and epistemic needs, needs which are often emphasized in the popular framing of environmental issues (Huggel et al., 2022; Stollberg & Jonas, 2021). The positive spillover account of environmentalism argues that taking actions perceived to be pro-environmental lead individuals to self-identify as being pro-environmental persons (which then leads to further pro-environmentalism; Truelove et al., 2014; Margetts & Kashima, 2017). The positive spillover effect exemplifies a case in which context-specific actions shape global and enduring self-perception. In this case, individuals' pro-environmental attitudes may make certain general needs more salient for them. Similarly, it may be argued that pro-environmentalism lowers individuals' general support for the system, particularly given the politicization of climate change in the US (Pepermans & Maeseele, 2016) and the struggle for emancipation that advocacy campaigns frequently express against incumbent institutions and socioeconomic systems. System-justifying attitudes may then further cement existential and epistemic needs, tendencies to avoid uncertainties and alternative perspectives which may potentially threaten the system. If so, the relationship between needs, system justification and pro-environmentalism may be bidirectional or in the opposite direction to the proposed mechanism. To address this limitation, we recommend future research to test the proposed effect of needs on pro-environmentalism via system justification through temporarily manipulating the salience of needs using priming in controlled conditions.

Furthermore, the contrasting pattern of results involving relational needs compared to epistemic and existential needs discussed above should be taken with caution as relational needs was the only measure with an unsatisfactory Cronbach's alpha value out of all constructs in this

study. Only three out of eight items were included in the final measure of relational needs to achieve an acceptable internal consistency. These remaining items were generally focused on the need to share a similar worldview with others, and less on the need for social support and belonging. It can be argued that relational needs is more poorly defined as a construct than previously thought within the literature, and that the need for shared reality correlates minimally with other aspects of relational needs. However, this raises the question of why our selected items did not correlate positively with epistemic needs if they primarily concerned shared reality needs, which, again, according to the shared reality theory (Hardin & Higgins, 1996), are concomitant with epistemic needs. We carefully posit the possibility that due to the three items having been all reverse-coded, with a phrasing that emphasizes uniqueness and independence which may be considered socially desirable traits, that they reflect neither shared reality needs nor relational needs adequately. Pilot studies to construct a fuller and more reflective measure of relational needs are recommended for future research.

Lastly, this study was conducted solely within the USA with a sample designed to match the quotas of the national population. Due to the polarized sociopolitical climate of the USA, ideological and motivational patterns of specifically individuals with high relational needs may have been different to those of other countries. Furthermore, according to a survey in 2020, USA remains second in the world ranking of proportion of climate change deniers among its citizens (YouGov, 2020). This makes the USA an appropriate setting for our aim to explain the individual variability in pro-environmentalism, but may significantly compromise the generalizability of its findings to the rest of the world. Replication of this research in other cultural settings is hence recommended. In addition to these suggestions, we raise further implications of the current study and research directions for the future in the next section.

Future Directions: Researching Climate Crisis Communication and its Effects

Research investigating how to increase public support for systemic and institutional changes is more urgent than ever. In our time of abound crises – e.g. climate crisis, religious fundamentalism, wars, polarization, emergence of new economic powers that destabilize traditional industrial centers –, we must investigate the practical consequences of crises and crisis communication on individual and collective agents (Brinks & Iberts, 2020). Despite posing a significant amount of uncertainty, urgency and threat, crises distinguish themselves from catastrophes in that they are still perceived to be, to an extent, preventable (Kornberger et al., 2020). They communicate an open future left to be determined by individual and collective agencies. Research must hence focus on how to communicate crises and possible resolutions in ways that emphasize the indeterminate aspect of crises without simultaneously compromising the sense of urgency, and increase perceived efficacy without reducing perceived individual responsibility. People often underestimate how much they can adapt to changes (Chater & Loewenstein, 2022; Mazar et al., 2021), which also result in the tendency to desire the status quo (Samuelson & Zeckhauser, 1988). However, once a systemic change is implemented, even just temporarily for people to experience its positive outcomes, people are more likely to support the change that they initially resisted (Janusch et al., 2021). Findings such as these must be taken into account when designing interventions aimed at increasing public support for climate policies. For this reason, questions such as what leads some individuals with high epistemic and existential needs to be more pro-environmental despite their tendency to defend the status quo, and whether crises that vary in perceived uncertainty, urgency and threat incur different response patterns to what we found for climate crisis in the American setting, are paramount.

Conclusion

The current study examined the relationships between epistemic, relational, existential needs with system justification and pro-environmentalism. Based on system justification theory, it tested the hypothesis that individuals with highly salient needs are more likely to justify the status quo, hence less likely to pursue pro-environmentalism, including policy changes. Results confirmed the mediating role of system justification in lowering pro-environmentalism in those with highly salient epistemic and existential needs, yet the same was not confirmed for relational needs. Furthermore, contrary to expectation, individuals with high epistemic and existential needs were still more pro-environmental overall than those with low corresponding needs.

It is argued that the uniquely existential and epistemic appeal of climate crisis communication likely led to these specific patterns of responses unlike any other crises. The implications of these findings hence direct us to further investigate how crises with different levels of uncertainty, urgentness and threat contribute to different patterns of reaction across individuals with varying salience of needs, as well as how best to increase public support for the much needed systemic changes via maximizing perceived efficacy and minimizing system justifying tendencies.

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Appendices

Results of Assumption Tests

Table 1

VIF Values for Individual Paths of the Mediation Model

		Independent Variable				
		Epistemic Need (X_1)	Relational Need (X_2)	Existential Need (X_3)	Political Ideology (C)	System Justification Attitude (M)
Paths of Mediation Model	a, c	1.189	1.072	1.098	1.043	-
	b, c'	1.220	1.072	1.101	1.238	1.262

Figure 1

Normal P-P Plots of Needs and Political Ideology Against System Justification Attitude, Pro-environmentalism and Satisfaction
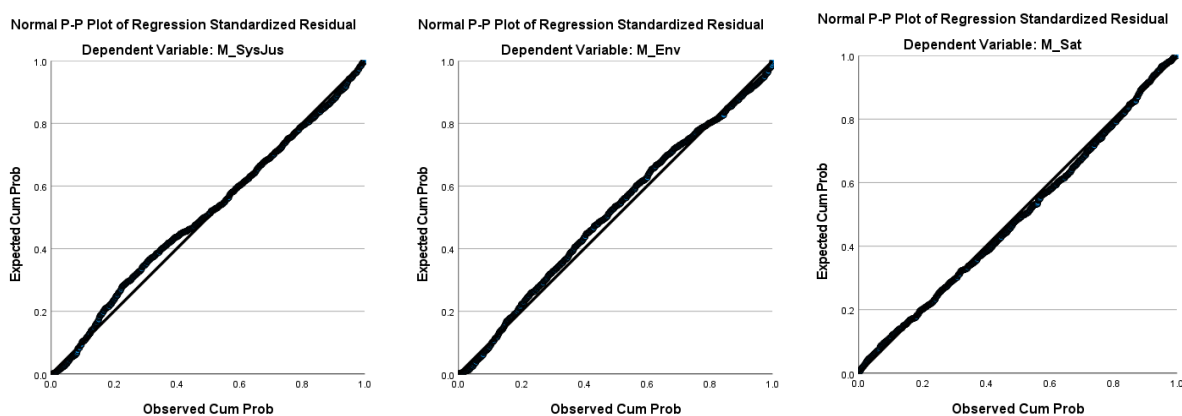

Figure 2

Normal P-P Plots of Needs, Political Ideology and System Justification Attitude Against Pro-environmentalism and Satisfaction
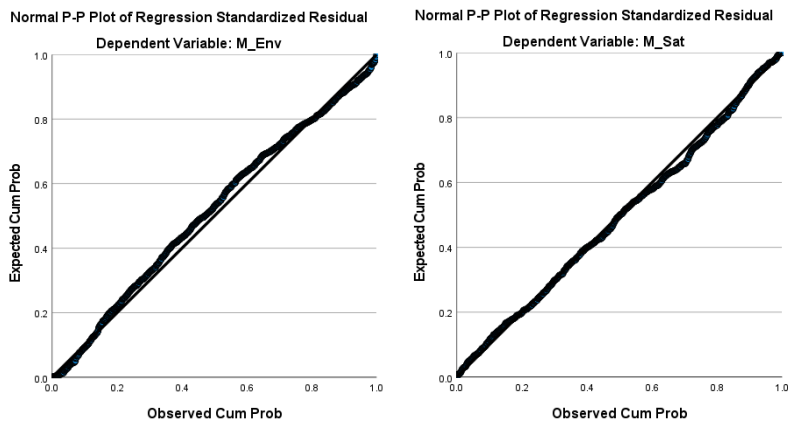
Figure 3

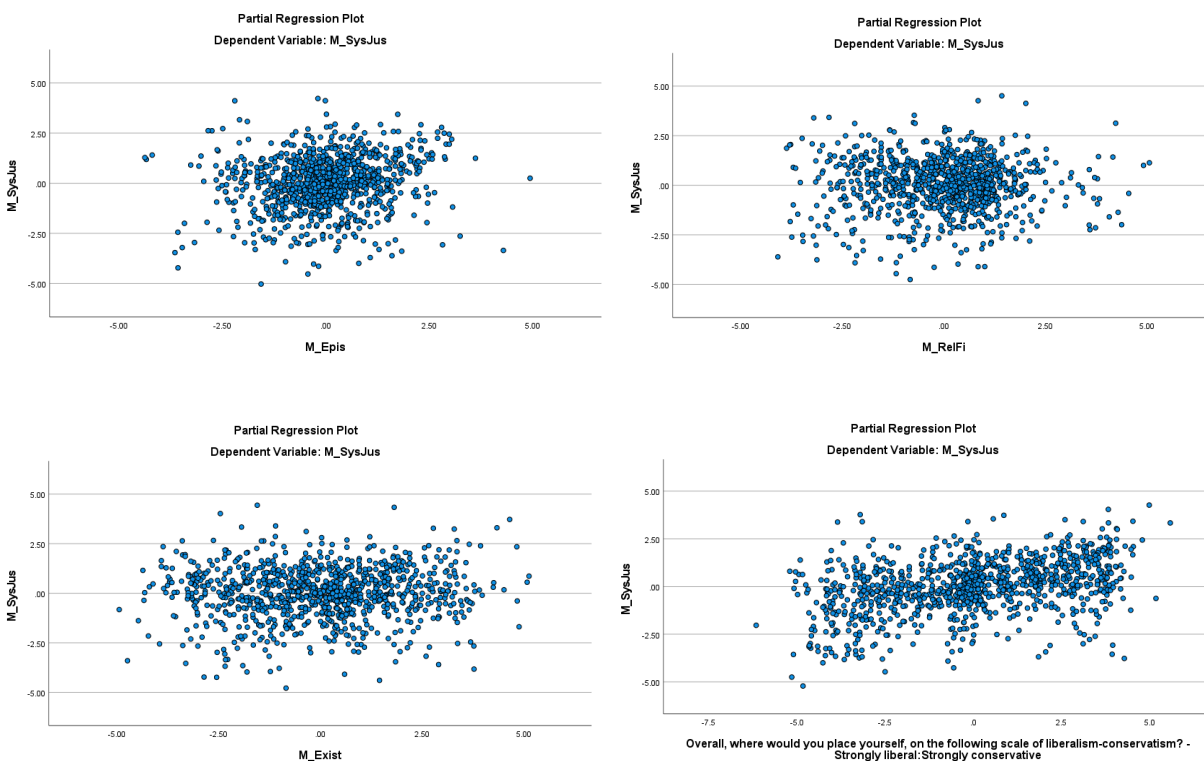*Scatterplots with System Justification Attitude as Dependent Variable*

Figure 4

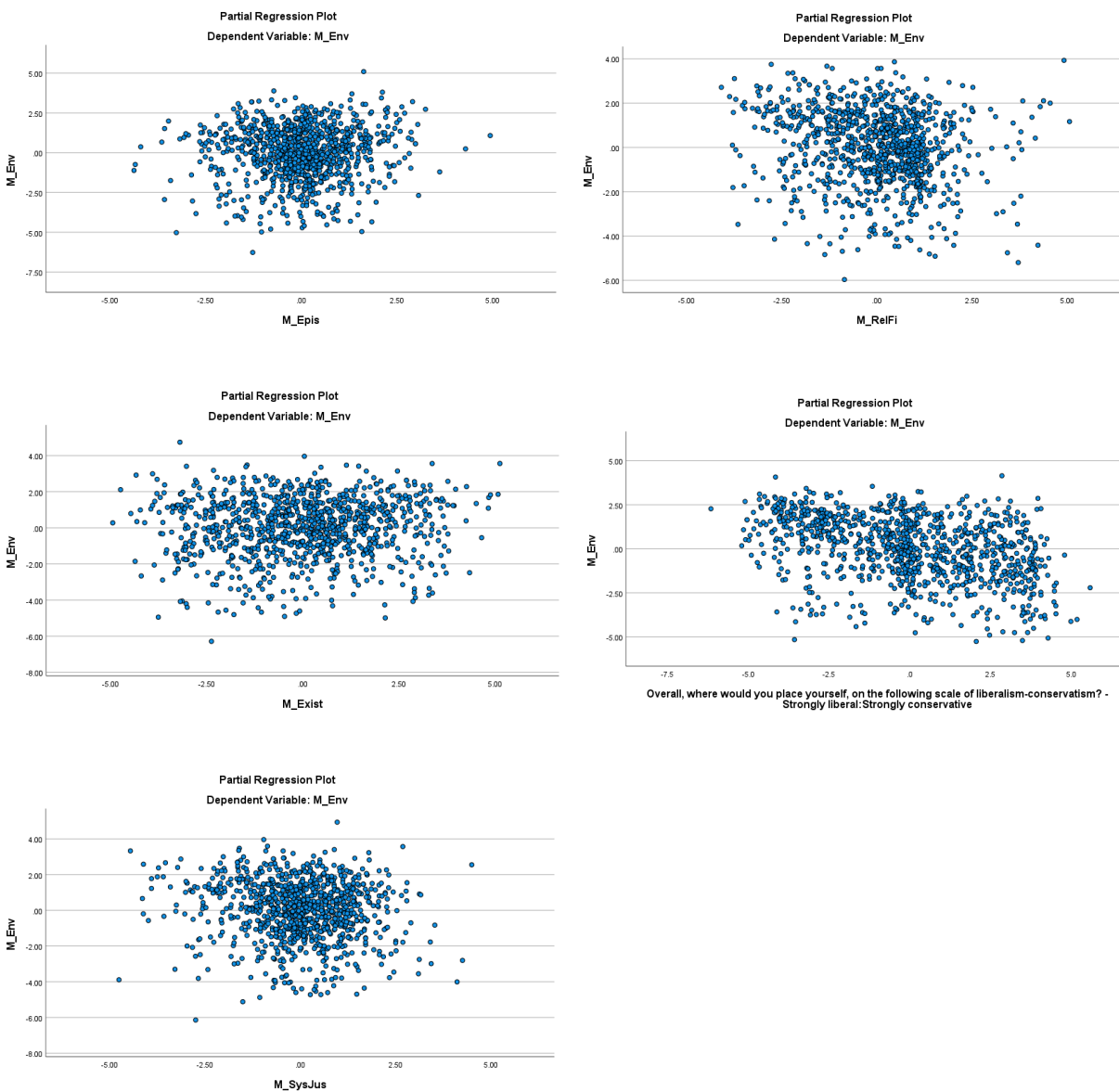*Scatterplots with Pro-environmentalism as Dependent Variable*

Figure 5

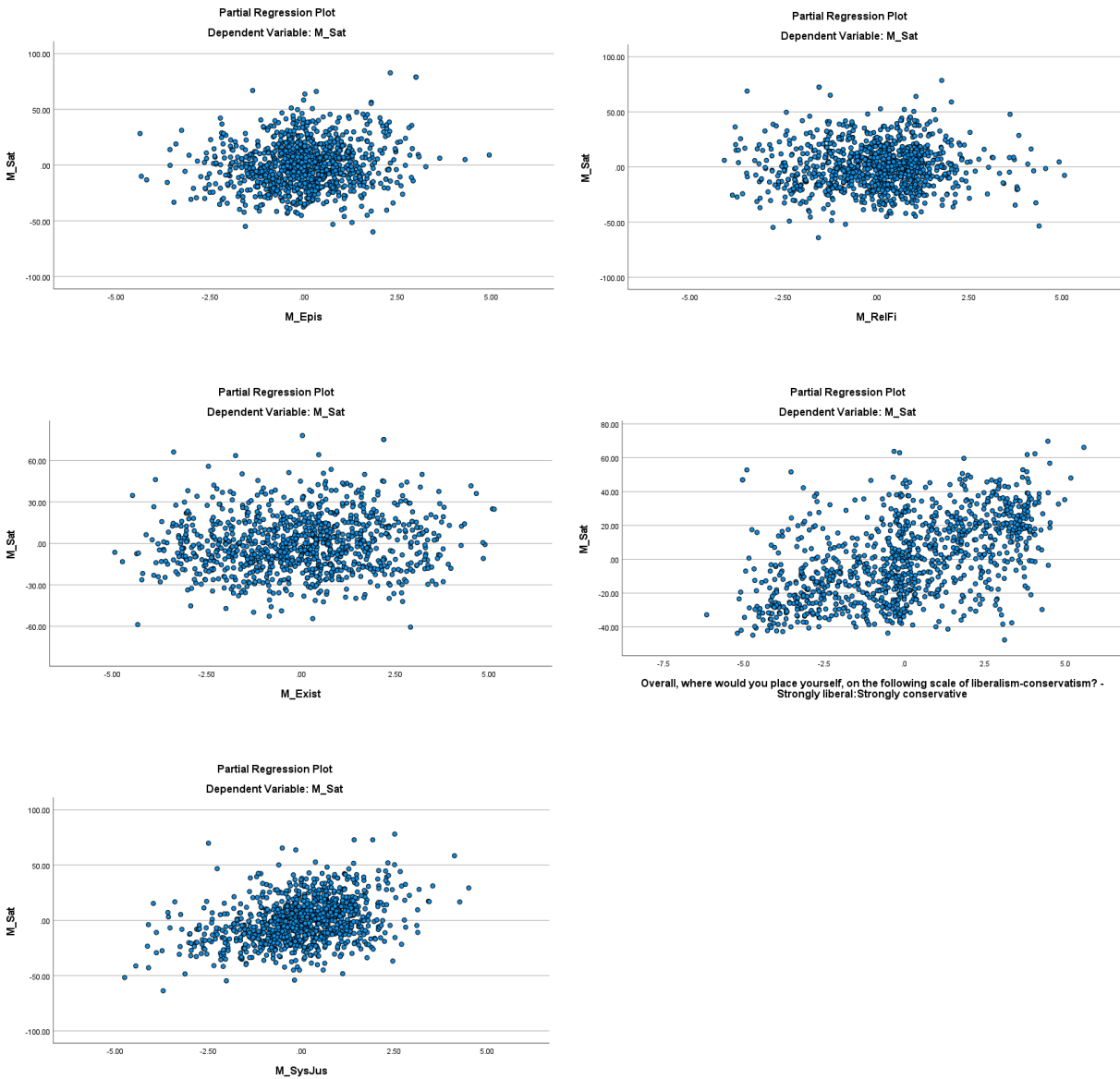*Scatterplots with Satisfaction As Dependent Variable*

Figure 5

Residual Plots of Needs and Political Ideology Against System Justification Attitude,

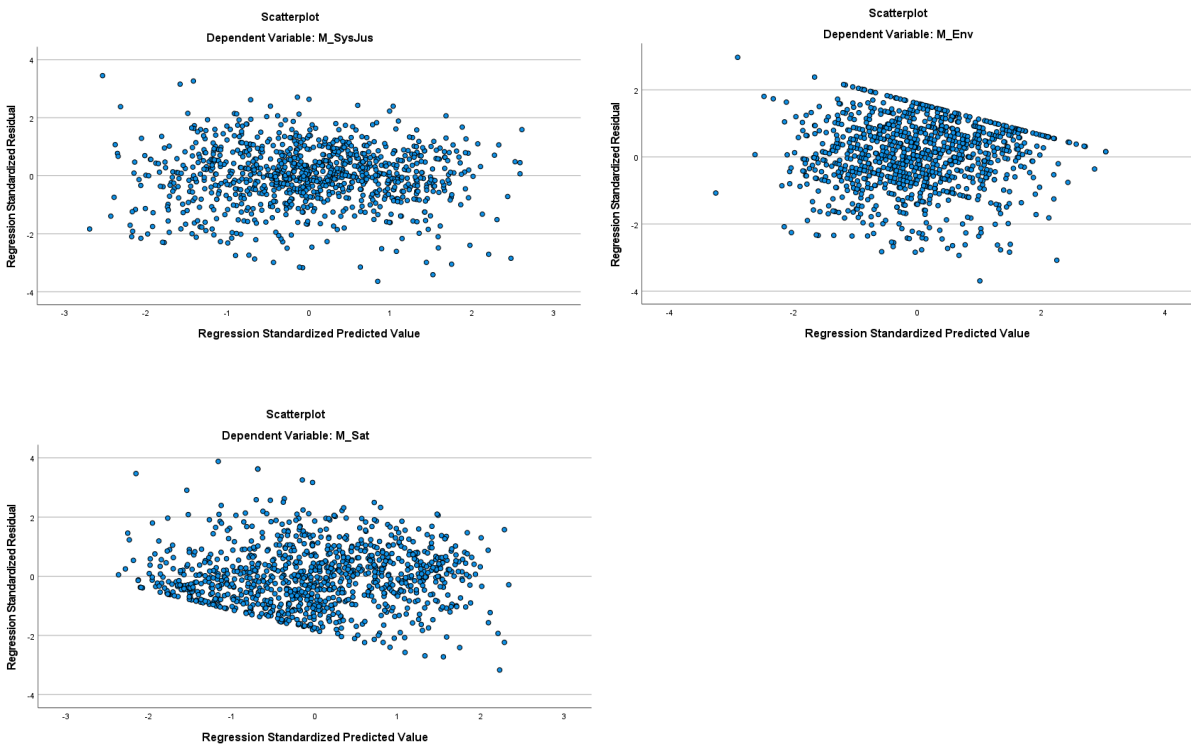*Pro-environmentalism and Satisfaction*

Figure 6

Residual Plots of Needs, Political Ideology and System Justification Attitude Against

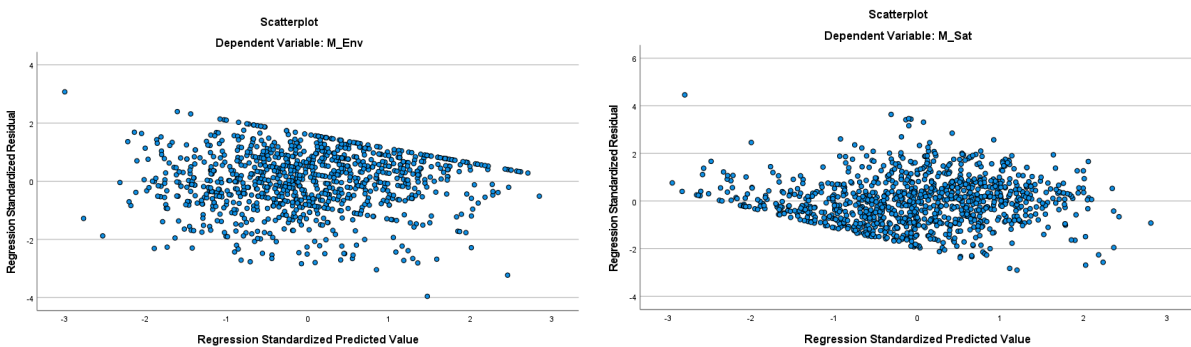*Pro-environmentalism and Satisfaction*

Table 2

Breusch-Pagan Test Results of Regressing Squared Residuals Against Predicted Values with

Needs, Political Ideology and System Justification Attitude

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.800	1	51.800	6.534	.011[b]
	Residual	7912.204	998	7.928		
	Total	7964.004	999			

a. Dependent Variable: SQRES_NeedsPolidonSysjus

b. Predictors: (Constant), Unstandardized Predicted Value

Table 3

Breusch-Pagan Test Results of Regressing Squared Residuals Against Predicted Values with

Needs, Political Ideology and Pro-environmentalism

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.683	1	80.683	4.896	.027[b]
	Residual	16447.817	998	16.481		
	Total	16528.500	999			

a. Dependent Variable: SQRES_NeedsPolidonEnv

b. Predictors: (Constant), Unstandardized Predicted Value

Table 4

Breusch-Pagan Test Results of Regressing Squared Residuals Against Predicted Values with

Needs, Political Ideology and Satisfaction

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	712731.923	1	712731.923	1.800	.180[b]
	Residual	395113544.6	998	395905.355		
	Total	395826276.5	999			

a. Dependent Variable: SQRES_NeedsPolidonSat

b. Predictors: (Constant), Unstandardized Predicted Value

Table 5

Breusch-Pagan Test Results of Regressing Squared Residuals Against Predicted Values with

Needs, Political Ideology, System Justification Attitude and Pro-environmentalism

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.066	1	56.066	3.312	.069[b]
	Residual	16893.638	998	16.927		
	Total	16949.705	999			

a. Dependent Variable: SQRES_AllonEnv

b. Predictors: (Constant), Unstandardized Predicted Value

Table 6

Breusch-Pagan Test Results of Regressing Squared Residuals Against Predicted Values with

Needs, Political Ideology, System Justification Attitude and Satisfaction

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1052097.631	1	1052097.631	3.230	.073[b]
	Residual	325061473.3	998	325712.899		
	Total	326113571.0	999			

a. Dependent Variable: SQRES_AllonSat

b. Predictors: (Constant), Unstandardized Predicted Value

Testing the Hypotheses Without Controlling for Political Ideology

Table 2

Relationship between Needs and Pro-environmentalism with System Justification Attitude as the Mediator

					95% CI	
Predictor		*B*	*SE*	*p*	*LL*	*UL*
Epistemic Need	Total Effect	.090	.049	.066	-.006	.187
	Direct Effect	.175*	.050	<.001	.078	.273
	Indirect Effect	-.085*	.017	-	-.122	-.053
Relational Need	Total Effect	-.241*	.044	<.001	-.326	-.155
	Direct Effect	-.251*	.043	<.001	-.335	-.167
	Indirect Effect	.010	.011	-	-.011	.032
Existential Need	Total Effect	.110*	.032	<.001	.048	.173
	Direct Effect	.129*	.032	<.001	.067	.191
	Indirect Effect	-.019*	.008	-	-.036	-.004

*Effect is significant at α = .05, or given bootstrapped CI does not include zero.

Table 3

Relationship between Needs and Satisfaction with System Justification Attitude as the Mediator

	95% CI

Predictor		*B*	*SE*	*p*	*LL*	*UL*
Epistemic Need	Total Effect	4.208*	.610	<.001	3.011	5.404
	Direct Effect	1.970*	.567	.001	.857	3.082
	Indirect Effect	2.238*	.355	-	1.556	2.951
Relational Need	Total Effect	-.284	.559	.612	-1.380	.813
	Direct Effect	.029	.492	.953	-.937	.996
	Indirect Effect	-.313	.313	-	-.921	.315
Existential Need	Total Effect	1.229*	.4060	.003	.433	2.025
	Direct Effect	.680	.348	.051	-.003	1.362
	Indirect Effect	.550*	.217	-	.121	.971

*Effect is significant at α = .05, or given bootstrapped CI does not include zero.