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Politically-polarized perceptions of governmental autonomy-support impact internal motivations to comply with COVID-19 safety guidelines

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Abstract

Compliance with health safety guidelines is essential during pandemics. However, political polarization in the U.S. is reducing compliance. We investigated how polarized perceptions of government leaders' autonomy-support and enforcement policies impacted security and internally-motivated compliance with national (Study 1a) and state (Study 1b) safety guidelines. We surveyed 773 Republicans and Democrats from four states (California, Florida, New York, Texas) during the first wave of the 2020 COVID-19 pandemic. Overall, participants perceived that the decision processes of opposing political administrations did not support their autonomy. Lack of autonomy-support was associated with reduced security and internal motivations to comply ($R^2 = 50.83\%$). When political administrations enforced health safety mandates (Democrat state leaders in this study) and were perceived as autonomy-supportive, participants reported the highest security and internally-motivated compliance ($R^2 = 49.57\%$). This effect was especially pronounced for Republicans, who reacted negatively to enforcement without autonomy-support. Political leaders who use fair and supportive decision-making processes may legitimize enforcement of health safety guidelines, improving compliance.

Keywords COVID-19 · Compliance · Political polarization · Autonomy-support · Internal motivation · Legitimization of enforcement

The novel COVID-19 coronavirus (SARS-CoV-2) has been responsible for an estimated 53 million cases and 820 thousand deaths in the U.S. at the time of this writing (CDC, 2021). The COVID-19 pandemic poses a public threat because the virus is easily transmitted between individuals via air droplets (aerosolized particles). Managing this threat has created a social dilemma: to curtail the virus's spread, everyone must take cooperative safety precautions (e.g., limit travel, avoid social gatherings, wear masks). These precautions must be taken even when doing so is costly (i.e., effortful, unpopular), and even among individuals who face little risk of severe illness themselves (Johnson et al., 2020).

Complying with these precautions can substantially improve public safety (Courtemanche et al., 2020).

Enforcement of COVID-19 safety guidelines, like any other public health policy (e.g., Elvik, 2012), is essential to effective disease control (Courtemanche et al., 2020). However, robust voluntary cooperation and internally-motivated compliance are also crucial, because governments cannot perfectly monitor everyone's behavior (Clark et al., 2020; Johnson et al., 2020; Martela et al., 2021; Scheid et al., 2020). Individuals may choose to defy mandatory safety guidelines, against the advice of public officials, scientists, and medical experts (Clark et al., 2020). Furthermore, many public safety measures in the U.S. have relied primarily on voluntary compliance behaviors, such as advisory stay-at-home orders (AMJC, 2021; Carter & May, 2020; Daszak et al., 2021; Moreland et al., 2020). It is therefore essential to understand the core psychosocial processes associated with robust, internally-motivated compliance.

Prior research has identified three factors, among others, that fundamentally influence societal cooperation and internally-motivated compliance: (a) procedural justice and

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autonomy-support (Ryan & Deci, 2017; Tyler, 1990, 2006), (b) rule enforcement (Becker, 1974; Bowles, 2008), and (c) political ideology (e.g., Bruine de Bruin et al., 2020; cf. McCright et al., 2014). Prior research has not systematically considered how these three factors impact compliance with health safety guidelines, or the potential interaction of these factors. The current study addresses this gap by investigating the relationship of political affiliation, perceived autonomy-support, and enforcement in internal motivations to comply with national (Study 1a) and state (Study 1b) COVID-19 safety guidelines, during the first wave of the pandemic in the U.S. It may be possible to improve policy internalization and acceptance via more effective communication (Lewandowsky et al., 2021; Martela et al., 2021), institutional design (e.g., collaborative decision-making; Leach & Sabatier, 2005; Weible & Sabatier, 2009), and adherence to core principles of democracy (Ostrom, 1994; Tyler, 2006). The current study highlights the importance of democratic process. This study may also inform the political and psychosocial theory of enforcement (cf. Bowles, 2008; DeCaro et al., 2015, 2021), helping to resolve current scientific debate about the potential impacts of mandatory versus advisory COVID-19 public safety guidelines (cf. Martela et al., 2021; Scheid et al., 2020).

We first discuss the governance approaches pursued by Republican- and Democrat-led administrations to manage the pandemic during the period of study. Afterward, we discuss psychosocial processes hypothesized to link these governance approaches with individuals' compliance motivations. This work is informed by two frameworks, humanistic rational choice theory (DeCaro, 2018) and self-determination theory (Ryan & Deci, 2017). Both frameworks emphasize the importance of subjective perceptions of governmental fairness and autonomy-support for legitimization and internalization of compliance behaviors.

Governance of the pandemic

The first officially-documented COVID-19 case in the U.S. was announced by the U.S. Centers for Disease Control on January 21, 2020 (CDC, 2020a). Data collection for the current study occurred June 2–22, 2020, during the first wave of the pandemic in the U.S. Former President Donald J. Trump, a Republican leader, directed the government's national response during that time. From the beginning, President Trump downplayed the danger of the virus and took action reluctantly, despite urgent medical advice (Daszak et al., 2021; Green et al., 2020). Under President Trump's leadership, federal government delegated management of the pandemic to local governments. Politically, this decision was seen as supporting state authority desired by Republicans (Berman, 2020; Carter & May, 2020).

Hence, under the Trump Administration's leadership, federal government played a secondary, supporting role.

The Trump Administration declared a public health emergency and national emergency on Feb 3 and March 3, respectively. These declarations enabled special financial aid to citizens and facilitated passage of Congress's "Coronavirus Aid, Relief, and Economic Security" (CARES) Act (15 USC 9001: *Public Law 116–136,* March 27). The CARES Act provided emergency funds for local governments, hospitals, and businesses coping with health and economic disruptions caused by the pandemic (AMJC, 2021). On March 16, the Trump Administration introduced an advisory initiative, later deemed "30 Days to Slow the Spread," encouraging individuals who "feel sick," test positive for COVID-19, or are in a high-risk category (e.g., older adults, pre-existing medical condition) to voluntarily self-isolate. Individuals were also instructed to "follow the directions of your state and local authorities" (CDC, 2020b). The goal was to aid state/local management efforts. Federal government did not enforce compliance, provide an overarching national plan for pandemic resilience, or coordinate distribution of limited medical supplies and protective equipment to curtail competition during acute crises (Carter & May, 2020).

At the state level, a key difference between Republican and Democrat administrations was in the use of mandatory (enforced) versus advisory safety guidelines. Republican governors typically made COVID-19 safety guidelines advisory (Moreland et al., 2020) in support of individual autonomy (Daszak et al., 2021). In contrast, Democrat governors typically made these guidelines mandatory, with monetary penalties for non-compliance (cf. Carter & May, 2020).

On March 19, 2020 Democrat-led California was the first state to issue and enforce a mandatory state-wide, stay-at-home order. March 22, Democrat-led New York issued a similar order targeting all major, heavily populated urban counties (Moreland et al., 2020). California's order persisted until June 11, 2021, coinciding with vaccine availability and relatively high vaccination rates (*Executive Order N-08-21*). New York began a four-phase reopening process May 20, 2020 (*Executive Order 202.31*). This plan continued enforceable stay-at-home orders for non-essential workers, social distancing, masking, and other precautions (e.g., limits to social gatherings), and began a tier-based system for gradual reopening of outdoor business activities deemed safe, in regions that achieved important safety milestones (e.g., 2-week decline in hospitalizations; cf. Blackwell, 2020). However, much of the state, and especially densely populated New York City, did not reach final milestones (i.e., Phase 4) until well after the current study's research period (e.g., New York was July 20, 2020).

In contrast, Republican-led Texas did not issue a mandatory stay-at-home order or enforce any other public safety

precautions (Moreland et al., 2020). During a 3-week period from April 3–30, 2020, Florida issued a constrained set of enforceable stay-at-home orders loosely corresponding with the Trump Administration's 30-Days to Slow the Spread initiative (*Executive Order 20-91*). However, religious gatherings, large public beach gatherings (during Spring Break vacation season), and other activities prohibited in CA and NY were allowed in Florida. On April 30, the state resumed advisory conditions (Moreland et al., 2020). Thus, during the current study's research period (June 2–22, 2020), CA and NY operated under mandatory public safety precautions, whereas TX and FL had advisory precautions.

Preliminary research indicated that mandatory stay-at-home orders, and other precautions, were effective in curtailing transmission of the virus and reducing demands on limited medical workers, facilities, and equipment (e.g., Courtemanche et al., 2020; Moreland et al., 2020). However, individuals perceived the approaches taken at national and state levels as largely political in nature (Druckman et al., 2021; Jiang et al., 2020). Political polarization is increasing in the U.S. (e.g., McCright et al., 2014; cf. Baldassarri & Gelman, 2008; Dunn & Thornton, 2018; Heltzel & Laurin, 2020; Iyengar & Westwood, 2015; Jacoby, 2014; but see, Wilson et al., 2020). Republican and Democrat leaders delivered conflicting messages about the nature, importance, and severity of COVID-19, and its implications for society (Green et al., 2020). Central to these messages were politicized debates over the danger of illness, necessity of mandatory versus advisory safety guidelines, individual rights, and democracy. These messages were quickly reflected in public discourse (Jiang et al., 2020), contributing to differential attitudes and compliance among many individuals who identify as Republicans or Democrats (Alcott et al., 2020; Bruine de Bruin et al., 2020; Druckman et al., 2021). Politically-polarized perceptions of decision fairness/autonomy-support and enforcement by federal, state, or local governments may therefore have hindered compliance with important safety precautions. We discuss theoretical considerations underlying this possibility.

Autonomy-support and legitimization of enforcement

The purpose of governance systems is to facilitate societal cooperation in overcoming social dilemmas (Hardin, 1968; Ostrom, 1998). Two aspects of these systems are foundational to cooperation and compliance: (a) the institutional decision processes used to decide important societal rules, and (b) the enforcement mechanisms used to ensure compliance (Ostrom, 1990; Tyler, 1990, 2006). However, these aspects of governance may backfire if implemented or perceived improperly (Bowles, 2008; DeCaro & Stokes, 2013).

In this section, we review important concepts and research findings about institutional decision-making processes and enforcement to present a synthesized conceptual framework for the current study.

## Autonomy-supportive decision-making processes

From a governance standpoint, *autonomy-support* (Deci & Ryan, 1987) generally refers to the following interventions: participation in important decision processes, transparency, rationales, acknowledging and incorporating stakeholder input, and ensuring decision procedures are accessible, unbiased, and culturally-appropriate (DeCaro & Stokes, 2013; Ryan & Deci, 2017; Tyler, 2006). Genuinely fair and autonomy-supportive decision-making processes (hereafter, "autonomy-support") satisfy fundamental needs for procedural justice and self-determination (cf. van Prooijen, 2009). Satisfying these fundamental needs facilitates *internalization* (Schafer, 1968), the psychosocial process whereby individuals autonomously endorse and accept institutions (e.g., rules, norms, governance systems) within their sense of self. Internalization and acceptance is associated with autonomous motivations, such as interest/enjoyment (intrinsic), personal relevance, and importance (e.g., identification and integration; Sheldon & Elliot, 1998). Highly-internalized individuals typically exhibit robust voluntary compliance (Deci & Ryan, 2000; Frey et al., 2004; Tyler, 2006), including in healthcare and public safety (Fall et al., 2018; Hagger & Chatzisarantis, 2009; Sheeran et al., 2020).

Early in the U.S. pandemic, some healthcare experts and social scientists proposed that autonomy-supportive approaches were needed to ensure more widespread internalization and acceptance of COVID-19 safety guidelines (e.g., Martela et al., 2021; Scheid et al., 2020). These experts often referred to standard components of autonomy-support (e.g., public participation) and autonomy-supportive communication (e.g., rationales). However, autonomy-supportive processes in government are prone to poor implementation (Arnstein, 1969; Cohen & Wiek, 2017, Reed, 2008), and perceptions of autonomy-support are individually and culturally subjective (e.g., Tyler & Degoey, 1995; cf. DeCaro & Stokes, 2013; Rudy et al., 2007). Thus, ostensibly fair or democratic decision processes do not guarantee positive motivational outcomes. This caveat poses serious practical and theoretical challenges, and must be reconciled with equally important caveats about rule enforcement.

Enforcement

Using enforcement to promote compliance is controversial, scientifically and politically. Traditionally, political and economic sciences have assumed that extrinsic motivators such as rule enforcement ensure robust cooperation by

Fig. 1 Conceptual framework: psychosocial processes linking contextually-subjective perceptions of autonomy-support and enforcement to internal motivations for compliance. Adapted from humanistic rational choice theory (DeCaro et al., 2021)
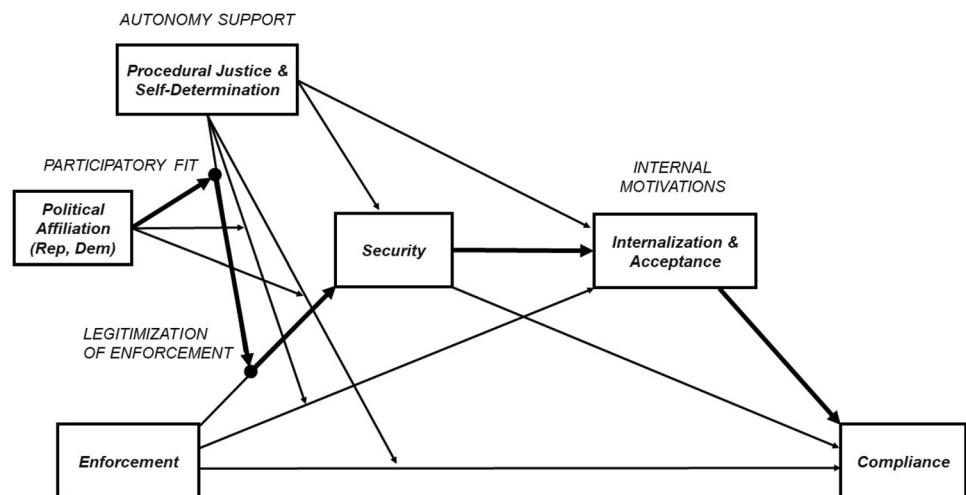
generating fear of punishment and increasing the perceived costs of rule violations (Becker, 1974; Hobbes, 1947). Such enforcement establishes a sense of order and security, encouraging sustained compliance (cf. Ostrom et al., 1992). This is the basic principle behind the deterrence theory of enforcement. Empirically, however, enforcement yields mixed results. Extrinsic motivators such as rule enforcement may backfire, undermining internalization and acceptance (Bowles, 2008; Deci & Ryan, 1987).

Political polarization of enforcement can also undermine its effectiveness (see Attari et al., 2009; Cornforth, 2009; Dunn & Thornton, 2018; Fine et al., 2019). With regard to the U.S. pandemic, Democrats generally prefer greater government control, including mandatory safety guidelines with enforcement. Republicans generally do not prefer such enforcement, viewing it as a threat to individual freedom (Bruine de Bruin et al., 2020; Daszak et al., 2021; cf. Carter & May, 2020).

Hence, individuals may autonomously endorse and internalize enforcement of particular rules differently, greatly affecting their subsequent compliance (DeCaro et al., 2015, 2021). For example, Legate et al. (2020) observed that Muslim women who autonomously endorsed wearing a head/face covering for more intrinsic reasons (e.g., self-expression, religious identification) responded more positively to enforcement than women motivated primarily by extrinsic reasons (e.g., fear of punishment, lack of choice). If enforcement runs afoul of one's strongly-held political beliefs, then enforcement of COVID-19 safety guidelines could similarly hinder internal motivation and compliance (Martela et al., 2021; Scheid et al., 2020; cf. Ryan & Deci, 2017). Thus, both autonomy-support and rule enforcement appear important to successful pandemic management, but pose difficult theoretical, conceptual, and practical challenges.

Legitimization of enforcement

Humanistic rational choice theory (DeCaro, 2018) provides an integrative perspective to reconcile these observations (Fig. 1). According to HRCT, if individuals do not already intrinsically endorse enforcement of a rule (e.g., Legate et al., 2020; cf. Hilbe et al., 2014; Yamagishi, 1986), then enforcement must be legitimized by autonomy-supportive decision processes. Otherwise, enforcement will be perceived as oppressive, fail to improve security, and ultimately undermine internalization and acceptance (e.g., DeCaro et al., 2015, 2020; cf. Gibson, 1989; Ostrom, 2000; Tyler, 1985, 1990). HRCT predicts that internally-motivated compliance is enhanced when autonomy-support and enforcement are combined. Fair and autonomy-supportive decision procedures justify rule enforcement. Enforcement protects and empowers fairly-chosen rules and decisions.

However, this entire process of legitimization is first constrained by *participatory fit* (DeCaro & Stokes, 2013). Participatory fit is the idea that, to be perceived as "fair and autonomy-supportive," decision processes must be properly aligned with stakeholders' subjective (e.g., sub/cultural) beliefs about what constitutes appropriate leaders and decision processes (cf. Brockner et al., 2001; Chen et al., 2015).

DeCaro et al., (2015; see also DeCaro et al., 2021) provided an experimental demonstration of this effect, replicating field studies of compliance in diverse social dilemmas (e.g., Epstein, 2017; Kubo & Supriyanto, 2010; Ostrom, 1990; Tyler & Degoey, 1995; Vollan, 2008). Participants with Western democratic norms experienced a competitive resource dilemma, in which group cooperation and voluntary compliance were required to sustain a shared, economically-valuable resource. Some groups could vote on conservation rules and use economic penalties to enforce them (voted-enforce condition). Other groups could vote, without enforcement (voted condition). For comparison, two final

groups (imposed condition, imposed-enforce condition) had the same conservation rules imposed by the experimenter without a vote. Individuals in the voted-enforce condition cooperated best and reported the highest levels of procedural justice and self-determination (autonomy-support), security, internalization, and acceptance. These individuals continued to comply voluntarily after enforcement was later removed. In contrast, participants in the imposed-enforce condition exhibited the lowest levels of cooperation, mediated by corresponding decreases to perceived autonomy-support, security, internalization, and acceptance. Hence, these individuals, with Western ideals of democracy, cooperated best when decision procedures matched expected norms of fairness and autonomy-support (i.e., participatory fit) and the resulting rules were enforced (i.e., legitimization). Similar psychosocial processes may underlie COVID-19 safety compliance.

Current study

In the current study, we examined the influence of political polarization on subjective perceptions of (a) national and state autonomy-support (procedural justice/self-determination) and (b) internalization and acceptance of COVID-19 safety guidelines. We conducted a large survey during the first wave of the pandemic in the U.S. (June 2–22, 2020), targeting four states: California (CA), Florida (FL), New York (NY), and Texas (TX). We selected these states because they were highly populated, politically influential, and severely impacted during the study period. These states also used different governance approaches, as previously described. CA and NY were governed by Democrat governors who issued mandatory stay-at-home orders, with formal penalties for non-compliance; FL and TX were governed by Republican governors, with advisory orders. We assessed participants' self-reported compliance and intentions to comply with future safety guidelines.

Hypotheses

Our hypotheses stem from key concepts and relationships outlined in HRCT (Fig. 1). First, in the U.S., political affiliation (e.g., Republican, Democrat) is known to be associated with polarized perceptions of government leaders/administrations (e.g., Fine et al., 2019; Scwalbe et al., 2020). We expected participants to perceive the decision-making processes of their own political leadership as more autonomy-supportive, but perceive the opposing political leadership's decision-making processes as unsupportive (*participatory fit hypothesis*).

Second, we expected perceptions of autonomy-support (procedural justice/self-determination) to be associated with greater security, as well as internalization and acceptance of COVID-19 safety guidelines (*autonomy-support hypothesis*). Internalization and acceptance should be associated with greater compliance (cf. Deci & Ryan, 1987, 2000).

Third, overall (i.e., on average), we expected enforcement to be associated with decreased security, internalization and acceptance, and compliance. However, we expected this relationship to be moderated by perceived autonomy-support (i.e., a *Procedural Justice/Self-Determination × Enforcement* interaction), consistent with the legitimizing effect of perceived autonomy-support (*legitimization hypothesis*). We expected mandatory enforcement to be associated with greater security and internalization/acceptance when perceived autonomy-support was high. We expected the opposite when perceived autonomy-support was low.

However, we expected this basic legitimization effect to further depend on participants' political affiliation (i.e., a *Political Affiliation × Procedural Justice/Self-Determination × Enforcement* interaction). As previously noted, Republicans disliked mandatory COVID-19 safety guidelines during the period of study (Carter & May, 2020; Daszak et al., 2021) and, therefore, should need enforcement legitimized. Therefore, we expected Republicans to report lower security, internalization, acceptance, and compliance with mandatory safety guidelines, unless they experienced high perceived autonomy-support. Democrats endorsed mandatory guidelines with enforcement (Carter & May, 2020; Daszak et al., 2021), so they may not need enforcement legitimized. We therefore expected weaker effects of legitimization on enforcement: mandatory enforcement should not be associated with decreased security, internalization, or acceptance, among Democrats, even with low autonomy-support.

Finally, we expected internalization and acceptance to be associated with compliance. We expected future compliance to exhibit stronger effects of political polarization, because future compliance represents a motivational intention, which is likely to be a stronger expression of internalized beliefs (cf. Hagger & Chatzisarantis, 2009). Therefore, after demonstrating the effects of political affiliation on both current and future compliance, we focused on future compliance to test our core predictions about participatory fit and legitimization of enforcement.

With our cross-sectional, quasi-experimental and correlational design, we cannot make strong causal claims for participants' behavior. Instead, we seek to identify important factors associated with critical psychosocial processes and compliance intentions. The current research design is adequate for this goal (e.g., Frey et al., 2004; Jenny et al., 2007; Kubo & Supriyanto, 2010; McComas et al., 2011; Turner et al., 2014; Tyler et al., 1985), especially given the pressing need for clarity on potentially important factors involved in effective governance of the U.S. pandemic (cf. Lewandowsky et al., 2021; Martela et al., 2021; Scheid et al., 2020).

Methods

Participants and design

We recruited participants (final $N = 773$) from a panel curated by Qualtrics. Qualtrics is a survey software provider that maintains a large participant pool for research. This pool has been increasingly used by social scientists to access high-quality samples with particular characteristics, especially during the pandemic (Boas et al., 2020; Kees et al., 2017). The current study included a subset of data collected as part of a larger survey study, which included a separate section on voter preferences in the 2020 U.S. Presidential election. For this study, we targeted registered voters in CA, FL, NY, and TX (200 + per state) evenly divided among individuals who identify as Republicans or Democrats, including Republican- and Democrat-leaning Independents. By selecting individuals from states with particular governance approaches, this study provides a quasi-experimental test of the relationship among political affiliation, governance, perceptions, motivations, and compliance. Participants received a survey invitation from Qualtrics (2019) and monetary compensation for each question they completed with high-quality responses, up to a total of $4.00. Qualtrics uses this payment structure to incentivize attentive, thoughtful responding and ensure participants complete all items.

Large panel datasets must be screened (Boas et al., 2020). Qualtrics automatically removed and replaced participants who responded substantially faster than the median response rate or entered the same response for all questions. Following, we removed individuals who entered nonsense on 2/3 open-response questions (e.g., Occupation: "he is very good"), inconsistent responses on 3/5 diagnostic multiple-choice item pairs (e.g., "Republican": "very liberal"; "strongly prefer" Biden for President: "votes" for Trump). We retained 773 (92.13%) of an initial 839 participants. Participants were majority urban/suburban (*large city* 30.40%, *suburb/large city* 39.07%, *small city* 18.37%, *rural* 12.16%), White (*White/Caucasian* 78.40%; *BIPOC*,[1] 21.60%), college-educated (86.54%), females (60.93%): Democrats (51.10%), $M_{age} = 52.47$, $Med_{income} = $50,000–75,000$.

Measures

Survey items were presented in the following order: screening (e.g., demographics, State, political affiliation); general compliance; national autonomy-support (procedural justice, self-determination); national acceptance, security, and compliance; national external/internal motivations; followed by all state measures. Item presentation was randomized within subsection. Detailed survey materials are presented in Online Appendix A. Descriptive statistics for all variables are reported in Online Appendix B (experiment data available in online repository).

Compliance

We assessed participants' current and future compliance with health safety guidelines in three contexts: general, state, and national (i.e., Trump Administration). General compliance provides an indicator of compliance levels, without explicit mention of political leadership. We focus on current and future compliance here (see Online Appendix C for general compliance). *Current compliance* reflects participants' current estimated compliance levels, whereas *future compliance* assesses participants' intentions to comply. Intentions are motivational attitudes and can be robust predictors of future compliance in health domains (Godin & Kok, 1996), especially when internally motivated (Hagger & Chatzisarantis, 2009). All items were assessed on 5-point Likert-type scales, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

National compliance We used two items to assess cooperation with national guidelines: current compliance ("I have cooperated with the rules and guidelines President Trump/The Trump Administration have made for managing the coronavirus pandemic"), and future compliance ("I plan to cooperate with any new rules or guidelines President Trump/The Trump Administration make to deal with the coronavirus pandemic"). Because President Trump and the Trump Administration (Republican) led the national government response, compliance with national safety guidelines necessarily connotes compliance with Republican policies (e.g., Daszak et al., 2021; Green et al., 2020).

State compliance To assess state compliance, we altered the national items to refer to state safety guidelines and the state governor/administration (e.g., "I have cooperated with the rules and guidelines my Governor/State Government have made for managing the coronavirus pandemic"; Online Appendix A). Compliance with state safety guidelines lead by Republican governors (TX, FL) and Democrat governors (i.e., CA, NY) connotes compliance with Republican and Democrat policies, respectively.

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[1] We dichotomized "race" as White/Caucasian and BIPOC (Black, Indigenous, People of Color) because there was too little diversity in the sample to evaluate separate racial groups. Additionally, BIPOC participants exhibited highly similar (correlated) reactions to governance.

Autonomy support (PJSD)

Like prior studies (e.g., DeCaro et al., 2015, 2021; van Prooijen, 2009), we operationalized autonomy-support as perceived satisfaction of fundamental needs for procedural justice and self-determination (PJSD). To assess PJSD, participants evaluated the PJSD of national and state decision processes along multiple dimensions. To ensure participants knew which target to evaluate, we presented each item with a prompt (e.g., "When handling the coronavirus pandemic, President Trump and The Trump Administration:"). We used 11 items to assess 5 aspects of procedural justice (cf. Colquitt, 2001; McComas et al., 2011): *decisional* (3 items; e.g., "take my views and desires into consideration"), *informational* (3 items: e.g., "openly communicate all important information to the public"), *neutral* (2 items: e.g., "make their decisions free of any bias"), *interpersonal* (1 item: "have usually treated me with respect and dignity while dealing with the pandemic); and *ethical* (1 item: "have followed high ethical and moral standards when making decisions about the coronavirus pandemic"). One item assessed *general fairness* (i.e., "make decisions about the pandemic in a fair way;" cf. van Prooijen, 2009). Finally, one item assessed *self-determination* ("make decisions about the pandemic in a way that supports my freedom of choice and decision making;" DeCaro et al., 2015; cf. Ryan, 1982). All 12 items were combined into a single factor, respectively for national/state decision processes, (i.e., *National PJSD ω = 0.98, State PJSD ω = 0.97*).

Security

Two items assessed *security* (e.g., "The actions and decisions President Trump/The Trump Administration have made during the pandemic make me feel a sense of security"; *national α = 0.93, state α = 0.92*; e.g., DeCaro et al., 2015; see also Sheldon et al., 2001).

Internalization

When assessing internal motivations for compliance, we measured several types of intrinsic and extrinsic motivations devised by SDT, representing increasing levels of autonomous motivation corresponding to external and internal regulation (Sheldon & Elliot, 1998; Soenens et al., 2009). For consistency, we modified items specifically used by DeCaro et al., (2015, 2021) in their analysis of voluntary cooperation in social dilemmas.

Participants saw a state/national prompt with each item (e.g., "Why have you obeyed the rules and guidelines introduced by President Trump and the Trump Administration the way you have?"). There was one item per motivation (national items shown). *Extrinsic or external motivations*

included *formal penalty* ("Because I felt I would be punished if I disobeyed them"), *social disapproval* ("Because I felt I would disappoint President Trump/The Trump Administration if I disobeyed their rules/guidelines"), *social sanctions* ("Because I felt I would be criticized if I disobeyed them"), and *guilt* ("Because, I would feel guilty if I did not obey them"). *Internal motivations* included *identification* ("Because I believe President Trump/The Trump Administration's rules/guidelines are important ones to have"), *integration* ("Because President Trump/The Trump Administration's rules/guidelines match my personal values"), and *safety* ("Because I thought President Trump/The Trump Administration's rules/guidelines would keep me safe from the virus").

Preliminary analyses indicated that all the motivations were positively correlated with self-reported compliance (Online Appendix C). However, when the external and internal motivations were each combined (averaged) and examined as two separate composite scales, only the internal motivations (representing greater internalization) emerged as a significant predictor. Therefore, we excluded the external motivations from further analyses.

Acceptance

We used two items each to assess *acceptance* of national and state governance (e.g., "I support the decisions and actions President Trump/The Trump Administration have made to manage the pandemic and its impacts on society"; *national α = 0.95, state α = 0.93*; cf. DeCaro et al., 2015).

Internalized-acceptance

Our measures of internalization and acceptance were highly correlated for both national, $r(766) = 0.81$, $p < 0.001$, and state, $r(771) = 0.79$, $p < 0.001$, safety guidelines. Therefore, we averaged these subscales into a single factor *internalized-acceptance* for both national (ω = 0.94) and state (ω = 0.93). We used this factor in subsequent analyses to test our core predictions.

Political affiliation

We determined participants' political affiliation by asking which major political party they identified with the most: Republican, Democrat, Independent (Republican-leaning), Independent (Democrat-leaning), Independent (Non-partisan), or Other. Non-partisan Independents and Other individuals were screened out of the survey.

Strength of political views

We measured the strength of participants' political views using a 7-pt scale ranging from 1 (*very conservative*) to 7 (*very liberal*; cf. Attari et al., 2009). For easier comparison, we rescaled these values into 0 neutral ("*neutral*"), 1 low (*"a little"* conservative/liberal), 2 moderate (*"conservative/liberal"*), and 3 high (*"very"* conservative/liberal). Participants were low to moderate on the strength of their political views, though Republicans' views were stronger [$M = 1.76$, *95%CI* (1.65, 1.87)] than Democrats [$M = 1.35$, *95%CI* (1.24, 1.46)], $F(1,677) = 25.73$, $p < 0.001$, $\eta_p^2 = 0.037$.

Analysis overview

We report the results for national safety guidelines (Study 1a), followed by state safety guidelines (Study 1b). In Study 1a, national safety guidelines were determined by only one political party (Republican) and administration (Trump Administration). The Trump Administration did not use mandatory enforcement during the period of study. Therefore, it is not possible to examine the potential legitimizing effect of autonomy-support on enforcement in Study 1a. However, we can examine the potential effect of political affiliation (Republican, Democrat) on perceived autonomy-support (i.e., participatory fit hypothesis). We can also test the hypothesized effect of autonomy-support on security and internalized-acceptance (autonomy-support hypothesis), as well as the mediating role of security perceptions and internalized-acceptance on compliance. Study 1b includes both Republican and Democrat state administrations, which used different enforcement methods. Therefore, Study 1b investigates the potential legitimizing effect of autonomy-support on enforcement, as well as participatory fit and the mediating role of security and internalized-acceptance. Therefore, Study 1b permits a fuller test of the conceptual relationships represented in Fig. 1.

For each study, we first examined self-reported compliance as a function of political affiliation, comparing current and future compliance. This preliminary analysis establishes the baseline levels of compliance. Afterward, we used process models to examine the psychosocial processes (i.e., mediators) hypothesized to be associated with such compliance. To conduct those analyses, we used Hayes' (2018) method and statistical macro (*Process 3.5.3*). *Process* quantifies the direct effects of each factor, using ordinary least squares (OLS) regression. Simple indirect effects (i.e., mediation) and moderated (i.e., conditional) mediation effects were tested using Hayes' indices of mediation and moderated mediation. The latter analyses used 10,000 bootstrapped samples to produce stable estimates for confidence intervals. We included basic demographics as covariates
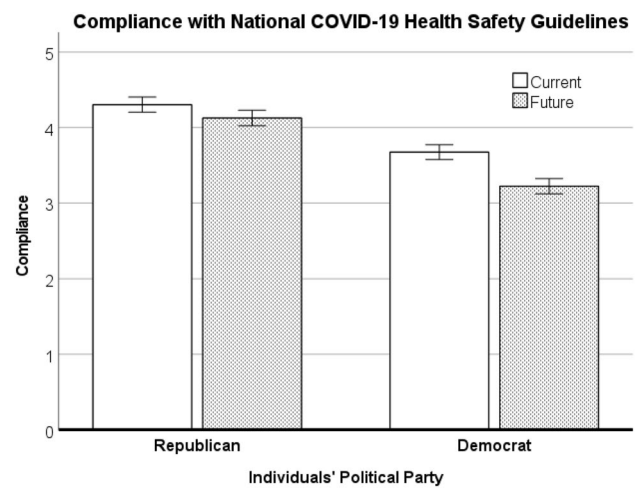

Fig. 2 Republican and democrat mean compliance with (current, future) national safety guidelines. Error bars represent *95%CIs*

in preliminary analyses (race, gender, income, education, urban/rural). The pattern of findings was the same with and without these covariates included. For simplicity, covariates were removed from the analyses.
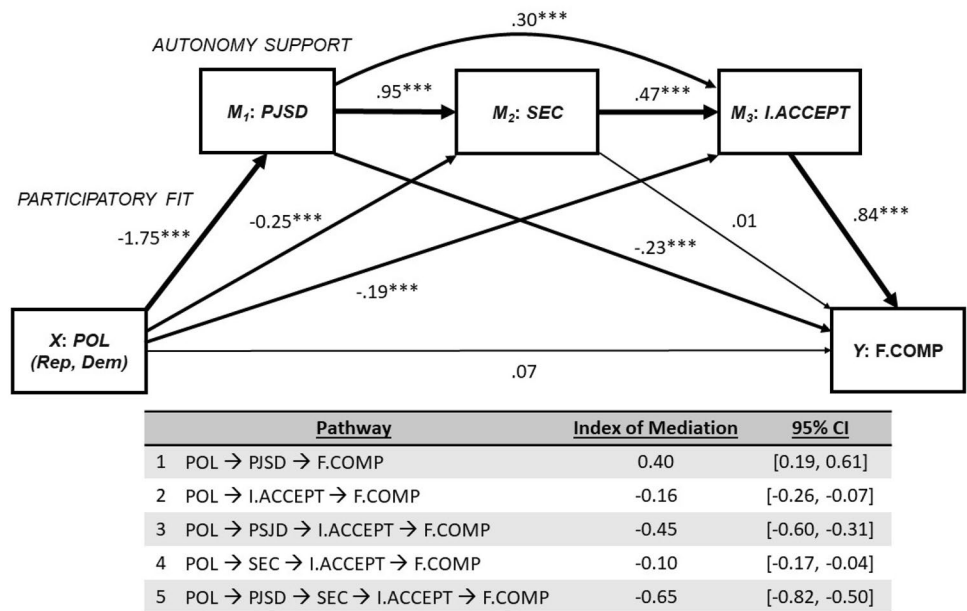
Study 1a (national) results and discussion

Study 1a examined compliance with national (Trump Administration) safety guidelines, examining the participatory fit and autonomy-support hypotheses. This study also examined the proposed mediational pathway linking subjective perceptions of autonomy-support to future compliance, via security and internalized-acceptance.

National compliance

To examine current and future (i.e., planned) compliance with national safety guidelines specifically pertaining to President Trump's leadership, we conducted a 2 (*participant political party*: Republican, Democrat) × 2 (*time*: current, future) mixed-factorial ANOVA. There were main effects of *time*, $F(1,770) = 106.34$, $p < 0.001$, $\eta_p^2 = 0.12$, and *political party*, $F(1,770) = 134.60$, $p < 0.001$, $\eta_p^2 = 0.15$, qualified by a significant interaction, $F(1,770) = 20.26$, $p < 0.001$, $\eta_p^2 = 0.03$. As shown in Fig. 2, overall both Republicans and Democrats reported a significant decrease in their cooperation from current to future [Republicans: $F(1,377) = 25.00$, $p < 0.001$, $\eta_p^2 = 0.06$; Democrats, $F(1,393) = 84.60$, $p < 0.001$, $\eta_p^2 = 0.18$]. As anticipated, Democrats indicated they were less compliant with current national (Trump Administration) safety guidelines [$M = 3.45$, *95%CI* (3.36, 3.54)] than Republicans [$M = 4.22$, *95%CI* (4.12, 4.30)]. This effect was stronger for future compliance

Fig. 3 Mediation model: future compliance (national). See Table 1 for factor definitions. Path of significant indirect effect(s) bolded. **$p < 0.01$ ***$p < 0.001$

	Pathway	Index of Mediation	95% CI
1	POL → PJSD → F.COMP	0.40	[0.19, 0.61]
2	POL → I.ACCEPT → F.COMP	-0.16	[-0.26, -0.07]
3	POL → PSJD → I.ACCEPT → F.COMP	-0.45	[-0.60, -0.31]
4	POL → SEC → I.ACCEPT → F.COMP	-0.10	[-0.17, -0.04]
5	POL → PJSD → SEC → I.ACCEPT → F.COMP	-0.65	[-0.82, -0.50]

[Current: $F(1,771) = 75.91$, $p < 0.001$, $\eta_p^2 = 0.09$; Future: $F(1,770) = 150.45$, $p < 0.001$, $\eta_p^2 = 0.16$], indicating that Democrats were especially unwilling to comply with Trump Administration guidelines in the future.

As previously described, the Trump Administration played a secondary role in management of the pandemic, delegating management to states (Carter & May, 2020; Moreland et al., 2020). Evidence suggests that Democrats desired federal guidance for COVID-19 management, with more stringent regulation and enforcement (e.g., Bruine de Bruin et al., 2020; Druckman et al., 2021). Therefore, we interpret the present results as Democrats' rejection of lax national safety guidelines. By contrast, Republican compliance connotes "compliance" with a relatively unregulated, laissez-faire approach that prioritizes individual freedom.

Participatory fit and autonomy-support

To examine the psychosocial processes hypothesized to be associated with compliance motivation, we tested the serial mediation model [Hayes (2018) *model type 6*] depicted in Fig. 3. In this model, individuals' political affiliation (*X: POL*) influences compliance (*Y: F.COMP*) by affecting the perceived autonomy-support (*M₁: PJSD*) of national decision processes, which then influences perceived security (*M₂: SEC*), followed by internalized-acceptance (*M₃: I.ACCEPT*). The effect of political affiliation on perceived autonomy support (PJSD) tests the participatory fit hypothesis. The direct and indirect (mediational) effects of autonomy-support (PJSD) on security and internalized-acceptance tests the autonomy-support hypothesis. Altogether, the test of the indirect mediational pathways leading to future compliance,

especially the higher-order $POL \rightarrow PJSD \rightarrow SEC \rightarrow I.ACCEPT \rightarrow F.COMP$ pathway, examines the plausibility of the larger conceptual process theory (i.e., Fig. 1). We used planned comparisons for all follow-up probes of observed effects (Hayes, 2018). For this analysis, we focused on future compliance, because this construct represents motivational intention, which is likely to be highly correlated with future behavior, especially when internally motivated (e.g., Hagger & Chatziisarantis, 2009). We dummy coded political affiliation (0 *Republican*, 1 *Democrat*) and mean-centered the continuous factors (e.g., PJSD) to improve interpretability (Hayes, 2018). Descriptive statistics and factor correlations for the model are displayed in Table 1.

We treated autonomy-support (PJSD) as an antecedent factor, because prior research indicates that autonomy-support has primacy in individuals' reaction to governance: institutional decision-making processes (how policies are decided) occur before other processes, such as rule enactment (cf. Deci & Ryan, 1987; Frey et al., 2004; Tyler, 2006). This model is also consistent with our hypotheses, prior studies (e.g., DeCaro et al., 2015, 2021; Tyler & Degoey, 1995), HRCT (DeCaro, 2018), and self-determination theory (Ryan & Deci, 2017).

The completed model is illustrated in Fig. 3 (see Table 2 for parameter estimates and significance tests). Overall, the model accounts for 50.83% of the variance in future compliance (*Y: F.COMP*). As predicted by the participatory fit hypothesis, political affiliation (*X*: POL, coded: 0 *Republican*, 1 *Democrat*) was negatively associated with perceived autonomy-support (*M₁*: PJSD), as well as security (*M₂*: SEC) and internalized-acceptance (*M₃*: PJSD). Compared to Republicans, Democrats perceived the Trump

Table 1 Factor correlations: national

	Mean (SD)	1	2	3	4	5	6
1 POL	0.51 (0.50)	–	−0.65***	−0.65***	−0.64***	−0.30**	−0.40***
2 PJSD	2.77 (1.36)		–	0.92***	0.88***	0.37***	0.55***
3 SEC	2.80 (1.48)			–	0.90***	0.40***	0.59***
4 I.ACCEPT	3.11 (1.26)				–	0.53***	0.70***
5 C.COMP	3.98 (1.05)					–	0.69***
6 F.COMP	3.67 (1.12)						–

POL political affiliation (0 Republican, 1 Democrat), *PJSD* procedural justice and self-determination (autonomy-support), *SEC* security, *I.ACCEPT* internalized acceptance, *C.COMP* current compliance, *F.COMP* future compliance

*$p < 0.05$

**$p < 0.01$

***$p < 0.001$

Administration's national decision processes, on average, 1.75 points [$B = -1.75$, 95% ($-1.90, -1.60$)] less autonomy-supportive (i.e., lower PJSD). Democrats also felt comparatively less secure [$B = -0.25$, 95% ($-0.35, -0.14$)], and reported less internalized-acceptance of the Trump Administration's safety guidelines [$B = -0.19$, 95% ($-0.29, -0.09$)].

As anticipated, autonomy-support was positively associated with security [$B = 0.95$, 95% ($0.91, 0.98$)]. Furthermore, autonomy-support [$B = 0.30$, 95% ($0.23, 0.37$)] and security [$B = 0.47$, 95% ($0.40, 0.53$)] were positively associated with internalized-acceptance (autonomy-support hypothesis). Finally, internalized-acceptance was positively associated with future compliance [$B = 0.84$, 95% ($0.74, 0.95$)]. Autonomy-support was unexpectedly negatively associated with future compliance [$B = -0.23$, 95% ($-0.34, -0.11$)] after accounting for security and acceptance. This effect is most likely spurious, caused by multicollinearity among these predictors (see Table 1). Hayes (2018) recommends against interpreting such effects, to focus on higher-order effects that qualify these lower-order effects (cf. Cohen et al., 2003).

Mediational analyses

Mediational analyses revealed five noteworthy pathways linking political affiliation (*X*) to future compliance (*Y*). We bolded these pathways in Fig. 3 for ease of interpretation. We also listed the point estimate (index of mediation) for each pathway's effect on future compliance, with confidence intervals. By default, all lower-order pathways were tested, along with the higher order pathway (required for accurate estimates of the higher pathway); intervals that exclude zero indicate a statistically significant pathway (Hayes, 2018).

With the exception of the likely spurious pathway (#1) linking autonomy-support directly to future compliance, the mediational indices are all negative, indicating that Democrat political affiliation is, on average, associated with decreased future compliance. Importantly, the higher-order serial pathway (#5) linking political affiliation (*X*) to future compliance (*Y*) via autonomy-support (M_1), security (M_2), and internalized-acceptance (M_3) was significant [index $= -0.65$ (95%CI $-0.82, -0.50$)]. According to this pathway, Democrats reported decreased intention to comply with future Trump Administration national safety guidelines, because they perceived the administration's decision-making processes as unsupportive (low PJSD), which was associated with corresponding decreases to security and internalized-acceptance.

In summary, autonomy-support and security were important mediators, clarifying how political affiliation may influence internally-motivated compliance with future national (Trump Administration) safety guidelines. These results are consistent with the participatory fit hypothesis that political affiliation colors perceptions of governmental autonomy-support, influencing compliance motivation. Specifically, whereas Republican participants tended to view the Trump Administration's decision-making processes as procedurally fair and autonomy-supportive (high PJSD), and therefore felt more secure and greater internal motivation (i.e., internalized-acceptance) to comply, Democrats viewed these same decision processes as unsupportive (low PJSD). This perception was associated with decreased sense of security and lower internal motivation to comply among Democrats. However, because national government did not use enforcement to encourage compliance, Study 1a did not permit us to test the full set of hypotheses proposed in this research. Specifically, we could not test the legitimizing effect of perceived PJSD on enforcement (legitimization hypothesis). Study 1b tests this hypothesis.

Table 2 Model coefficients: future compliance (national)

	M₁: PJSD			M₂: SEC			M₃: LACCEPT			Y: F.COMP		
	B(SE)	p	95CI	B(SE)	p	95CI	B(SE)	p	95CI	B(SE)	p	95CI
CONSTANT	3.66 (0.05)	<0.001	[3.56, 3.57]	0.31 (0.08)	<0.001	[0.16, 0.47]	1.07 (0.07)	<0.001	[0.93, 1.22]	1.59 (0.12)	<0.001	[1.35, 1.84]
X (POL)	−1.75 (0.07)	<0.001	[−1.90, −1.60]	−0.25 (0.05)	<0.001	[−0.35, −0.14]	−0.19 (0.05)	<0.001	[−0.29, −0.09]	0.07 (0.08)	0.311	[−0.07, 0.23]
M₁ (PJSD)	–	–	–	0.95 (0.02)	<0.001	[0.91, 0.98]	0.30 (0.04)	<0.001	[0.23, 0.37]	−0.23 (0.06)	<0.001	[−0.34, −0.11]
M₂ (SEC)	–	–	–	–	–	–	0.47 (0.04)	<0.001	[0.40, 0.53]	0.01 (0.06)	0.852	[−0.10, 0.12]
M₃ (LACCEPT)	–	–	–	–	–	–	–	–	–	0.84 (0.05)	<0.001	[0.74, 0.95]
	$R^2 = 41.98\%$			$R^2 = 85.53\%$			$R^2 = 82.25\%$			$R^2 = 50.83\%$		
	$F(1,764) = 552.75, p < 0.001$			$F(2,763) = 2218.91, p < 0.001$			$F(3,762) = 1177.16, p < 0.001$			$F(4,761) = 1177.16, p < 0.001$		

See Table 1 for factor definitions. $N = 766$

Study 1b (state) results and discussion

Study 1b examined compliance with state safety guidelines. We used this study to examine potential effects of enforcement, given the scientific debate on the effects of rule enforcement (e.g., Bowles, 2008) and the mandatory enforcement of state safety guidelines by some states (i.e., California, New York) and not others (i.e., Florida, Texas). HRCT predicts that enforcement tends to enhance internal motivations for compliance when paired with (i.e., legitimized by) fair, autonomy-supportive decision procedures, especially among individuals who do not already desire enforcement (e.g., Republicans).

We first examined current/future compliance, followed by analysis of the participatory fit and legitimization hypotheses. The current investigation pertains to the moderation of the mediational pathway by a hypothesized 3-way interaction among political affiliation, perceived autonomy-support, and enforcement. Therefore, we used a conditional (i.e., moderated) process model for the psychosocial process analyses (cf. Hayes, 2018).

State compliance

Each state consisted of Republican and Democrat participants and had either a Republican or Democrat governor/administration. Therefore, to test for political polarization in current/future state compliance, we created a *political match* variable (0 *mismatch,* 1 *match*) that indicates whether participants' political affiliation (0 *Republican*, 1 *Democrat*) matched the political affiliation of their state governor/administration. We conducted a 2 (*participants' political affiliation*: Republican, Democrat) × 2 (*political match*: match, mismatch) × 2 (*time*: current, future) mixed-factorial ANOVA. There were main effects of *time*, $F(1,767) = 51.20$, $p < 0.001$, $\eta_p^2 = 0.06$, and *match*, $F(1,767) = 26.70$, $p < 0.001$, $\eta_p^2 = 0.03$, but not political party, $F < 1$. As anticipated, these effects were qualified by a *political party × match* interaction, $F(1,767) = 8.26$, $p = 0.004$, $\eta_p^2 = 0.01$. As shown in Fig. 4, Democrats reported higher compliance in states governed by Democrat governors/administrations, $F(1,392) = 32.74$, $p < 0.001$, $\eta_p^2 = 0.08$. Republicans did not exhibit this effect, $F(1,375) = 2.60$, $p = 0.108$, $\eta_p^2 = 0.01$. There were no interactions with *time*, indicating that these patterns were similar for current and future compliance [3-way interaction, $F(1,767) = 1.88$, $p = 0.171$, $\eta_p^2 = 0.00$, other $Fs < 1$]. The lack of a political match effect for Republicans may seem surprising. However, the effect is nearly significant for future compliance, $F(1,375) = 3.41$, $p = 0.065$, $\eta_p^2 = 0.01$ (Fig. 4B). Furthermore, subjective perceptions of autonomy-support have not yet been incorporated into the analyses.
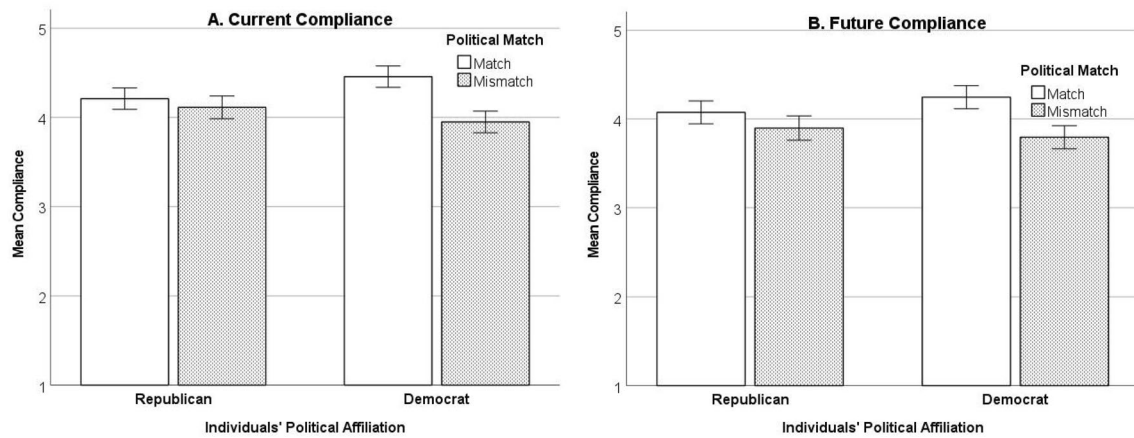
Fig. 4 Current (Panel **A**) and future (Panel **B**) compliance with state safety guidelines as a function of individual political affiliation and political mis/match. Error bars represent 95%*CI*s. "Match" refers to whether the participants' political affiliation is the same or different than their state governor/administration's

Participatory fit

To examine perceived autonomy-support (PJSD) as a function of the mis/match between participants' political affiliation and their state governor/administration, we conducted a 2 (*participants' political affiliation*: Republican, Democrat) × 2 (*political match*: mismatch, match) factorial ANOVA. As expected, perceptions of autonomy-support (PJSD) depended on participants' political affiliation (*participatory fit hypothesis*). There were also main effects of *political affiliation*, $F(1,768) = 9.71$, $p = 0.002$, $\eta_p^2 = 0.01$, and *match* $F(1,768) = 116.20$, $p < 0.001$, $\eta_p^2 = 0.13$, qualified by a significant interaction, $F(1,768) = 23.51$, $p < 0.001$, $\eta_p^2 = 0.03$. Democrats and Republicans perceived state decision processes as equally autonomy supportive when the administrations matched their own affiliation, $F(1,398) = 2.19$, $p = 0.140$, $\eta_p^2 = 0.01$ (Fig. 5). However, perceived autonomy-support was lower when there was a mismatch [*Republicans*: $F(1,376) = 16.07$, $p < 0.001$, $\eta_p^2 = 0.04$; *Democrats*: $F(1,392) = 133.99$, $p < 0.001$, $\eta_p^2 = 0.25$].

For subsequent analyses, which test the legitimizing effect of perceived autonomy-support on enforcement (i.e., *legitimization hypothesis*), it is important to note that there is variability in participants' perceptions. Some individuals perceived the opposing administration as autonomy-supportive. Such perceptions could therefore potentially legitimize enforcement, especially among Republicans who might otherwise be expected to oppose this enforcement.

Legitimization of enforcement

To examine the psychosocial processes hypothesized to be associated with legitimization of enforcement and state compliance motivation, we tested a custom conditional (i.e., moderated) process model (Fig. 6; cf. Hayes, 2018). Specifically, autonomy support (*W*) and political affiliation (*Z*) were allowed to moderate the relationship between enforcement (*X*) and security (*M₁*: SEC), associated internalized-acceptance (*M₂*: I.ACCEPT), and future compliance with state safety regulations (*Y*: F.COMP). Thus, rule enforcement (*X: ENF*; coded: 0 *advisory*, 1 *mandatory*), perceived autonomy-support (*W: PJSD*), and individuals' political affiliation (*Z: POL;* coded: 0 *Republican,* 1 *Democrat*) were allowed to interact. This interaction represents the potential legitimization of enforcement for Republicans versus Democrats. Any subsequent indirect effects of this interaction on the mediators, security and internalized-acceptance, provide support for the larger process theory (Fig. 1). Continuous factors (e.g., PJSD) were mean-centered (see Table 3 for factor statistics and correlations).
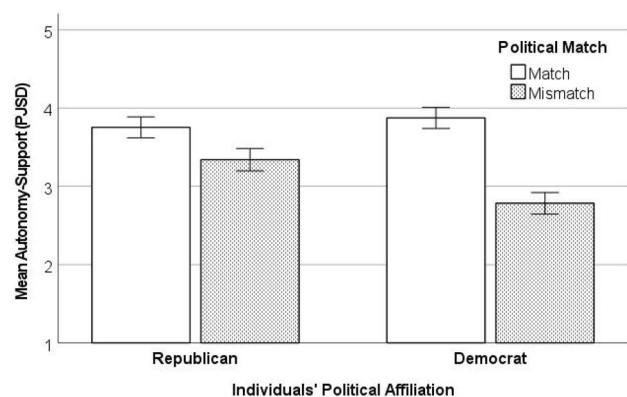

Fig. 5 State autonomy-support as a function of political affiliation and political mis/match. Error bars represent 95%*CI*s

Fig. 6 Conditional (moderated) process model: state future compliance. See Table 3 for factor definitions. Path of significant indirect effect(s) bolded. **$p < 0.01$ ***$p < 0.001$
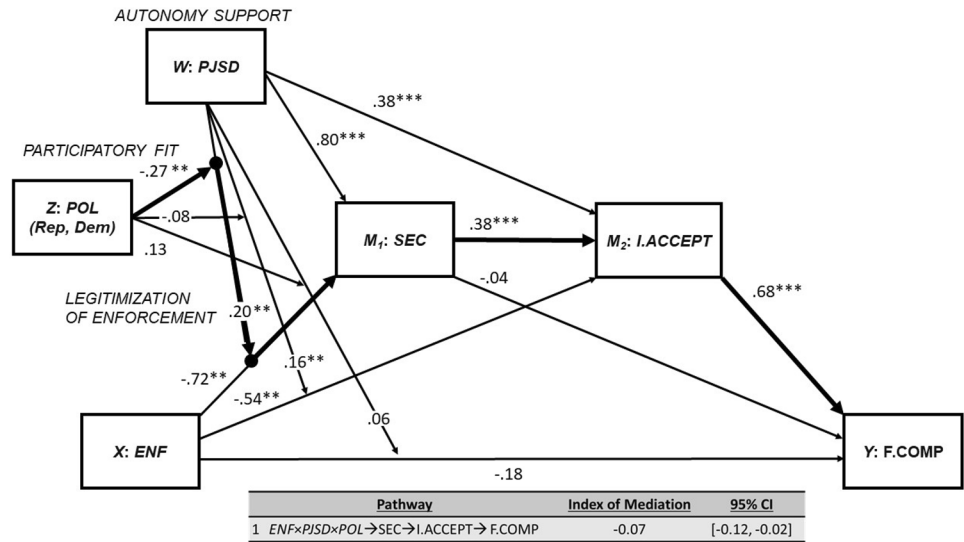

Table 3 Factor correlations: state

	Mean (SD)	1	2	3	4	5	6
1 POL	0.51 (0.50)	–	− 0.11*	− 0.17***	− 0.08*	0.03	0.02
2 PJSD	3.45 (1.06)		–	0.86***	0.85***	0.50***	0.58***
3 SEC	3.42 (1.18)			–	0.84***	0.47***	0.56***
4 I.ACCEPT	3.67 (1.04)				–	0.62***	0.69***
5 C.COMP	4.18 (0.88)					–	0.72***
6 F.COMP	4.01 (0.94)						–

POL political affiliation (0 Republican, 1 Democrat), *PJSD* procedural justice and self-determination (autonomy-support), *SEC* security, *I.ACCEPT* internalized acceptance, *C.COMP* current compliance, *F.COMP* future compliance

*$p < 0.05$

**$p < 0.01$

***$p < 0.001$

Table 4 Model coefficients: future compliance (state)

	M₁: SEC			M₂: I.ACCEPT			Y: F.COMP		
	B(SE)	p	95CI	B(SE)	p	95CI	B(SE)	p	95CI
CONSTANT	0.78 (0.20)	< 0.001	[0.39, 1.18]	1.06 (0.17)	< 0.001	[0.73, 1.38]	1.64 (0.23)	< 0.001	[1.18, 2.10]
X (ENF)	− 0.72 (0.24)	0.003	[− 1.20, − 0.24]	− 0.54 (0.20)	0.007	[− 0.94, − 0.15]	− 0.18 (0.27)	0.523	[− 0.71, 0.36]
W (PJSD)	0.80 (0.05)	< 0.001	[0.70, 0.90]	0.38 (0.05)	< 0.001	[0.28, 0.47]	− 0.01 (0.07)	0.890	[− 0.15, 0.13]
Z (POL)	− 0.81 (0.24)	0.001	[− 1.27, − 0.34]	− 0.16 (0.20)	0.417	[− 0.54, − 0.22]	0.30 (0.27)	0.262	[− 0.22, 0.82]
XW	0.20 (0.07)	0.002	[0.07, 0.33]	0.16 (0.05)	0.003	[0.05, 0.26]	0.06 (0.07)	0.453	[− 0.09, 0.20]
XZ	1.08 (0.34)	0.002	[0.40, 1.75]	0.36 (0.28)	0.202	[− 0.20, 0.92]	− 0.68 (0.08)	0.079	[− 1.44, 0.08]
WZ	0.15 (0.07)	0.020	[0.03, 0.29]	0.04 (0.05)	0.449	[− 0.07, 0.15]	− 0.03 (0.08)	0.737	[− 0.17, 0.12]
XWZ	− 0.27 (0.09)	0.004	[− 0.45, − 0.09]	− 0.08 (0.08)	0.321	[− 0.23, 0.07]	0.13 (0.10)	0.228	[− 0.08, 0.33]
M₁ (SEC)	–	–	–	0.38 (0.03)	< 0.001	[0.32, 0.44]	− 0.05 (0.05)	0.300	[− 0.13, 0.04]
M₂ (I.ACCEPT)	–	–	–	–	–	–	0.68 (0.05)	< 0.001	[0.58, 0.77]
	$R^2 = 74.12\%$			$R^2 = 77.57\%$			$R^2 = 49.57\%$		
	$F(7,762) = 331.78, p < 0.001$			$F(8,761) = 329.00, p < 0.001$			$F(9,760) = 83.00, p < 0.001$		

ENF enforcement (0 advisory, 1 mandatory), *PJSD* procedural justice and self-determination (autonomy-support), *POL* political affiliation (0 Republican, 1 Democrat), *SEC* security, *I.ACCEPT* internalized acceptance, *F.COMP* future compliance. $N = 770$
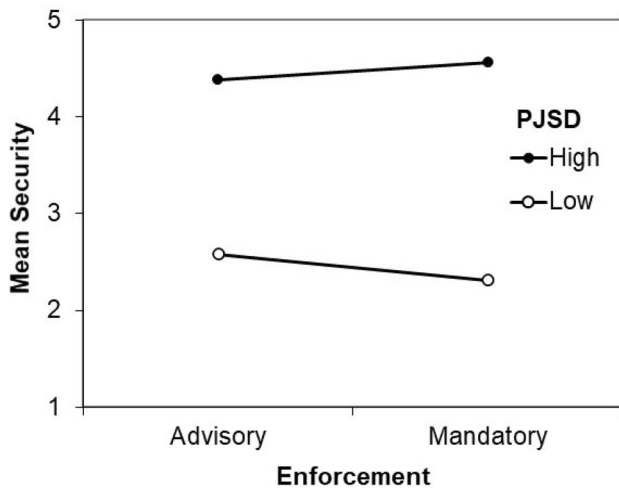
Fig. 7 Security as a function of enforcement and perceived autonomy-support (PJSD). Values for PJSD plotted at the 16th (low) and 84th (high) percentiles
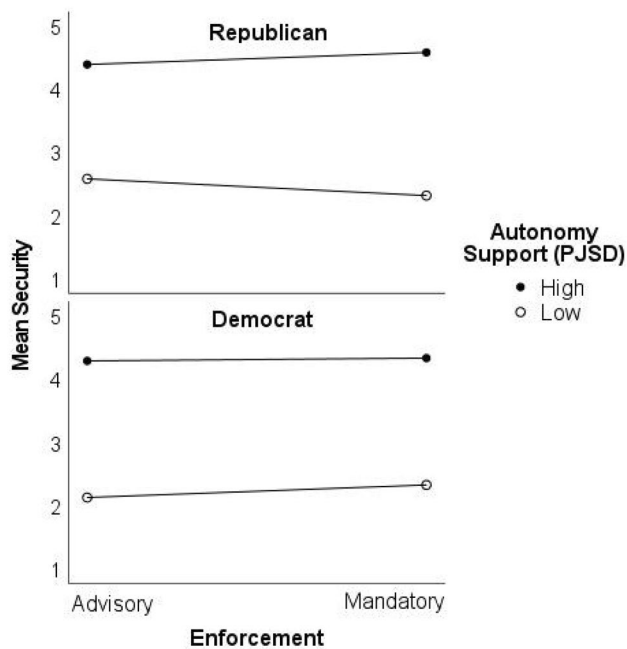

Fig. 8 Security as a function of enforcement, autonomy-support (PJSD), and political affiliation. Values for PJSD plotted at the 16th (low) and 84th (high) percentiles

The completed model is illustrated in Fig. 6 (see Table 4 for parameter estimates and significance tests). Overall, the model accounted for 49.57% of the variance in future compliance ($Y: F.COMP$). On average, rule enforcement had a negative effect on security [$B = -0.72$, $95\%CI$ $(-1.20, -0.24)$], decreasing rather than increasing perceived security. Additionally, Democrats felt less secure

than Republicans [$B = -0.81$, $95\%CI$ $(-1.27, -0.34)$]. Perceived autonomy-support was associated with increased sense of security [$B = 0.80$, $95\%CI$ $(0.70, 0.90)$].

These effects were qualified by four interactions on security, including the focal $ENF \times PJSD$ and $ENF \times PJSD \times POL$ interactions, which represent legitimization of enforcement (see M_1: SEC, Table 4). For ease of interpretation, we illustrate (i.e., plot) the theoretically important legitimization interactions (Figs. 7, 8). The other interactions, while anticipated, were less theoretically important, and qualified by the higher-order 3-way interaction. Therefore, they are not reported in detail here.

The $ENF \times PJSD$ interaction [$B = 0.20$, 95% $(0.07, 0.33)$] represents the overall hypothesis that autonomy-support legitimizes the use of enforcement, enhancing rather than undermining security and acceptance (*legitimization hypothesis*). As shown in Fig. 7, for individuals who perceived their state governor/administration's decisions as unsupportive (low PJSD), mandatory safety guidelines were on average associated with decreased sense of security. Mandatory guidelines had the opposite association among individuals who perceived these same governors/administrations as autonomy-supportive (high PJSD).

Planned comparisons were used to examine the a-priori hypothesized $ENF \times PJSD \times POL$ interaction, which represents the further modification of the $ENF \times PJSD$ effect by political affiliation (i.e., participatory fit). These comparisons revealed that this effect was driven primarily by Republican participants (Fig. 8). Specifically, there was no discernable $ENF \times PJSD$ effect for Democrats [$B = -0.07$, $F(1, 762) = 1.04$, $p = 0.308$]. For Democrats, mandatory and advisory rule enforcement had the same overall effect on security, whether autonomy-support was low [$B = 0.20$, $95\%(-0.01, 0.41)$] or high [$B = 0.04$, 95% $(-0.15, 0.23)$]. For Republicans, mandatory guidelines had different effects depending on perceived autonomy-support [$B = 0.20$, $F(1, 762) = 9.62$, $p = 0.002$]. Mandatory enforcement was associated with enhanced security among individuals who perceived their state government as autonomy-supportive [$B = 0.19$, 95% $(0.02, 0.36)$]. In contrast, mandatory enforcement was associated with decreased security among individuals who perceived their state government as unsupportive [$-B = 0.27$, 95% $(-0.48, -0.05)$].

As anticipated, similar effects emerged for internalized-acceptance (see M_2: $I.ACCEPT$, Table 4). On average, enforcement had a negative effect on internalized-acceptance [$B = -0.54$, 95% $(-0.94, -0.15)$], whereas autonomy-support had a positive effect [$B = 0.38$, 95% $(0.28, 0.47)$]. These effects were qualified by the hypothesized legitimization effect: the $ENF \times PJSD$ interaction

[$B = 0.16$, 95% (0.05, 0.26)], and took the same form as for security. Specifically, mandatory enforcement was associated with lower internalized-acceptance [$B = -0.07$, 95% (−0.18, 0.05)],[2] unless paired with autonomy-support [$B = 0.20$, 95% (0.09, 0.31)]. Finally, greater security was associated with greater internalized-acceptance [$B = 0.38$, 95% (0.32, 0.44)]. Internalized-acceptance (see *Y: F.COMP*, Table 4) was the only direct predictor of future compliance, after accounting for the prior relationships [$B = 0.68$, 95% (0.58, 0.77)].

Mediation analyses

After accounting for security, the higher-order $ENF \times PJSD \times POL$ interaction was not significant for internalized-acceptance or future compliance. This outcome is expected, because the direct effect of the interaction was exerted on security, as previously mentioned. Security then carried that effect to future compliance via internalized-acceptance (i.e., *XWZ: $ENF \times PJSD \times POL \rightarrow M_1$: $SEC \rightarrow M_2$: I.ACCEPT*). This process is called conditional mediation (commonly referred to as mediated-moderation; cf. Hayes, 2018). Specifically, as illustrated in Fig. 6, the hypothesized indirect effect linking enforcement (*X*) to future compliance (*Y*) via security (M_1) and internalized-acceptance (M_2) was significant, and moderated by the $ENF \times PJSD \times POL$ interaction [index = −0.07 (95%CI − 0.12, − 0.02)]. No other pathways emerged as significant [i.e., $ENF \rightarrow SEC \rightarrow F.COMP$: $B = 0.02$, 95% (− 0.01, 0.05); $ENF \rightarrow I.ACCEPT \rightarrow F.COMP$: $B = $-0.05, 95% (− 0.18, 0.08)].

We used planned comparisons to probe the mediational pathway depicted in Fig. 6, for Republicans versus Democrats. This analysis clarifies how the legitimizing interaction of autonomy-support (*W*) with enforcement (*X*) was associated with different levels of compliance (Y) for Republicans versus Democrats (Z), via corresponding effects on the mediators: security (M_1, Fig. 8), and internalized-acceptance (M_2, Table 4). For Republicans with high perceived autonomy-support, when mandatory enforcement was used, future compliance was estimated to increase by 5% [$B = 0.05$, 95% (0.01, 0.09)], as a result of corresponding increases in security (Fig. 8) and internalized-acceptance (Table 4). In contrast, mandatory enforcement was associated with a 7% decrease in future compliance among Republicans with low perceived autonomy-support [$B = -0.07$,

95% (− 0.14, − 0.01)], as a result of correspondingly lower security (Fig. 8) and internalized-acceptance (Table 4).

For Democrats, the type of enforcement and level of perceived autonomy-support did not jointly affect the mediational pathway and its outcomes. High autonomy-support was associated with greater security, internalized-acceptance, and compliance, regardless of the type of enforcement [*Advisory*: $B = 0.05$, 95% (−0.01, 0.12); *Mandatory*: $B = 0.01$, 95% (−0.03, 0.07)]. Thus, mandatory enforcement did not undermine future compliance, even when perceived autonomy-support was low. This result is consistent with the legitimization hypothesis. Democrats already endorse enforcement of COVID-19 safety guidelines (Carter & May, 2020). Therefore they do not need additional justification to legitimize enforcement (e.g., DeCaro et al., 2015, 2021; Legate et al., 2020). In contrast, Republicans—who are more likely to reject mandatory enforcement of state COVID-19 safety regulations—benefit from autonomy-support.

General discussion

Robust, internally-motivated compliance with national and state safety guidelines is essential to the successful management of a pandemic. U.S. society is polarized on whether mandatory or advisory safety regulations should be used (Carter & May, 2020; Daszack et al., 2021). Republicans generally reject their use (Bruine de Bruin, 2020; Druckman et al., 2021). This division reflects a larger debate in the social sciences. Traditional economic theory suggests that strict enforcement is always beneficial, whereas more recent behavioral theories suggest that enforcement can backfire (Bowles, 2008; Deci & Ryan, 1987; Ostrom, 2000, p. 200). HRCT (DeCaro, 2018) argues that legitimizing enforcement via fair and autonomy-supportive decision-making processes (cf. Ryan & Deci, 2017; Tyler, 1990, 2006) is an important factor determining whether enforcement increases (crowds-in) or decreases (crowds-out) internal motivations (e.g., DeCaro et al., 2015; cf. Ostrom, 2000). Misguided use of enforcement during a pandemic could undermine internally-motivated compliance, jeopardizing public safety (Martela et al., 2021; Scheid et al., 2020).

The current study surveyed several-hundred individuals across four large U.S. states: California, Florida, New York, and Texas. We examined the hypothesis that political polarization influences perceptions of, and compliance with, government safety regulations at national and state levels by altering perceptions of procedural justice and self-determination (i.e., autonomy-support). We hypothesized that when individuals view their governments as using autonomy-supportive decision-making processes, they are more likely to internalize and accept the rules and norms, driving

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[2] Region of significance lies below 1.65 [$B = -0.12$, 95% (−0.275, 0.03), $p = 0.098$] and 2.04 [$B = -0.17$, 95% (− 0.34, 0.00), $p = 0.050$] points below the mean PJSD (using the Johnson-Newman technique to mitigate Type-I error rate; cf. Hayes, 2018). Thus, the negative effect of enforcement is strongest for especially-low perceived autonomy-support.

internally-motivated compliance (e.g., DeCaro, 2018; Frey et al., 2004; Ryan & Deci, 2017).

When participants were asked to consider their current and future (planned) compliance with national (i.e., Trump Administration) and state (e.g., Republican or Democrat-led) safety guidelines, the groups differed sharply along party lines. On average, Republicans reported better compliance with Republican leaders and administrations (e.g., President Trump, Republican governors). Democrats reported better compliance with Democrat leaders/administrations. Importantly, Republican administrations used advisory safety guidelines, whereas Democrats used mandatory safety measures with formal threat of enforcement, including fines.

Participatory fit

Generally speaking, autonomy-support was associated with greater internalized acceptance and compliance. However, HRCT suggests that forms of governmental decision-making and public participation procedures must match the stakeholders and context in which they are used to be perceived as autonomy-supportive (participatory fit hypothesis; DeCaro, 2018; DeCaro & Stokes, 2013). The perceived autonomy-support of governmental decision processes may depend, in part, on individuals' political ideologies. Thus, Republicans and Democrats may perceive decisions by opposing party leaders as unsupportive, undermining internalization and acceptance. This hypothesis was supported. For Democrats, this effect generally meant decreased intention to comply with more lax, advisory safety guidelines used by the Trump Administration and Republican state governors. For Republicans, this effect meant decreased intention to comply with mandatory state guidelines used by Democrat state governors.

However, some Republicans and Democrats perceived opposing leaders/administrations as autonomy-supportive, which ultimately was associated with greater compliance. This study did not examine why these individuals viewed these leaders as autonomy supportive. Leaders are typically seen as supporting procedural justice and self-determination when they use communication that is transparent, provide rationales, solicit and utilize diverse stakeholder input, and consider information in an unbiased manner (Colquitt, 2001; Deci & Ryan, 1987; Tyler & Degoey, 1995; Tyler et al., 1985). Identifying the factors that influence perceived participatory fit warrants future attention (DeCaro & Stokes, 2013).

Legitimization

HRCT (DeCaro, 2018) assumes that enforcement of fairly chosen rules strengthens internally-motivated compliance by satisfying the need for security, in addition to procedural justice and self-determination (e.g., DeCaro et al., 2015, 2021; cf. Gibson, 1989; Ostrom, 2000; Ryan & Deci, 2017; Tyler, 1990). At the time of this study, Democrat-led California and New York issued and enforced mandatory safety guidelines, with penalties for non-compliance. As anticipated, mandatory safety guidelines (e.g., compulsory state-at-home orders) were associated with the highest self-reported security and internally-motivated compliance, specifically when participants perceived state decision processes as autonomy-supportive. These factors were, in turn, associated with intentions to comply with future state health safety guidelines.

The legitimizing effect of autonomy-support on enforcement was especially pronounced for Republicans, who reacted negatively to mandatory guidelines, unless paired with high levels of perceived autonomy-support. Democrats did not exhibit the same legitimization effect. Democrats responded positively to mandatory safety guidelines, even when autonomy-support was low. This effect is consistent with HRCT (see DeCaro et al., 2015), when you consider that Democrats desire stronger regulations and protections against the pandemic (e.g., Bruine de Bruin et al., 2020). Prior research demonstrates that individuals who already desire enforcement respond favorably, without crowding-out internal motivations (e.g., Hilbe et al., 2014; Yamagishi, 1986). This effect may occur because enforcement is autonomously endorsed and, therefore, does not require further justification to be considered legitimate (DeCaro et al., 2015, 2021).

Limitations

The current study is quasi-experimental and correlational. Although prior studies have demonstrated strong causal linkages among the factors we have identified (e.g., DeCaro et al., 2015, 2021; Deci & Ryan, 2000; Frey et al., 2004; Tyler, 1990, 2006), it is important to consider potential concerns that may warrant more attention in the future.

First, our results are based on cross-sectional data collected during one time period. We did not use longitudinal methods to measure participants' compliance in the future. We therefore cannot confirm that participants' self-reported future (i.e., anticipated) compliance matches their actual future compliance. However, this study did focus on internally-motivated compliance driven by internalized-acceptance, which is typically strongly associated with actual future compliance (Godin & Kok, 1996; Hagger & Chatzisarantis, 2009).

Second, because enforcement and Democrat leadership covaried in this study, we cannot be certain that the enforcement effects are not instead due to some other aspect of Democrat administrations. However, our results are highly consistent with other experimental and field-based research,

which have shown an interaction between enforcement and perceptions of autonomy-support in other kinds of social dilemmas (e.g., DeCaro et al., 2015, 2021; Epstein, 2017; Gibson, 1989; Kubo & Supriyanto, 2010; Tyler, 1990).

Third, the current study was conducted in the U.S., within a particular governance context and political setting. The core premise of participatory fit is that perceptions of autonomy-support depend on the perceiver and context (DeCaro & Stokes, 2013). Thus, the specific relationship of political ideology, perceptions of autonomy-support, and enforcement should depend on the specific stakeholders, governmental system, and political context (e.g., Vollan, 2008; cf. Chen et al., 2015; DeCaro et al., 2015). Generally, we expect political conservativism, which typically correlates with heightened preference for deregulation, to be associated with a greater need for legitimization by autonomy-supportive decision-making methods. However, this prediction depends on whether political conservatives already desire enforcement in a particular domain. For example, in the U.S., political conservatives typically endorse enforcement of strict drug-control laws, but not COVID-19 safety guidelines. Legate et al. (2020) report that Muslim women from Saudi Arabia and Iran who endorsed mandatory head/face coverings for autonomous reasons (e.g., self-expression, religious identification) exhibited greater compliance motivation and satisfaction than those who expressed non-autonomous reasons (e.g., fear of punishment).

With this point, it is important to emphasize that external motivations (e.g., fear of punishment) were positively correlated with compliance in the current study but were not significant predictors when internalized-acceptance was accounted for. This finding is consistent with other research using similar measures (e.g., DeCaro et al., 2015, 2021). This finding is also consistent with the larger theoretical perspective that individuals experience complex motivations. Individuals typically experience both intrinsic and extrinsic motivations for any substantial, culturally or individually important rules and behaviors. What appears to matter most for robust voluntary compliance is the balance of these motivations (e.g., Akers & Yasué, 2019; Dedeurwaerdere et al., 2016). Greater *relative* intrinsic motivation is generally associated with greater voluntary compliance (cf. Sheldon & Elliot, 1998; Soenens et al., 2009).

Implications

Politicians, members of the general public, and social scientists have debated the proper ways to manage the COVID-19 pandemic. In the U.S. and abroad, much of this debate centers on uncertainty regarding the necessity and likely behavioral effects of enforcement (Carter & May, 2020; Daszack et al., 2021; cf. Bowles, 2008). The current results support early proposals by medical experts and social scientists

who argued for careful use of enforcement, supported by fair and autonomy-supportive governmental decision-making processes. These processes help to ensure broadscale perceptions of legitimacy, which may increase internalization and acceptance of crucial safety guidelines (e.g., Martela et al., 2021; Scheid et al., 2020). The challenge is for governments to adequately satisfy polarized individuals' perceptions of procedural justice and self-determination (autonomy-support).

This challenge is unlikely to be easily overcome, given the robust effects of favoritism for one's political ingroup (Colleoni et al., 2014) and increasingly politically polarized news media and communication in the U.S. (Green et al., 2020; Jiang et al., 2020). Substantial systemic change to civic norms, public education, news media and reporting, and political discourse would be needed to fully resolve the political polarization driving much of the divided compliance with COVID-19 safety guidelines in the U.S. (cf. Heltzel & Laurin, 2020; McCright et al., 2014).

Failing such transformative change, research on complex societal dilemmas suggests that opposing political factions are more likely to reconcile when they have regular, open, and democratic communication with each other, in secure and autonomy-supportive deliberative environments (e.g., DeCaro et al., 2021; Ostrom, 1990, 2010). In addition to genuine communication, effective collaboration requires deliberation among stakeholders. Such deliberation should occur in empowered governance processes. Common examples include collaborative governance networks, in which credible, charitable, and trustworthy individuals from each stakeholder group (e.g., within and outside government) share information, discuss and reach common ground (e.g., compromise, consensus), and coordinate their action for mutual benefit, rather than exclusive or narrow benefit of particular factions (e.g., Alford, 2014; Pahl-Wostl, 2009). In the case of a pandemic, these bodies would ideally operate at multiple, complementary scales (e.g., local, regional, state, federal). Some limited, early examples include multi-regional/multi-state (e.g., mayoral, medical) collaboration in coordinating policies (e.g., stay-at-home orders) and sharing limited medical resources (e.g., Devereux et al., 2020; Garavaglia et al., 2021; Mallinson, 2020).

These efforts could be reinforced federally and locally, similar to Trump's "30 days to slow the spread" initiative. But the efforts could focus more on policy, financial, and administrative action to enable multi-stakeholder communication, coordination, and democratic inclusion in adaptive responses to crises of pandemic at multiple interlocking geographic and jurisdictional scales (Rozell & Wilcox, 2020; cf. DeCaro et al., 2017). These collaborative processes support mutual understanding, empathy, and pooled knowledge (Leach & Sabatier, 2005; Pahl-Wostl, 2009; Weible & Sabatier, 2009), in addition to more traditional

means of engaging the public via participatory democracy (e.g., press conferences, public forums; cf. Cohen & Wiek, 2017; Gibson, 1989; Reed, 2008).

We therefore suggest that government leaders focus on systemic structural changes to increase collaborative, multi-party governance and discourse, in addition to the more commonly-recommended behavioral nudges that focus primarily on framing of public safety messages (e.g., Courtemanche et al., 2020; Johnson et al., 2020; Lewandowsky et al., 2021). This advice means focusing on the fundamentals of societal self-governance and federalist democracy (Ostrom, 1990, 1994, 2010), including best practices of public participation and engagement as previously mentioned (Arnstein, 1969; Cohen & Wiek, 2017; Perez & Ross, 2020; Reed, 2008). These practices are especially important during periods of crisis, when individuals look to government for security, guidance, and help reconciling competing public interests and ideologies (Carter & May, 2020; cf. Hobbes, 1947; Kay et al., 2008; Ostrom, 1994).

For the U.S.'s current climate of political discourse, this advice also means reform. It is important for political leaders to model proper civil debate and discourse, adhere to scientific information, and communicate in non-biased ways (cf. Green et al., 2020; Jiang et al., 2020). Political leaders should also carefully justify the rationales for mandatory public safety guidelines to ensure greater understanding and acceptance (Martela et al., 2021; cf. Gibson, 1989; Tyler, 1990, 2006). Finally, research on cooperation among opposing factions suggests that it is essential to ensure that collaborative processes consist of well-respected, open-minded political leaders from all sides to ensure wider perceived legitimacy by all parties (Alford, 2014; Pahl-Wostl, 2009). Such standards for good democratic process should be treated as primary, rather than secondary to the actual policies under debate, to create assurance that the proceedings and their results are unbiased and legitimate (Tyler, 2006). Moderate leaders trusted by each faction may facilitate such reconciliatory, cooperative processes (e.g., Leach & Sabatier, 2005; Weible & Sabatier, 2009). The end result of these actions should be to fairly and democratically justify public safety guidelines, creating a sense of autonomy-support and security, to ensure widest possible internalization and acceptance.

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