

Perceived legitimacy can moderate the effect of proscriptive versus prescriptive injunctions on intentions to comply with UK government COVID-19 guidelines and reactance

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Abstract

Proscriptive injunctions (i.e., telling people what they *should not do*) have been found in research to elicit greater perceptions of a threat to freedom, and greater reactance (anger, irritation and annoyance), than prescriptive injunctions (i.e., telling people what they *should do*), across several health and social behaviors. The current research investigated the effects of Injunction Type (proscriptive vs. prescriptive) and perceived legitimacy of the injunction, on intentions to comply with UK government behavioral guidelines during the COVID-19 pandemic, and on reactance. In two online experimental studies (Study 1: $N = 142$; Study 2: $N = 307$), UK participants were presented with information about UK government COVID-19 guidelines that included either a proscriptive injunction or prescriptive injunction and reported their perceptions of the legitimacy of the injunction, their intentions to comply with government guidelines, and their reactance. In both Study 1 and Study 2, the effect of Injunction Type on intentions to comply and reactance was moderated by perceived legitimacy. In both studies, when perceived legitimacy was low, participants exposed to the proscriptive injunction indicated lower intentions to comply with UK government COVID-19 guidelines than did participants exposed to the prescriptive injunction. The findings imply that using a prescriptive injunction frame can elicit greater intentions to comply than using a proscriptive injunction frame when people perceive the injunction to be unreasonable. The results are discussed in relation to the role of legitimacy in determining the effectiveness of different types of injunctions on compliance with rules and guidelines.

1 | INTRODUCTION

On March 12, 2020, the World Health Organisation (WHO) declared the outbreak of the COVID-19 virus to be a pandemic. On June 3, 2020, more than 6 million cases had been identified worldwide, and by January 24, 2022, around 350 million cases were confirmed

(WHO, 2022). Governments worldwide responded to the pandemic by imposing lockdowns, rules on social distancing, changes to working practices, and other behavioral measures to curb the spread of the virus. Although some measures were enforced with sanctions and financial penalties for non-adherence, the UK government generally expected voluntary cooperation and compliance with

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behavioral restrictions, often involving some inconvenience and social or financial detriment to individuals. As such, compliance with guidelines and rules in the UK during the pandemic was variable, with people citing a range of reasons for their noncompliance, including defiance towards the guidance, not grasping the rationale behind the guidance, and being skeptical of the scientific findings presented to them (Office for National Statistics, April 2021).

Researchers from the social, psychological, and behavioral sciences offered insights into the factors which influenced compliance (Wright et al., 2021), and provided guidance to inform the design of public health messages and risk communication about COVID-19 (Bonell et al., 2020; Porat et al., 2020). Important areas of research providing insight into effective COVID-19 behavioral messaging strategies involved assessing differences in the type of injunction presented. Injunctions, defined as orders to do or to not do something, can be *prescriptive*, telling people how they *should* act, or *proscriptive*, telling people how they *should not* act. It has been suggested that proscriptive injunctions can be perceived as placing greater restriction on behavioral freedoms because they are viewed as more mandatory and morally obligatory (cf. Janoff-Bulman et al., 2009). As such, proscriptive injunctions (compared to prescriptive injunctions) may be perceived as less autonomy-supportive (i.e., less supportive of individual freedom to choose and more controlling) and elicit greater psychological reactance, an affective, cognitive, and motivational state where people feel angry that their freedom of choice has been restricted, are resistant to the persuasive attempt, and act in opposition to a behavioral request, so that the threatened freedom is restored (J. W. Brehm, 1966; S. S. Brehm & Brehm, 1981). Recent research has examined the differences between proscriptive and prescriptive injunctions and has found that proscriptive injunctions which told people what they *should not do* elicited greater reactance than did prescriptive injunctions which told people what they *should do*, across a range of health and lifestyle behaviors (Pavey et al., 2022).

Previous research suggested that perceived autonomy-support can increase the effectiveness of health messages (see Ng et al., 2012; for a review and meta-analysis). Regarding COVID-19 behavioral messages, Legate and Weinstein (2022) found that participants who interpreted messages to stay at home as more autonomy-supportive reported greater autonomous motivation to comply with guidelines and greater (self-reported) behavioral compliance. Participants who interpreted the messages they had received as controlling reported greater controlled motivation to comply, which was not associated with behavioral changes. The finding that greater autonomous motivation was associated with increased likelihood of deliberate physical distancing (maintaining distance from other people and places) in response to the coronavirus outbreak, supports the work of other researchers who have also suggested that perceived autonomy-support and autonomous motivation to comply are essential to foster compliance (e.g., Martela et al., 2021). One reason for autonomy-supportive messages being effective in promoting compliance is that mandates and injunctions that are perceived to be controlling and not supportive of autonomy may be perceived as an

attempt to restrict freedom of choice, and thus elicit reactance. Research has identified increased reactance as a proximal predictor of reduced compliance with official health recommendations during the COVID-19 pandemic (Díaz & Cova, 2022), particularly for adherence to social-related rules (Ball & Wozniak, 2021).

Research before the COVID-19 pandemic found that reactance is felt more immediately when a request is perceived as illegitimate (Sittenthaler et al., 2015), and that illegitimate requests to persuade can increase reactance (Zhang & Sapp, 2013). More recently, Bradshaw et al. (2021) found no difference in intended contact-tracing application uptake when messages promoting the use of COVID-19 contact-tracing applications were framed as autonomy-supportive or as controlling; however, they found the perceived legitimacy of government intervention (operationalised as perceptions of the message as trustworthy and reliable) to strongly and positively predict both intentions to download the application and intentions to recommend the application to friends and family. Interestingly, the aforementioned longitudinal study by Legate and Weinstein (2022)—which supported the associations between perceived autonomy support, autonomous motivation, and compliance—also found that perceptions of the messages as indicating mandatory action increased both autonomous and controlled motivation and increased behavioral compliance. The authors discussed the opportunity for mandates to provide clear guidance and suggested that despite the potential for mandates to threaten people's freedom to act, they may also support autonomy by conveying the importance of the request. However, this may only be true when the injunction is perceived as fair, reasonable, and proportionate. In support of this latter notion, Martela et al. (2021) suggest that even when people's behavior is heavily restricted, they can follow externally imposed rules in an autonomous and volitional way, but only if those rules are fully endorsed and believed to be legitimate in intent and purpose. Findings from recent qualitative interview studies and quantitative surveys on participants' reasons for intentional noncompliance with COVID-19 policy measures during the COVID-19 pandemic also suggest that a general lack of trust in, or respect for, the UK government may play a role in noncompliance (Bargain & Aminjonov, 2020; Coroiu et al., 2020; Williams et al., 2021).

Understanding the role of perceived legitimacy in predicting reactance and compliance with COVID-19 behavioral rules requires a consideration of the legal socialization process (Tapp, 1976), described subsequently by Fagan and Tyler (2005), and Tyler (2006). This process suggests that the development of people's understanding of laws and rules within society is driven by procedurally just social interactions with legal authorities, and by an internalization of the norms that underlie legal sanctions (Trinkner & Cohn, 2014). Trinkner and Cohn (2014) suggest that procedural justice is perceived to have occurred when the processes used to make and enforce a rule are deemed fair, reasonable, and appropriate. Procedural justice has been suggested to be a strong predictor of both whether a person perceives an authority to be legitimate and of subsequent compliance behavior (Sunshine & Tyler, 2003). Factors influencing assessments of legitimacy can be both subjective and

objective (Tyler & Jost, 2007), and both authorities and individual rules can be assessed independently in relation to legitimacy (e.g., Murphy et al., 2009). For example, Murphy et al. (2009) found that the perceived legitimacy of a particular rule moderated the influence of procedural justice beliefs about the authority on compliance intentions, such that procedural justice of the authority was only important in determining compliance when perceived legitimacy of a particular rule was low. As such, perceived legitimacy appears to be an important predictor of compliance intentions (Bradshaw et al., 2021), and may moderate the effectiveness of injunctions on compliance intentions (Murphy et al., 2009).

In summary, proscriptive injunctions have been found to elicit greater reactance than have prescriptive injunctions (Pavey et al., 2022), and to be perceived as more mandatory and obligatory (Janoff-Bulman et al., 2009). Consequently, the aim of the current research was to determine the effect of proscriptive vs prescriptive injunctions on intentions to comply with UK government COVID-19 guidelines and on reactance. Our main hypotheses were that H_1 : a proscriptive injunction would elicit lower intentions to comply with UK government COVID-19 guidelines than would a prescriptive injunction; H_2 : a proscriptive injunction would elicit greater reactance than would a prescriptive injunction. We also aimed to examine the role of perceived legitimacy of the injunction as a moderator of the relationship between the different types of injunctions, reactance, and intentions to comply; in connection with this, we further hypothesized that H_3 : perceived legitimacy would moderate the effect of injunction type on intentions to comply with UK government guidelines, and that H_4 : perceived legitimacy would moderate the effect of injunction type on reactance, such that the effects proposed in H_1 and H_2 would be especially apparent under conditions of low legitimacy. Research on persuasion and message framing continues to be essential for informing the design of effective messaging strategies (e.g., Ghio et al., 2021), and the research is the first to examine the effect of proscriptive and prescriptive injunctions in influencing intentions to comply with government behavioral measures to curb the spread of COVID-19.

2 | STUDY 1

In Study 1, we examined the effect of including a proscriptive versus prescriptive injunction with information about UK government COVID-19 behavioral rules and guidance on intentions to comply with government guidelines and reactance, and examined perceived legitimacy of advice as a moderator, in a UK university sample. Young people have been identified as a group who have not always complied with government guidelines in the United Kingdom, often because they have felt isolated by not being able to socialize with peers, have considered that they missed out on social life, and have judged that COVID-19 posed less of a risk to them because of their age (Office for National Statistics, 2021). Students have felt that have missed out on social experiences and have reported difficulty in following guidelines because of the behaviors of others within the University environment (Office for National Statistics, 2021). As such,

understanding the effectiveness of messaging about government guidelines and rules within this participant group and the role of the perceived legitimacy of injunctions is highly important.

3 | METHODS

3.1 | Design

A between-subjects experimental design was used, with Injunction Type (proscriptive injunction vs. prescriptive injunction) as the independent variable, and intentions to comply with UK government COVID-19 guidelines and reactance as dependent variables. Perceived legitimacy of the injunction was measured as a potential moderating variable. Randomization to Injunction Type condition was achieved using a computer-generated randomization function on the Qualtrics survey platform, and the experimenters were blind to the allocation of condition.

3.2 | Participants

Participants ($N = 142$) were undergraduate and postgraduate psychology students at a UK University. Most participants were female (female: $n = 122$; male: $n = 17$; other/prefer not to say: $n = 3$). Age and ethnicity were not recorded. *A priori* power analysis conducted for Study 1 using G*Power, for detecting the main and interaction effects of message type and perceived legitimacy on our outcome measures using linear multiple regression deviation from zero, suggested that a sample size of 155 would detect an effect size of $f^2 = 0.07$ using the standard criteria of $\alpha = .05$ with 80% power.

3.3 | Materials

All questionnaire items were measured using seven-point Likert response scales from "Strongly Disagree" (1) to "Strongly Agree" (7) with mean responses to items within each scale taken as a measure of that construct.

3.3.1 | Injunction type

Participants were asked to read information about the current UK government COVID-19 guidelines and were then presented with either a proscriptive or prescriptive injunction. In the prescriptive injunction condition, participants were told that they SHOULD follow government rules (regarding people's behavior) designed to manage COVID-19 outbreaks, and in the proscriptive injunction condition, participants were told that they SHOULD NOT break government rules (regarding people's behavior) designed to manage COVID-19 outbreaks. Information presented in each condition is shown in Supporting Information: Table 1.

3.3.2 | Intentions to comply with UK government COVID-19 guidelines

Three items measured intentions to comply with UK government COVID-19 guidelines: “I intend to comply with COVID-19 government rules”; “I plan to comply with COVID-19 government rules”; “I will try to comply with COVID-19 government rules”; adapted from Ajzen (2002); Cronbach's $\alpha = .93$.

3.3.3 | Reactance

Four items measured reactance: “I feel a sense of resistance to what was being recommended to me”; “I feel resistant to the attempt to influence my actions”; “I feel like doing the opposite to what I am told.” “I feel that the advice was a bit of an intrusion” (Pavey et al., 2022); Cronbach's $\alpha = .87$.

3.3.4 | Legitimacy

Three items measured perceived legitimacy of the injunction: “I think it is legitimate for the government to give me this advice”; “I think it is reasonable for the government to make this suggestion”; “I think it is fair for the government to make this recommendation” (Pavey et al., 2022); Cronbach's $\alpha = .90$.

3.4 | Procedure

Participants were recruited via a psychology student participant pool at a UK University. Participants completed the short online survey at a time of their own convenience during a period (November 20, 2020–December 22, 2020) when there were variable local lockdown restrictions in place in the United Kingdom as well as general government guidelines on social distancing, wearing face coverings, and self-isolation. The research received a favorable ethical opinion from the Research Ethics Committee of Kingston University and participants were thanked and debriefed following completion of the survey.

4 | RESULTS

Moderated linear regression analysis, using PROCESS macro v3.5 (Hayes, 2017) with 5000 bootstrap samples (Process Model 1; Hayes, 2017), was conducted to test our hypotheses, and explore the moderating effect of perceived legitimacy on the relationship between Injunction Type and (a) intentions and (b) reactance. Interactions between Injunction Type (coded as prescriptive, 0, and proscriptive, 1, and perceived legitimacy (mean-centered), on intentions to comply with UK government COVID-19 guidelines and reactance were examined by entering perceived legitimacy as

a moderator. Significant interactions were explored by taking the effect of the predictor on the dependent variable at the mean and at one standard deviation above and below the mean of the moderator.

4.1 | Intentions to comply with UK government COVID-19 guidelines

There was a significant effect of Injunction Type, $\beta = -.36$, $t = -2.52$, $p = .013$, on intentions to comply with UK government COVID-19 guidelines. Means, standard deviations and correlation coefficients for the relationships between the measured variables are shown in Table 1: participants in the prescriptive injunction condition reported greater intentions to comply than participants in the proscriptive injunction condition. The prediction that a proscriptive injunction would elicit lower intentions to comply with UK government COVID-19 guidelines than would a prescriptive injunction (H_1) was therefore supported.

There was no significant effect of perceived legitimacy, $\beta = .18$, $t = 1.79$, $p = .076$, on intentions to comply with UK government COVID-19 guidelines. However, there was a significant interaction between Injunction Type and perceived legitimacy on intentions to comply with UK government COVID-19 guidelines, $\beta = .47$, $t = 3.43$, $p < .001$. This supported the prediction that perceived legitimacy would moderate the effect of injunction type on intentions to comply with UK government COVID-19 guidelines (H_3). Analysis of the interaction revealed a significant effect of Injunction Type on intentions to comply when perceived legitimacy was low, $t = -4.21$, $p < .001$, but not when perceived legitimacy was at the mean, $t = -0.88$, $p = .383$, or when perceived legitimacy was high, $t = 0.11$, $p = .911$. The interaction is displayed in Figure 1: this shows clearly that intentions to comply with government injunctions were lower in the proscriptive condition than in the prescriptive condition when perceived legitimacy was low. This supports our prediction that the effects of Injunction Type on reactance to comply with UK government COVID-19 guidelines would be particularly pronounced when perceived legitimacy was low.

TABLE 1 Study 1 means (standard deviations) by condition and Pearson's bivariate correlation coefficients

	M_{Pre}	M_{Pro}	1	2
1. Legitimacy ^a	5.52 (1.04)	5.54 (1.05)	-	
2. Reactance ^a	2.51 (1.03)	2.70 (1.20)	-.59**	-
3. Intentions ^a	5.92 (0.94)	5.57 (5.57)	.44**	-.50**

Abbreviations: MPre, prescriptive injunction condition; MPro, proscriptive injunction condition.

** $p < .001$.

^aMeasured using seven-point Likert response scales from “Strongly Disagree” (1) to “Strongly Agree” (7).

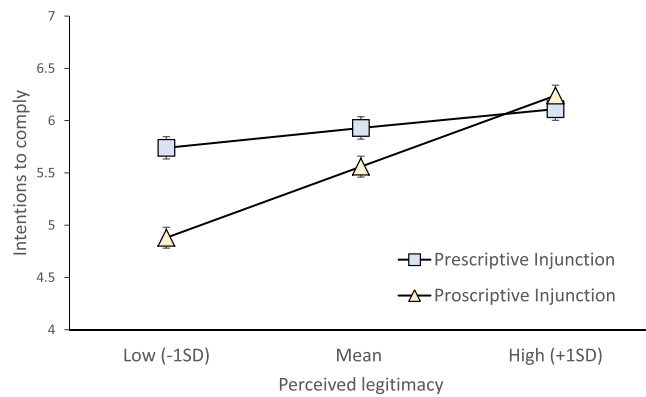


FIGURE 1 Study 1 intentions to comply with government COVID-19 behavioral guidelines in the prescriptive injunction and proscriptive injunction conditions when perceived legitimacy was low ($-1SD$: 4.49), at the mean (5.53) and high ($+1SD$: 6.57). Error bars represent standard errors.

4.2 | Reactance

There was no significant effect of Injunction Type on reactance, $\beta = .20$, $t = 1.34$, $p = .181$; therefore, the prediction that a proscriptive injunction would elicit greater reactance than would a prescriptive injunction (H_2) was not supported.

However, there was a significant effect of perceived legitimacy on reactance, $\beta = -.43$, $t = -4.17$, $p < .001$, with greater perceived legitimacy associated with lower reactance. Moreover, moderated regression analysis also revealed a significant interaction between Injunction Type and perceived legitimacy on reactance, $\beta = -.39$, $t = -2.70$, $p = .008$. This supported the prediction that perceived legitimacy would moderate the effect of Injunction Type on reactance (H_4). Analysis of the interaction revealed a significant effect of Injunction Type on reactance when perceived legitimacy was low, $t = 2.86$, $p = .005$, but not when perceived legitimacy was at the mean, $t = 0.11$, $p = .914$, or when perceived legitimacy was high, $t = -0.59$, $p = .556$. The interaction is displayed in Figure 2.

5 | STUDY 1 DISCUSSION

The results of Study 1 showed that a proscriptive injunction elicited lower intentions to comply with UK government COVID-19 guidelines than a prescriptive injunction, but that there was no main effect of Injunction Type on reactance. The effect of Injunction Type on intentions to comply with UK government COVID-19 guidelines and reactance was moderated by perceived legitimacy. When perceived legitimacy was low, the proscriptive injunction elicited lower intentions to comply with UK government COVID-19 guidelines and greater reactance than did the prescriptive injunction. While this is an important finding, there were some limitations in Study 1 that we sought to address in Study 2. For example, the sample in Study 1 was restricted: our student sample consisted of mostly female participants, and although we did not collect data on age, the student

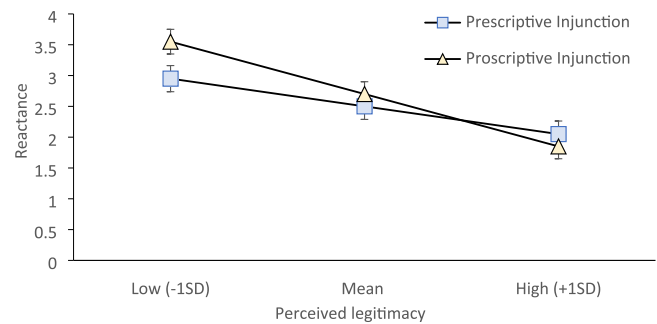


FIGURE 2 Study 1 reactance in the prescriptive injunction and proscriptive injunction conditions when perceived legitimacy was low ($-1SD$: 4.49), at the mean (5.53) and high ($+1SD$: 6.57). Error bars represent standard errors.

participants were likely to be younger and have more years of formal education than a general population sample. Our sample in Study 1 was also slightly underpowered and we were unable to assess whether randomisation to condition was successful. As such, in Study 2 we examined whether the effects of Injunction Type on intentions and reactance moderated by perceived legitimacy could be replicated in a larger and more representative sample of UK participants. In addition, in Study 1 we did not include a control condition exposed to information about UK government guidelines presented to participants but not to either a proscriptive or prescriptive injunction. Consequently, in Study 2 we included a control condition to determine whether the proscriptive and prescriptive injunctions may have both elicited lower intentions to comply with UK government COVID-19 guidelines and greater reactance than a message containing information only.

6 | STUDY 2

Previous research has examined the effect of age and gender on reactance, with mixed results. Some findings show that males have higher reactance scores than females (Seemann et al., 2004; Woller et al., 2007), and that younger participants show greater reactance than do older participants (Hong et al., 1994). However, other research has found no difference between genders in reactance (Hong et al., 1994), and one study found a curvilinear relationship between age and reactance, with both older and younger adults showing higher reactance than middle-age groups (Woller et al., 2007). In Study 2, we aimed to replicate the results of Study 1 and to examine any further moderating effects of age and gender on intentions to comply and on reactance.

Some previous research found that both proscriptive and prescriptive injunctions were perceived as more controlling and restrictive of autonomy than were descriptive norm appeals (Kang et al., 2021). Given these findings, which suggest that both types of injunction may be perceived to be controlling and to restrict decision-making autonomy, we also wanted to examine the possibility that both the prescriptive and proscriptive injunction would elicit lower

intentions to comply with UK government COVID-19 guidelines and greater reactance than would an information-only (Control) condition.

7 | METHODS

7.1 | Design

An experimental between-subjects design was used, as in Study 1. Participants completed demographic information and were randomly assigned to view a proscriptive injunction, a prescriptive injunction, or an information-only control group with no injunction. Randomization was achieved using a computer-generated randomization function using Qualtrics survey platform, and the experimenters were blind to the allocation of condition. Randomization checks suggested that participants were randomly distributed across conditions: there were no differences between conditions in age, $F(2, 304) = 0.23, p = .797$, gender, $X^2(2) = 1.38, p = .381$, qualifications, $X^2(12) = 7.75, p = .804$, or occupational group, $X^2(16) = 19.23, p = .257$. Reactance and intentions to comply with UK government COVID-19 guidelines were measured as dependent variables. Perceived legitimacy of the information was measured as a potential moderator.

7.2 | Participants

A total of 307 participants completed the questionnaire. Demographic and occupational characteristics of the sample are shown in Table 2. Ages ranged from 18 to 89 ($M = 42.36, SD = 17.67$). Ethnicity was not recorded. A priori power analysis conducted for Study 2 using G*Power, for the main and interaction effects of Injunction Type and perceived legitimacy on our outcome measures using linear multiple regression deviation from zero, suggested that a sample size of 155 would detect an effect size of $f^2 = 0.07$ using the standard criteria of $\alpha = .05$ with 80% power. Including additional predictor variables of age or gender and their associated interaction terms suggested that a sample size of 213 would detect an effect size of $f^2 = 0.07$ using the standard criteria of $\alpha = .05$ with 80% power.

7.3 | Materials

7.3.1 | Injunction type

Participants were instructed to "Please read the following text very carefully. You will be asked questions about it later." In the prescriptive injunction condition, participants were told that they SHOULD follow government behavioral rules intended to manage COVID-19 outbreaks, and in the proscriptive injunction condition, participants were told that they SHOULD NOT break government behavioral rules intended to manage COVID-19 outbreaks. The information presented in Study 1 was modified to reflect the current

TABLE 2 Study 2 participant demographic and occupational characteristics indicating *N* (percentage of the sample) in each category

Gender	Male	150 (49.5%)
	Female	152 (48.9%)
	Other/prefer not to say	5 (1.6%)
Age	18–29	103 (33.6%)
	30–49	101 (32.8%)
	50+	103 (33.6%)
Educational qualifications	Postgraduate	29 (9.4%)
	Graduate	77 (25.1%)
	A levels/BTEC (British Technology Council) level 3 or equivalent	86 (22.8%)
	GCSE (General Certificate of Secondary Education) or equivalent	91 (29.6%)
	Other/prefer not to say	24 (7.9%)
Occupation	Full time employed	132 (43.0%)
	Part-time employed	18 (5.9%)
	Self-employed	14 (4.6%)
	Furlough	11 (3.6%)
	Student	31 (10.1%)
	Unemployed	35 (11.4%)
	Retired	43 (14.0%)
	Other/prefer not to say	23 (7.5%)

Abbreviation: GCSE, general certificate of secondary education; BTEC, british technology council

(at the time) UK government guidance. In addition, in a control condition, information that did not include an injunction was presented, for example, statements such as "COVID-19 case numbers are rising rapidly across the whole of the UK and in other countries" with a list of current UK government guidelines. The information and injunctions given to participants in each condition are shown in Supporting Information: Table 2.

7.3.2 | Measured variables

All items were measured on a seven-point Likert scale from "Strongly Disagree" (1) to "Strongly Agree" (7), with mean responses to items within each scale taken. Demographic information (age, gender, occupational and educational status) was reported by participants at the start of the questionnaire. The measures of perceived legitimacy ($\alpha = .87$), reactance ($\alpha = .92$), and intentions to comply with UK government COVID-19 guidelines ($\alpha = .94$), were all identical to those used in Study 1.

7.4 | Procedure

Participants from the UK were recruited from an online research participation agency and were provided with consumer vouchers for their time (approximately £1.20 GBP/\$1.45 USD). Quotas for gender and age groups were applied to ensure an equal recruitment across gender and age categories. Participants completed the short online survey at a time of their own convenience during a period (February 12, 2021 and February 21, 2021) when there was a full national lockdown in the UK (a period where people were instructed to stay at home to mitigate the spread of the virus). The research received a favorable ethical opinion from the Research Ethics Committee of Kingston University, and participants were thanked and debriefed following completion of the survey.

8 | RESULTS

Means, standard deviations, and correlation coefficients for the relationships between our measured variables in Study 2 are shown in Table 3. One-way ANOVAs showed no significant effects of Injunction Type on intentions to comply with UK government COVID-19 guidelines, $F(2, 304) = 0.11, p = .899$ or reactance, $F(2, 304) = 0.24, p = .790$. A planned contrast also showed no differences between the information-only control condition compared to the proscriptive and prescriptive injunction condition for intentions to comply with UK government COVID-19 guidelines, $t(304) = 0.40, p = .692$, or reactance, $t(304) = 0.43, p = .668$.

Moderated linear regression analysis was conducted using the same method as Study 1. The control condition was excluded from the moderation analysis to test our hypotheses and examine the effects of Injunction Type (proscriptive vs. prescriptive) on intentions to comply with UK government COVID-19 guidelines and reactance, and the moderating role of perceived legitimacy.

8.1 | Intentions to comply with UK government COVID-19 guidelines

There was no significant effect of Injunction Type, $\beta = -.06, t = -0.42, p = .680$, on intentions to comply with UK government COVID-19

guidelines. Our prediction that a proscriptive injunction compared to a prescriptive injunction would elicit lower intentions to comply with UK government COVID-19 guidelines (H_1) was therefore not supported. There was a significant effect of perceived legitimacy, $\beta = .35, t = 6.11, p < .001$, with perceived legitimacy associated with greater intentions to comply with UK government COVID-19 guidelines. As in Study 1, moderation analysis showed a significant interaction between Injunction Type and perceived legitimacy on intentions to comply with UK government COVID-19 guidelines, $\beta = .26, t = 2.87, p = .005$. This supports hypothesis H_3 that perceived legitimacy would moderate the effect of Injunction Type. Analysis of the interaction showed that intentions to comply with UK government COVID-19 guidelines were lower in the proscriptive condition than in the prescriptive condition when perceived legitimacy was low, $t = -2.33, p = .021$, but not when perceived legitimacy was at the mean, $t = -0.1, p = .680$, or when perceived legitimacy was high, $t = 1.72, p = .087$. The interaction is displayed in Figure 3. The moderation finding is consistent with the findings of Study 1 and our prediction that the effect of Injunction Type on intentions to comply with UK government COVID-19 guidelines would be particularly pronounced when perceived legitimacy was low.

8.2 | Reactance

There was no significant effect of Injunction Type, $\beta = -.11, t = -0.63, p = .531$ on reactance. Our predictions that a proscriptive injunction compared to a prescriptive injunction would elicit greater reactance (H_2) was therefore not supported, a finding consistent with Study 1. There was a significant effect of perceived legitimacy, $\beta = -.60, t = -7.59, p < .001$, on reactance, with greater perceived legitimacy associated with lower reactance.

Moderation analysis found a significant interaction between Injunction Type and perceived legitimacy, on reactance, $\beta = -.26, t = -2.21, p = .028$. This supported the prediction that perceived legitimacy would moderate the effect of injunction type on reactance (H_4). The interaction is displayed in Figure 4. Further analysis of the interaction and inspection of Figure 4 showed that when perceived legitimacy was low, reactance was lower in the proscriptive compared to in the prescriptive conditions; however, this difference was not significant, $t = 1.13, p = .259$. There was no difference

TABLE 3 Study 2 Means (standard deviations) by condition and Pearson's bivariate correlation coefficients

	M_{Info}	M_{Pre}	M_{Pro}	1	2	3
1. Age	43.25 (18.06)	41.78 (17.93)	41.89 (17.13)	-		
2. Legitimacy ^a	5.42 (1.60)	5.51 (5.51)	5.53 (1.36)	.28**	-	
3. Reactance ^a	2.86 (1.61)	3.01 (1.76)	2.88 (1.50)	-.37**	-.65**	
4. Intentions ^a	6.03 (1.33)	6.11 (1.11)	6.06 (1.23)	.34**	.55**	-.57**

Abbreviations: M_{Info} , information only control group; M_{Pre} , prescriptive injunction condition; M_{Pro} , proscriptive injunction condition.

** $p < .001$.

^aMeasured using seven-point Likert response scales from "Strongly Disagree" (1) to "Strongly Agree" (7).

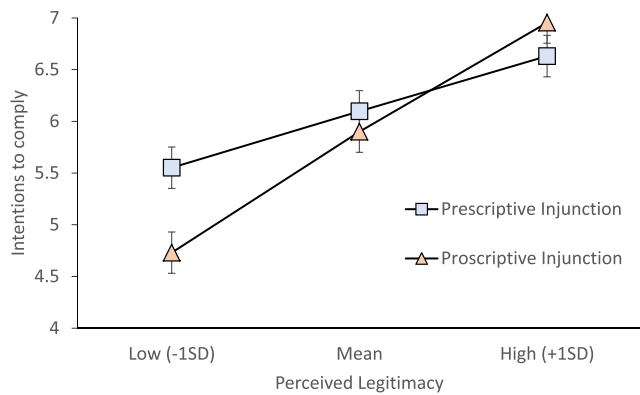


FIGURE 3 Study 2 intentions to comply with government guidelines in the prescriptive injunction and proscriptive injunction condition when perceived legitimacy was low (-1SD: 4.49), at the mean (5.53) and high (+1SD: 6.57). Error bars represent standard errors.

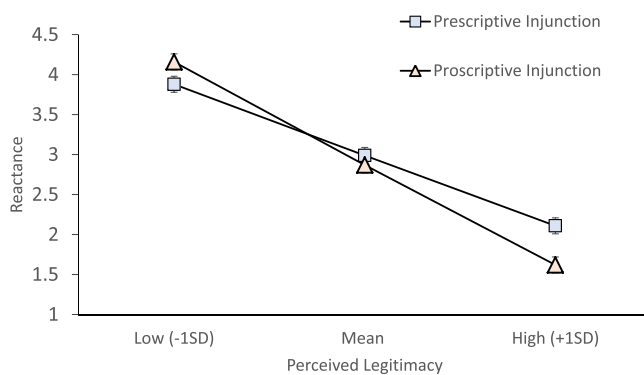


FIGURE 4 Study 2 reactance in the prescriptive injunction and proscriptive injunction condition when perceived legitimacy was low (-1SD: 4.49), at the mean (5.53) and high (+1SD: 6.57). Error bars represent standard errors.

between conditions when perceived legitimacy was at the mean, $t = -0.63$, $p = .531$. Reactance was significantly lower in the proscriptive condition than in the prescriptive condition when perceived legitimacy was high, $t = -2.00$, $p = .047$.

8.3 | Additional analyses

In additional analysis, we assessed age and gender as moderators of the interaction between Injunction Type and perceived legitimacy on intentions to comply with government guidelines and reactance. To explore moderation by gender, gender was entered as a moderator in the models (PROCESS Model 3, Hayes, 2017). In a three-way moderated regression analysis predicting intentions to comply, there was no main effect of gender on intentions to comply, $\beta = -.11$, $t = -0.57$, $p = .566$, no interaction between gender and Injunction Type, $\beta = -.13$, $t = -0.49$, $p = .623$, and no moderation of the interaction between Injunction Type and legitimacy by gender,

$\beta = .04$, $t = 0.24$, $p = .807$. In a three-way moderated regression analysis predicting reactance, there was no main effect of gender on reactance, $\beta = .11$, $t = 0.41$, $p = .680$, no interaction between gender and Injunction Type, $\beta = -.01$, $t = -0.01$, $p = .993$ and no moderation of the interaction between Injunction Type and legitimacy by gender, $\beta = .33$, $t = 1.37$, $p = .171$.

To explore moderation by age, age was entered as a moderator in the models (PROCESS Model 3, Hayes, 2017). In a three-way moderated regression analysis predicting intentions to comply, there was a main effect of age on intentions to comply, $\beta = .01$, $t = 2.77$, $p = .006$, such that older participants reported greater intentions to comply with government guidelines than did younger participants. There was no significant interaction between age and Injunction Type, $\beta = .01$, $t = 0.33$, $p = .741$, but there was a significant moderation of the interaction between Injunction Type and legitimacy by age, $\beta = -.02$, $t = -3.55$, $p < .001$: the interaction between Injunction Type and legitimacy was significant for younger participants, $F(1,185) = 16.31$, $p < .001$, but not for older participants, $F(1,185) = 2.13$, $p = .146$. For younger participants, the proscriptive condition elicited lower intentions compared to the prescriptive condition when legitimacy was low, $\beta = -.66$, $t = -2.83$, $p = .005$, but not when legitimacy was at the mean, $\beta = .09$, $t = 0.46$, $p = .642$. For younger participants who perceived legitimacy to be high, the proscriptive injunction elicited greater intentions than did the prescriptive condition, $\beta = .81$, $t = 2.85$, $p = .005$.

In a three-way moderated regression analysis predicting reactance, there was no effect of age on reactance, $\beta = -.02$, $t = 0.32$, $p = .371$, no interaction between age and Injunction Type, $\beta = .08$, $t = 1.64$, $p = .103$, and no moderation of the interaction between Injunction Type and legitimacy by age, $\beta = -.01$, $t = -1.26$, $p = .211$.

9 | STUDY 2 DISCUSSION

In Study 2, we found no significant main effects of Injunction Type on intentions to comply with UK government guidelines or reactance, and no evidence that the information-only control condition elicited different effects to the two injunction conditions. This differs from Study 1, where we found a significant main effect of Injunction Type on intentions to comply. The results from Study 2 indicate that perceived legitimacy moderated the effect of Injunction Type both on intentions to comply with UK government COVID-19 guidelines and on reactance, as in Study 1. The pattern of interaction effects for intentions to comply with UK government COVID-19 guidelines was similar in both studies. Significant contrasts showed that in both studies, when perceived legitimacy was low, participants who were exposed to the proscriptive injunction reported lower intentions to comply with UK government COVID-19 guidelines compared to participants who were exposed to the prescriptive injunction condition. In Study 1, the effect of Injunction Type on reactance was more pronounced when perceived legitimacy was low, and in Study 2, the effects of Injunction Type on reactance were reversed when perceived legitimacy was high.

The presence of a main effect of Injunction Type on intentions to comply with UK government COVID-19 guidelines in Study 1 but lack of this effect in Study 2 could be due to differences in the demographics of our two samples; in particular, participants in Study 1 were generally younger. Why this might matter to the different pattern of effects across the two studies obviously requires further research (e.g., it may be that younger participants experience more reactance and resistance to authority rules and guidelines, or feel less concerned about the health effects of the COVID-19 virus). In fact, exploratory analysis in Study 2 showed that younger participants reported lower intentions to comply with guidelines than did older participants. In Study 2, there was also a significant moderation of the interaction between injunction type and perceived legitimacy on intentions to comply by age: the interaction between injunction type and legitimacy on intentions to comply with government guidelines was only found among younger participants. There was no effect of age on reactance, and age did not moderate the effect of the injunction type or the interaction between injunction type and legitimacy on reactance. There were no main or moderation effects of gender on intentions to comply or on reactance.

10 | GENERAL DISCUSSION

The aim of the current research was to determine the effect of proscriptive versus prescriptive injunctions on intentions to comply with UK government COVID-19 guidelines and on reactance. The results provide support for our first hypothesis in Study 1: there was a main effect of the proscriptive and prescriptive injunction condition on intentions to comply with UK government guidelines, but there was no support for our first hypothesis in Study 2. In both studies, there was no support for our second hypothesis, with no main effects of Injunction Type on reactance. Importantly however, in both Study 1 and Study 2, the results provided support for our moderation hypotheses H_3 and H_4 : perceived legitimacy moderated the effect of the injunction on intentions to comply with UK government COVID-19 guidelines and reactance. The pattern of the interaction effects in both Study 1 and Study 2 suggests that proscriptive injunctions regarding COVID-19 behavioral rules elicited lower intentions to comply with UK government COVID-19 guidelines than did prescriptive injunctions when perceived legitimacy of the injunction was low (i.e., when the injunction was deemed less fair and less reasonable). These findings point to the importance of legitimacy in influencing people's compliance intentions, particularly for injunctions that may be perceived as less autonomy-supportive and more mandatory (i.e., proscriptive injunctions, cf. Janoff-Bulman et al., 2009). In Study 2, we found no difference between the two types of injunctions compared to an information-only control. We also found in Study 2 that the moderated effect of injunction type by perceived legitimacy on intentions to comply only occurred in younger age groups.

The results support research which suggests that proscriptive injunctions are viewed as more mandatory than prescriptive

injunctions (Janoff-Bulman et al., 2009), and as such may be construed as more restrictive of autonomy and may elicit greater reactance (Pavey et al., 2022), but suggests that in the context of injunctions regarding UK government COVID-19 guidelines, reactance depends on whether the injunction is perceived as legitimate. It is worth noting that in both Study 1 and Study 2, the mean scores for perceived legitimacy were high, suggesting an overall perception of behavioral rules and guidelines regarding COVID-19 as fair, reasonable, and legitimate. The perceptions of legitimacy in this context may be higher than the perceived legitimacy of guidance for other personal health and lifestyle behaviors, due to the urgency of compliance with COVID-19 behavioral measures at the height of the pandemic, exposure to media reporting the effects of COVID-19, and widely available information about excess deaths due to the COVID-19 pandemic. This may be one reason that we failed to replicate the main effect of the proscriptive versus prescriptive injunction on reactance in Study 1 and Study 2 found in previous studies (Pavey et al., 2022), and for the differences regarding the main effect of Injunction Type on intentions to comply (with government guidelines) across the two studies. In future research, replicating the findings during a period of the pandemic where concern for the spread of the virus was lower could show a clearer pattern of main effects of injunction type, due to lower perceived legitimacy of the injunctions.

Although we expected the effect of Injunction Type on intentions to comply with UK government COVID-19 guidelines to be particularly pronounced when perceived legitimacy was low, the results also showed some differences between the two injunction conditions when perceived legitimacy was high. Interestingly in Study 2, when perceived legitimacy was high, the proscriptive condition elicited greater intentions to comply with UK government COVID-19 guidelines and lower reactance when compared to the prescriptive condition. This supports the discussion of Legate and Weinstein (2022) and Martela et al. (2021). Those authors suggest that more mandatory and controlling requests, such as those inferred in proscriptive compared to prescriptive injunctions, can sometimes be effective in eliciting greater compliance when the individual views the injunction as legitimate. Under such conditions, the individual may volitionally endorse the underlying reasons for the injunction. Rather than posing a threat to autonomy and freedom, in this situation the proscriptive injunction would be viewed as providing clearer and more unambiguous guidance, as congruent with personal values, and thus interpreted more favorably than a prescriptive injunction or information-only advice. Our results also support research which suggests that perceived legitimacy of the rules moderates other aspects of an injunction such as the procedural justice of an authority (Murphy et al., 2009).

In the two reported studies we focussed on the perceived legitimacy of the rule as a moderator of compliance intentions and reactance. However, further research could usefully examine the perceived procedural justice of the authority (Trinkner & Cohn, 2014; Tyler, 2006) in addition to the perceived legitimacy of the rule, to determine whether viewing the authority as fair and reasonable is as relevant to compliance intentions as viewing the rule as fair and

reasonable. This is particularly important in the context of COVID-19 where government trust—both general and pandemic-specific, has been cited as an important predictor of compliance (Bargain & Aminjonov, 2020; Coroiu et al., 2020; Williams et al., 2021). There are also limitations of the current research that future studies could address. For example, in our studies, legitimacy perceptions were only measured, not manipulated, and as such, confounding variables (such as other constructs correlated with perceived legitimacy) could potentially account for our effects. Further research could examine the predictors of legitimacy perceptions and determine whether legitimacy perceptions could be manipulated by making further linguistic or semantic changes within the text of the message to enhance perceptions of legitimacy. The measure of reactance used was also self-reported, and only cognitive in nature. We did not assess participants' affective or physiological reactance. Emotional and physiological changes in response to the different types of injunctions could be assessed in further studies. Further limitations include that these findings may only represent a particular point in a rare pandemic that may not be easily generalized to other contexts, and that the findings could be specific to a UK context. We also did not include a measure of political engagement and trust in government or distinguish between the perception of the source of the injunction versus the injunction itself.

In terms of government communications, the findings suggest that communicators need to pay attention to how rules and guidelines are formulated and whether or not they are likely to be seen as implying nonlegitimate directives or constraints. The findings of the two studies reported provide insight into the types of injunctions that may bolster intentions to comply with government guidelines, particularly for younger people. Importantly, the research suggest that the type of injunction presented may matter less in determining reactance and compliance intentions than the perceived legitimacy of the guidelines and rules, particularly in the context of higher absolute levels of perceived legitimacy. If rules are perceived as legitimate, fair and reasonable, reactance to a less autonomy-supportive injunction may not occur, and as such, a proscriptive injunction when volitionally endorsed and perceived as legitimate may be most effective in eliciting compliance intentions. However, if rules are perceived as unreasonable or unfair, a more flexible, less mandatory, and more autonomy-supportive request such as that interpreted within a prescriptive injunction may be more effective in eliciting intentions to comply with guidelines and produce lower reactance. The findings have implications for the design of effective communication about government rules and guidelines in the context of the COVID-19 pandemic and are relevant in informing the framing of future government rules and advice in emergency situations that require public adherence. In conclusion, these findings suggest that when perceived legitimacy is low and for younger age groups, it may be advisable to use prescriptive injunctions, as these were more effective in eliciting compliant intentions than were proscriptive injunctions.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in Harvard Dataverse at <https://dataverse.harvard.edu/dataverse/CovidPrePro>.

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SUPPORTING INFORMATION

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