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MAINTAINING COMPLIANCE WHEN THE VIRUS RETURNS:  
UNDERSTANDING ADHERENCE TO SOCIAL DISTANCING  
MEASURES IN THE NETHERLANDS IN JULY 2020

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Amsterdam Law School Legal Studies Research Paper No. 2020-53

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UC Irvine School of Law Research Paper No. 2020-60

# Maintaining Compliance when the Virus Returns: Understanding Adherence to Social Distancing Measures in the Netherlands in July 2020<sup>1</sup>

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## Abstract

*After its relative lenient, “intelligent lockdown” approach to the COVID-19 coronavirus, the Netherlands has continued its singular trajectory in combating the pandemic. The month of July introduced further relaxations to prior mitigation measures, but also saw a resurgence of infections. This working paper examines how these developments are reflected in Dutch citizens’ compliance with safe-distance measures during this period. Building on our previous surveys during the months of May and June, we report the findings of two additional survey waves collected in early (7-10) and late (21-23) July among nationally representative samples (N = 1064 and N = 1023, respectively). The results show that the decline in compliance that was observed from May to June seems to have halted. At the same time, important predictors of compliance – such as citizens’ capacity to comply, perceptions of the threat of the virus, and support for mitigation measures – have ceased to decrease, or are increasing. Taken together, these findings suggest that Dutch citizens’ compliance with mitigation measures may be on the rise again. However, our findings also suggest that social norms for compliance continue to be eroding, which may continue to dampen citizens’ tendency to comply.*

## Introduction

After its relative lenient, “intelligent lockdown” approach to the COVID-19 coronavirus, the Netherlands has continued a singular trajectory in combating the pandemic. After its mitigation measures were loosened in May and June, the month of July introduced further changes, specifically in re-opening fitness centers, relaxing prior restrictions on attendance for indoor and outdoor events (to maximally 100 and 250 people, respectively), and even abolishing restrictions in many public places (e.g., shops, museums, zoos, and restaurants).<sup>1</sup> In order to ensure that the virus continues to be contained, it is essential that Dutch citizens continue to comply with safe-distance measures (i.e., keeping a distance of 1.5 meters or more from others) that continue to be in force. However, the

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month of July also saw heated debate, and even protests in the Netherlands over the legitimacy and need for such measures.<sup>ii</sup> Moreover, July also heralded a resurgence in the number of infections.<sup>iii</sup> As such, it is crucial to understand to what extent Dutch citizens complied with safe-distance measures during the month of July, and which processes influenced them to do so (or not). To study these questions, we complemented our prior surveys in May (Reinders Folmer et al., 2020a) and June (Reinders Folmer et al., 2020b) with two additional waves, collected in early (7-10) and late (21-23) July. In this working paper, we outline the results.

The June survey (Reinders Folmer et al., 2020b) indicated that Dutch citizens' compliance with safe-distance measures was eroding, as were many of the resources that sustained it. They reported lower practical capacity to comply, but also perceived the virus as less threatening, and reported lower substantive support for mitigation measures. Furthermore, they indicated that perceived social norms for compliance were waning. These processes may reflect the number of infections at that time, which had strongly reduced relative to their peak in March and April.<sup>iii</sup> The present paper examines how these trends have developed during the month of July. Due to the further relaxation of prior measures, Dutch citizens were presented with even more crowded environments, and even greater opportunities to get close to others. In this regard, the resurge of infections could indicate that compliance has continued to fall. It may also be possible, however, that their rise has served as a reminder of the threat of the virus, and thereby bolstered compliance. The present study will shed light on these questions by revealing how compliance has evolved during the month of July, and which processes sustained it during this period.

### **The present study**

In the present study, we examine compliance with safe-distance measures in the Netherlands. We focus on three major questions: (1) which processes sustained citizens' (self-reported) compliance with COVID-19 mitigation measures in the month of July, (2) how their compliance with these measures has developed relative to the months of May and June, and (3) how the resources that sustain compliance have developed throughout this period.

To this end, our July surveys again focus on citizens' tendency to keep a safe distance from others (1.5 meters or more), as required by the current mitigation measures within the Netherlands. We assess their (self-reported) compliance with these measures across various situations. In addition to this, we again assessed a range of processes that may explain their tendency to do so, according to insights on (non)compliance from psychology, criminology, sociology, and economics (Feldman 2018, Friedman 2016, van Rooij and Sokol 2021 (Forthcoming); for more detail, see Kuiper et al. 2020; Reinders Folmer et al., 2020). They can be arranged in the following (broad) categories: factors that influence: (1) citizens' *capacity to obey rules*, (2) their *opportunity to break rules*, (3) their *substantive support for the measures*, (4) their *emotional state due to the measures*, and their (5) *obligation to obey the law*; and factors that influence their perceptions of (6) the *cost and benefits of compliance*, (7) *deterrence*, (8) *procedural justice*, and (9) *social norms* regarding compliance. We examine how these different processes predict citizens' (self-reported) compliance with safe-distance measures. Moreover, we examine how their compliance, as well as the processes that sustain it, have evolved since May, relative to the (stricter) measures that then applied (see Reinders Folmer et al. 2020, for more details).

## Method

We obtained ethical approval for this project (including previous and forthcoming waves) from the Ethics Review Board of the University of Amsterdam, on April 3, 2020. All participants provided consent before participating in the study. Participation was voluntary, and all participants could stop the survey at any time.

## Participants

Participants were Dutch citizens (18 years or older) who were recruited by the Dutch online research panel Motivaction, via the website StemPunt.nu. They were redirected to Qualtrics to fill out the survey. For both waves, we utilized the same materials as in our surveys in May (see Reinders Folmer et al., 2020). Participants were rewarded with 150 StemPunten (an endowment that can be exchanged for gift vouchers at major Dutch webstores).

1568 participants participated in Survey 5 (July 7-10). Here, 504 participants failed to complete the survey, provided incomplete responses, or failed to pass two attention checks; these participants were excluded from the sample. The final sample therefore consisted of 1064 cases (58.6% women, 41.3% men, 0.1% non-binary;  $M_{\text{age}} = 43.83$  years).

1452 participants participated in Survey 6 (July 21-23). Here, 429 participants failed to complete the survey, provided incomplete responses, or failed to pass two attention checks; again, these participants were excluded from the sample. As such, the final sample consisted of 1023 cases (55.2% women, 44.8% men, 0% non-binary;  $M_{\text{age}} = 44.48$  years). Demographical information for both samples is displayed in Table 1.

**Table 1.**

*Sample characteristics and control variables, July Surveys (Survey 5 and 6).*

|  | Survey 5 (July 7-10) | Survey 6 (July 21-23) |
|--|----------------------|-----------------------|
| Age                                    | 43.83 (15.36)        | 44.48 (15.47)         |
| Gender                                 |                      |                       |
| <i>Female</i>                          | 58.6%                | 55.2%                 |
| <i>Male</i>                            | 41.3%                | 44.8%                 |
| <i>Other (non-binary)</i>              | 0.1%                 | 0%                    |
| Ethnic minority                        | 4.2%                 | 3.9%                  |
| Education                              |                      |                       |
| <i>No diploma</i>                      | 4.1%                 | 4.2%                  |
| <i>High school degree</i>              | 27.3%                | 28.8%                 |
| <i>Intermediate vocational</i>         | 29.8%                | 29.8%                 |
| <i>College degree and higher</i>       | 38.7%                | 37.3%                 |
| Employed                               | 65.0%                | 64.8%                 |
| Care professionally for COVID patients | 6.6%                 | 4.9%                  |
| Socio-economic status, pre-COVID       | 6.56 (1.64)          | 6.55 (1.73)           |
| Socio-economic status, post-COVID      | 6.53 (1.68)          | 6.48 (1.80)           |
| Political view                         |                      |                       |
| <i>Very progressive</i>                | 8.0%                 | 9.2%                  |
| <i>Slightly progressive</i>            | 30.1%                | 31.6%                 |
| <i>Slightly conservative</i>           | 28.5%                | 24.9%                 |
| <i>Very conservative</i>               | 3.9%                 | 4.2%                  |
| <i>Prefer not to say</i>               | 29.1%                | 30.1%                 |
| Health issues placing oneself at risk  | 24.9%                | 27.8%                 |
| Health issues placing others at risk   | 63.2%                | 64.5%                 |
| Trust in science                       | 3.92 (0.91)          | 3.88 (0.96)           |
| Trust in media                         | 3.01 (1.10)          | 3.02 (1.12)           |
| N                                      | 1064                 | 1023                  |

*Note.* Standard deviations between parentheses.

## Materials

**Control variables.** The following demographic variables were recorded: age, gender, nationality, information on residency (country, province), employment status, education, inclusion in an ethnic minority group, social economic status before and after COVID-19 (MacArthur Scale of Subjective Social Status; Adler et al. 2000), and political orientation (adapted from Fine, Rowan, and Simmons 2019, Hasson et al. 2018, Wojcik et al. 2015).<sup>2</sup>

Additionally, we asked participants several questions that probed exposure to, and risk from, COVID-19. Specifically, we asked them to indicate whether they provided professional care for COVID-19 patients, and whether they themselves or anyone they knew had underlying health issues that would put them more at-risk for complications from COVID-19.

In light of the prominent (and controversial) role of science and media reporting in the COVID-19 crisis, we further asked participants to indicate their trust in science (on four items taken from McCright et al. 2013), and trust in media reporting (on a single item, see Kuiper et al. 2020).

**Compliance with COVID-19 measures.** During the month of July, COVID-19 mitigation measures in the Netherlands chiefly concerned safe-distancing measures. To assess citizens' compliance, we therefore assessed participants' (self-reported) tendency to keep a safe distance from others in various situations (see Reinders Folmer et al., 2020). Specifically, we included seven questions that measured their tendency to keep a safe distance (1.5 meters or more) from: 1) "others outside of my direct household," 2) "my neighbors," 3) "colleagues at work," 4) "friends and family from outside of my direct household," 5) "others when grocery shopping," 6) "others when taking a walk or exercising," and 7) "others in traffic or public transport" (1 = "never," 7 = "always").

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<sup>2</sup> In both surveys, a considerable number of participants preferred to not disclose their political orientation (Survey 5: 29.1%; Survey 6: 32.0%). To enable these cases (whose responses were otherwise valid) to be included in models that include political orientation, this variable was recoded into two dummy-coded variables (political orientation (conservative): 1 = very conservative or conservative, 0 = progressive, very progressive, or prefer not to say; political orientation (undisclosed): 1 = prefer not to say, 0 = very conservative, conservative, progressive, very progressive). In the analysis, the first variable captures the contrast between conservative and progressive orientation; the second the contrast between undisclosed and progressive orientation. The latter comparison is less informative, but enables cases with no disclosed orientation (but otherwise valid responses) to be retained in the analysis.

Responses were combined into a single scale measure (Survey 5:  $\alpha = .90$ ; Survey 6:  $\alpha = .90$ ), with higher scores indicating greater compliance with COVID-19 mitigation measures (see Table 2).

**Capacity to obey rules.** To assess participants' capacity to obey COVID-19 mitigation measures, we measured four (interrelated) constructs: (1) their practical capacities to obey the rules, (2) their knowledge of the rules, (3) the perceived clarity of the rules, and (4) their capacity to control themselves (i.e., their impulsivity).

**Table 2.**

*Descriptive statistics of dependent variables, July Surveys (Survey 5 and 6).*

|   | Survey 5 (July 7-10) | Survey 6 (July 21-23) |
|---|----------------------|-----------------------|
| I keep a safe distance (1.5 meters or more) from... |                      |                       |
| <i>Others outside of household</i>                  | 5.37 (1.52)          | 5.46 (1.54)           |
| <i>Neighbors</i>                                    | 5.71 (1.47)          | 5.78 (1.48)           |
| <i>Colleagues at work</i>                           | 4.92 (1.92)          | 5.02 (1.88)           |
| <i>Friends and family outside household</i>         | 4.67 (1.70)          | 4.78 (1.72)           |
| <i>Others when grocery shopping</i>                 | 5.35 (1.37)          | 5.47 (1.35)           |
| <i>Others when walking or exercising</i>            | 5.68 (1.35)          | 5.79 (1.36)           |
| <i>Others in traffic or public transport</i>        | 5.69 (1.44)          | 5.75 (1.41)           |
| Compliance scale measure                            | 5.34 (1.22)          | 5.43 (1.23)           |

*Note.* Standard deviations between parentheses.

**Practical capacity to comply.** Participants' practical capacity to comply with safe-distance measures in practice was measured by means of seven items, based on our measures of compliance. Participants were asked whether they were capable of keeping a safe distance (1.5 meters or more) from: 1) "others outside of my direct household," 2) "my neighbors," 3) "colleagues at work," 4) "friends and family from outside of my direct household," 5) "others when grocery shopping," 6) "others when taking a walk or exercising," and 7) "others in traffic or public transport" (1 = "disagree completely," 7 = "agree completely"). Responses were combined into a single scale measure (Survey 5:  $\alpha = .82$ ; Survey 6:  $\alpha = .82$ ), with higher scores indicating greater practical capacity to comply with COVID-19 mitigation measures.



**Knowledge of the rules.** To assess their knowledge of COVID-19 mitigation measures, we asked participants to indicate whether current measures required them to keep a safe distance (1.5 meters or more) from others (1 = yes, 2 = no, 3 = don't know). Their responses were recoded to reflect accurate knowledge of the current mitigation rules (1 = yes, 0 = no or don't know).

**Perceived clarity of measures.** One item was solicited to assess the perceived clarity of the measures taken by the authorities to reduce the spread of the Coronavirus (1 = "extremely unclear," 7 = "extremely clear").

**Impulsivity.** Impulsivity was measured by means of a subset of five items taken from the 8-item impulse control subscale from the Weinberger Adjustment Inventory (WAI; Weinberger and Schwartz 1990): 1) "I should try harder to control myself when I'm having fun," 2) "I do things without giving them enough thought," 3) "When I'm doing something fun (like partying or acting silly), I tend to get carried away and go too far," 4) "I say the first thing that comes to my mind without thinking enough about it," and 5) "I stop and think things through before I act" (1 = "false," 5 = "true;" last item reverse coded). Participants' answers were combined into a scale measure (Survey 5:  $\alpha = .78$ ; Survey 6:  $\alpha = .76$ ), with higher scores indicating greater impulsivity.

**Opportunity to violate.** Opportunity to violate safe-distance measures in practice was measured by means of seven items (again based on our measures of compliance). Participants were asked whether, at the present time, it was still possible for them to come within an unsafe distance (closer than 1.5 meters) from: 1) "others outside of my direct household," 2) "my neighbors," 3) "colleagues at work," 4) "friends and family from outside of my direct household," 5) "others when grocery shopping," 6) "others when taking a walk or exercising," and 7) "others in traffic or public transport" (1 = "disagree completely," 7 = "agree completely"). Again, participants' responses were aggregated into a single scale measure (Survey 5:  $\alpha = .90$ ; Survey 6:  $\alpha = .89$ ), with higher scores indicating greater practical opportunity to violate COVID-19 mitigation measures.

**Substantive support for measures.** To assess participants' substantive support for COVID-19 mitigation measures, we measured two (interrelated) constructs: (1) their moral alignment with mitigation measures, and (2) their evaluation of the authority's response to COVID-19.

**Moral alignment.** Moral alignment with the current COVID-19 mitigation measures was measured by means of a single item, which assessed to which extent participants "morally believe(d) that people should keep a safe distance from others (1.5 meters or more) in order to contain the Coronavirus" (1 = "strongly disagree," 7 = "strongly agree").

**Evaluation of authority response.** Support for current policies was measured using two items. These asked to which extent participants believed the authorities to have been 1) "consistent," and 2) "adequate" in their response to contain the Coronavirus (1 = "strongly disagree," 7 = "strongly agree"). A scale measure was constructed from their responses (Survey 5:  $\alpha = .81$ ; Survey 6:  $\alpha = .86$ ), with higher scores indicating greater support for current policies.

**Emotional state due to COVID-19.** To assess participants' emotional state due to COVID-19, we measured six items negative emotions. Participants indicated to what extent the Coronavirus made them feel 1) "angry," 2) "scared," 3) "powerless," 4) "depressed," 5) "stressed," and 6) "lonely" (1 = "strongly disagree," 7 = "strongly agree"). They were aggregated into a scale measure (Survey 5:  $\alpha = .88$ ; Survey 6:  $\alpha = .88$ ), with higher scores indicating more negative emotions.

**Obligation to obey the law.** To assess participants' obligation to obey the law, we measured three (interrelated) constructs: (1) normative obligation to obey the authorities, (2) non-normative obligation to obey the authorities, and (3) personal rule orientation.

**Normative obligation to obey the authorities.** Three items solicited participants' normative obligation to obey the authorities handling the Coronavirus (adapted for this study following Posch et al. 2020, Tankebe, Reisig, and Wang 2016): 1) "I feel a moral obligation to obey the authorities handling the Coronavirus," 2) "I feel a moral duty to support the decisions of the authorities handling the Coronavirus, even if I disagree with them," and 3) "I feel a moral duty to obey the instructions of the authorities handling the Coronavirus, even when I don't understand the reasons behind them" (1 =

“strongly disagree,” 5 = “strongly agree”). Answers were aggregated into a scale measure (Survey 5:  $\alpha = .86$ ; Survey 6:  $\alpha = .87$ ). Higher scores indicated greater normative obligation to obey.

***Non-normative obligation to obey the authorities.*** Additionally, three items solicited participants’ non-normative obligation to obey the authorities handling the Coronavirus (again adapted for this study following Posch et al. 2020, Tankebe, Reisig, and Wang 2016): 1) “people like me have no choice but to obey the authorities handling the Coronavirus,” 2) “if you don’t do what the authorities handling the Coronavirus tell you they will treat you badly,” and 3) “I only obey the authorities handling the Coronavirus because I am afraid of them” (1 = “strongly disagree,” 5 = “strongly agree”). In either survey, the first item correlated poorly with the other items, and thus was eliminated. Responses to items 2 and 3 combined into a scale measure (Survey 5:  $\alpha = .65$ ; Survey 6:  $\alpha = .60$ ), with higher scores indicating greater non-normative obligation to obey.

***Personal rule orientation.*** We measured participants’ generalized belief in the acceptability of violating legal rules by means of the 12-item Rule Orientation scale (Fine et al. 2016). This instrument assesses the perceived acceptability of breaking legal rules across a range of situations (e.g., when the rule is against one’s moral principles; when the rule is not enforced; when others think that breaking the rule is justified, etc; 1 = “strongly disagree,” 7 = “strongly agree”). A scale measure was constructed by aggregating participants’ responses (Survey 5:  $\alpha = .90$ ; Survey 6:  $\alpha = .90$ ), with higher scores indicating greater rule orientation.

***Costs and benefits of compliance.*** To examine participants’ perceptions of the costs and benefits of compliance, we measured (1) their perceptions of the costs of compliance, and (2) their perceptions of the threat of COVID-19.

***Costs of compliance.*** Five items were solicited to assess the costs that participants anticipated as a result of the Coronavirus. Specifically, we asked them to indicate how likely it was that they would 1) “lose income,” 2) “lose their job,” 3) “not be able to work,” 4) “not be able to work as effectively as normal,” and 5) “experience a negative impact on their social life” (1 = “extremely

unlikely,” 7 = “extremely likely”). These were combined into a scale measure of costs of compliance (Survey 5:  $\alpha = .78$ ; Survey 6:  $\alpha = .79$ ), with higher scores indicating greater costs.

**Perceived health threat.** Perceived health threat was measured by means of three items, which asked participants to indicate to what extent they believed the Coronavirus to be a major threat to i) themselves, ii) friends and relatives, and iii) the general public (1 = “strongly disagree,” 7 = “strongly agree”). Their answers were combined into a scale measure (Survey 5:  $\alpha = .87$ ; Survey 6:  $\alpha = .89$ ), with higher scores indicating greater perceived health threat.

**Deterrence.** Deterrence perceptions were assessed by means of two (interrelated) constructs: (1) perceptions of punishment certainty, and (2) perceptions of punishment severity.

**Punishment certainty.** To assess perceptions of the likelihood of punishment for violating safe-distance measures, two questions were asked. These assessed the perceived likelihood that the authorities would 1) “find out,” and 2) “punish [them]” if they would not keep a safe distance (1.5 meters or more) from others (1 = “very improbable”; 7 = “very probable”). Both items were aggregated into a scale measure (Survey 5:  $\alpha = .78$ ; Survey 6:  $\alpha = .81$ ), with higher scores indicating greater perceived likelihood of punishment.

**Punishment severity.** One item examined perceived severity of punishment for violating safe-distance measures. Participants indicated how much they would “suffer” if the authorities would punish them for not keeping a safe distance (1.5 meters or more) from others (1 = “extreme suffering”; 6 = “no suffering at all”). The item was reverse-coded so that higher scores indicate greater perceived severity of punishment.

**Procedural justice of enforcement.** Perceptions of the procedural fairness of the enforcement of COVID-19 mitigation measures were measured by means of four items (adapted from Baker and Gau 2018, Gau 2014, Tyler 1997, Wolfe et al. 2016): Participants were asked whether, in enforcing the measures to reduce the spread of the Coronavirus, they expected that the authorities would: 1) “treat people with respect,” 2) “give a person the chance to tell their side of the story if the person is accused of violating measures to contain the Coronavirus,” 3) “treat people fairly, despite

gender, race, religion, or socioeconomic background,” and 4) “be honest in enforcing measures to contain the Coronavirus” 1 = “strongly disagree,” 7 = “strongly agree”). Participants’ responses were aggregated into a scale measure of the perceived procedural fairness of enforcement (Survey 5:  $\alpha = .90$ ; Survey 6:  $\alpha = .91$ ).

**Descriptive social norms.** Seven items (again based on our measure of compliance) assessed perceived descriptive social norms regarding safe-distancing measures: Participants were asked whether most people they knew were keeping a safe distance (1.5 meters or more) from: 1) “others outside of my direct household,” 2) “my neighbors,” 3) “colleagues at work,” 4) “friends and family from outside of my direct household,” 5) “others when grocery shopping,” 6) “others when taking a walk or exercising,” and 7) “others in traffic or public transport” (1 = “disagree completely,” 7 = “agree completely”). Participants’ answers were combined into a scale measure of perceived descriptive norms (Survey 5:  $\alpha = .90$ ; Survey 6:  $\alpha = .90$ ). Higher scores indicate greater perceived compliance within one’s social environment (i.e., descriptive norms).

## Results

### Understanding compliance in the 1.5 meter society: What sustained compliance in July?

Our first major question is to understand which processes sustained compliance with COVID-19 mitigation measures within the Netherlands during the month of July. To this end, we first examine how compliance with the current measures was predicted by the personal, social, and contextual processes that are advanced by our theoretical model. To do so, we conducted linear (OLS) regression analyses, in which Dutch citizens’ (self-reported) compliance with social distancing measures was regressed upon these variables (for a similar approach, see Reinders Folmer et al., 2020; Kuiper et al. 2020; van Rooij et al. 2020).

As such, we performed ordinary least-squares regression analyses using the compliance measure as the dependent variable. We firstly estimated a model in which all demographical and control variables (Table 1) were entered as predictors, in order to identify relevant covariates. Then, we estimated a model that entered all independent variables as predictors, along with the covariates

identified in the previous analysis. All analyses were adjusted for heteroscedasticity using Huber/White robust standard error estimation.

**Table 3.**

*Descriptive statistics of independent variables, July Surveys (Survey 5 and 6).*

|                                     | Survey 5 (July 7-10) | Survey 6 (July 21-23) |
|-------------------------------------|----------------------|-----------------------|
| Capacity to comply                  |                      |                       |
| <i>Practical capacity to comply</i> | 5.34 (1.02)          | 5.33 (1.02)           |
| <i>Knowledge of measures</i>        | 91.6%                | 91.2%                 |
| <i>Clarity of measures</i>          | 5.29 (1.38)          | 5.43 (1.35)           |
| <i>Impulsivity</i>                  | 2.13 (0.84)          | 2.07 (0.81)           |
| Opportunity to violate              | 5.01 (1.38)          | 4.99 (1.34)           |
| Substantive support for measures    |                      |                       |
| <i>Moral alignment</i>              | 5.52 (1.50)          | 5.81 (1.46)           |
| <i>Authority response</i>           | 5.13 (1.37)          | 4.97 (1.50)           |
| Negative emotions                   | 3.05 (1.40)          | 3.13 (1.41)           |
| Obligation to obey the law          |                      |                       |
| <i>Normative obligation</i>         | 3.77 (0.81)          | 3.80 (0.84)           |
| <i>Non-normative obligation</i>     | 2.20 (0.81)          | 2.22 (0.83)           |
| <i>Rule orientation</i>             | 4.32 (1.15)          | 4.40 (1.19)           |
| Costs and benefits                  |                      |                       |
| <i>Costs of compliance</i>          | 3.21 (1.31)          | 3.28 (1.34)           |
| <i>Perceived health threat</i>      | 4.78 (1.39)          | 5.03 (1.43)           |
| Deterrence                          |                      |                       |
| <i>Punishment certainty</i>         | 2.66 (1.40)          | 2.98 (1.46)           |
| <i>Punishment severity</i>          | 3.09 (1.60)          | 3.43 (1.38)           |
| Procedural justice of enforcement   | 5.87 (1.18)          | 5.74 (1.28)           |
| Descriptive social norms            | 4.75 (1.20)          | 4.68 (1.22)           |

*Note.* Standard deviations between parentheses.

**Effect of demographic variables.** Table 4 displays the results of the regression models that included only the demographic variables.<sup>3</sup> Across both surveys, Dutch citizens who were older, more highly educated, had health conditions that put them at greater risk of COVID-19, and had greater trust in science and the media displayed greater (self-reported) compliance. Furthermore, compliance with safe-distance measures was greater (relative to progressive individuals) among participants who preferred to not divulge their political orientation. Finally, in the late July survey, compliance also

<sup>3</sup> Collinearity statistics indicated no issues with multicollinearity (all VIFs  $\leq$  1.37; all tolerances  $\geq$  .72).

was greater among individuals who experienced positive changes to their socio-economic status, and those knowing others with health risks. To ensure comparability between the analyses, all demographic variables with significant effects on compliance (i.e., age, education, health issues placing oneself at risk, health issues placing others at risk, conservatism, trust in science, and trust in the media) were included as covariates in subsequent models, in which the independent variables were added as predictors.

**Table 4.**

*Linear regression, compliance with mitigation measures by demographic and control variables.*

|   | <b>Early July</b> | <b>Late July</b> |
|---|-------------------|------------------|
| <b>Demographic variables</b>            |                   |                  |
| Age                                     | .01*** (.00)      | .01*** (.00)     |
| Gender (female)                         | .08 (.08)         | .04 (.08)        |
| Minority                                | .34 (.20)         | .05 (.20)        |
| Education                               | .10*** (.02)      | .03 (.02)        |
| Employed                                | -.11 (.09)        | .01 (.09)        |
| Care professionally for COVID patients  | -.19 (.14)        | -.09 (.16)       |
| Socio-economic status, pre-COVID        | -.01 (.02)        | -.02 (.02)       |
| Socio-economic status change (post-pre) | -.00 (.04)        | .09* (.04)       |
| Health issues placing oneself at risk   | .40*** (.08)      | .32*** (.09)     |
| Health issues placing others at risk    | .11 (.08)         | .16* (.08)       |
| Trust in science                        | .34*** (.05)      | .32*** (.09)     |
| Trust in media                          | .09* (.03)        | .09* (.04)       |
| Political orientation (conservative)    | .16 (.08)         | -.05 (.09)       |
| Political orientation (not disclosed)   | .22* (.09)        | .27** (.09)      |
|   |                   |                  |
| Constant                                | 2.49*** (.30)     | 2.92*** (.31)    |
|   |                   |                  |
| <b>Rsqr</b>                             | <b>.17</b>        | <b>.16</b>       |

*Note.* Robust standard errors between parentheses. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

**Effect of independent variables.** The results of both analyses are displayed in Table 5<sup>4</sup>. They show that the factors that predicted compliance for the most were highly similar across both time points. Dutch citizens complied more with COVID-19 mitigation measures if they had greater practical capacity to keep at a safe distance from others. Also, people who regarded the COVID-19 pandemic as more threatening complied more, as did people who experienced more negative emotions as a result of the virus. Compliance was also greater among people who agreed more with the measures, and experienced a stronger normative obligation to obey them. People also complied more if they perceived that others in their social environment engaged in social distancing (i.e., social norms). Conversely, people with poor impulse control were less inclined to comply, as were people who perceived greater opportunities to violate safe-distance measures.

There were also some factors that inconsistently predicted compliance in either survey. In early July (Survey 5), but not in late July (Survey 6), compliance was greater among people who displayed a stronger tendency toward obeying legal rules in general. Conversely, in late July (Survey 6), but not in early July (Survey 5), compliance was lower among people whose obedience was mostly based on fear of authorities. Compliance was also lower in early July (but not in late July) among people who reported more favorable evaluations of the authority's response to COVID-19.

### **Development of compliance levels, early May to late July**

In previous surveys, we have tracked Dutch citizens' compliance with COVID-19 mitigation measures from early May to late June (Reinders Folmer et al., 2020a, 2020b). How has citizens' compliance evolved during the month of July? To explore this question, we next compare self-reported compliance levels from early May (Survey 1) to late July (Survey 6). To do so, we focus on two indicators. First, we compared participants' average levels of self-reported compliance. This comparison will reveal how participants' relative levels of compliance (between 1 = "never" and 7 = "always") has developed across the four surveys. Secondly, we compared frequencies of full compliance (i.e., counting the number of times that participants fully comply with safe-distance

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<sup>4</sup> Again, collinearity statistics indicated no issues with multicollinearity (all VIFs  $\leq 2.80$ ; all tolerances  $\geq .36$ ).



**Table 5.**

Linear regression, compliance with mitigation measures by demographic variables.

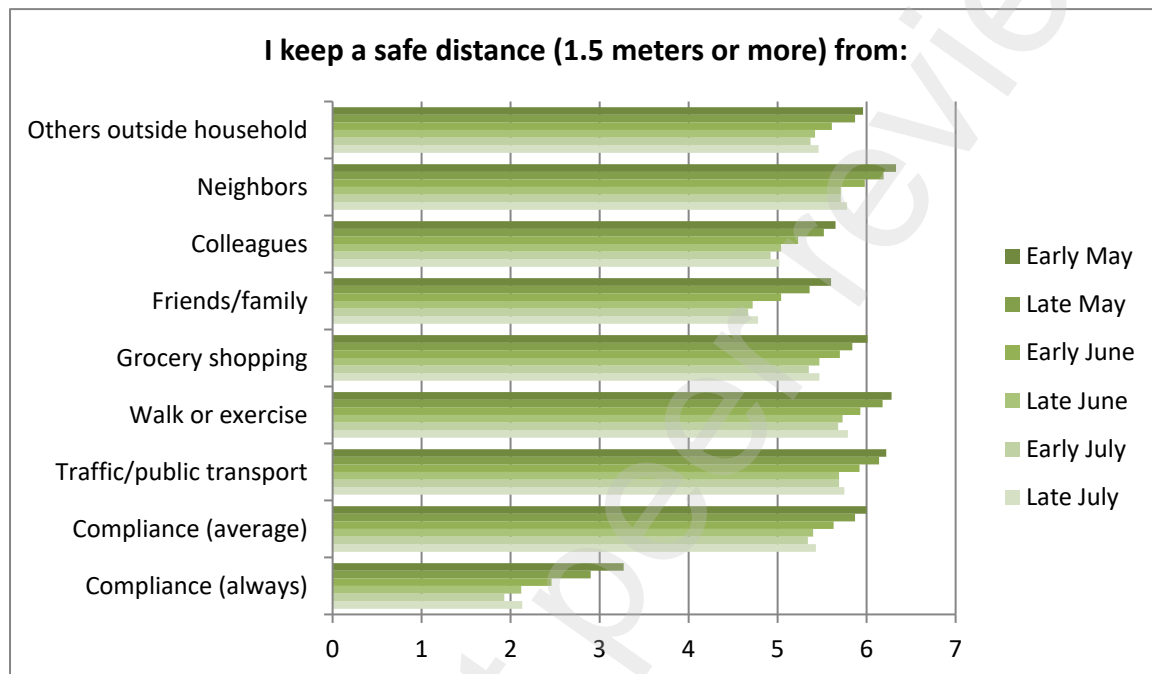
|                                       | Early July   | Late July    |
|---------------------------------------|--------------|--------------|
| <b>Independent variables</b>          |              |              |
| Capacity to comply                    |              |              |
| <i>Practical capacity to comply</i>   | .44*** (.04) | .44*** (.04) |
| <i>Knowledge of measures</i>          | .16 (.10)    | .09 (.11)    |
| <i>Clarity of measures</i>            | .01 (.02)    | .01 (.02)    |
| <i>Impulsivity</i>                    | -.12** (.03) | -.10** (.03) |
| Opportunity to violate                | -.05** (.02) | -.04* (.02)  |
| Substantive support                   |              |              |
| <i>Moral alignment</i>                | .19*** (.03) | .18*** (.03) |
| <i>Authority response</i>             | -.06** (.02) | -.04 (.02)   |
| Negative emotions                     | .06** (.02)  | .06** (.02)  |
| Obligation to obey the law            |              |              |
| <i>Normative obligation</i>           | .12* (.04)   | .12*** (.04) |
| <i>Non-normative obligation</i>       | -.05 (.04)   | -.12** (.04) |
| <i>Rule orientation</i>               | .06* (.03)   | .03 (.03)    |
| Costs and benefits                    |              |              |
| <i>Costs of compliance</i>            | .04 (.02)    | .04 (.02)    |
| <i>Perceived health threat</i>        | .10*** (.03) | .13*** (.03) |
| Deterrence                            |              |              |
| <i>Punishment certainty</i>           | .01 (.02)    | .01 (.02)    |
| <i>Punishment severity</i>            | -.01 (.02)   | -.00 (.02)   |
| Procedural justice of enforcement     | -.00 (.02)   | -.04 (.02)   |
| Descriptive social norms              | .13*** (.03) | .17*** (.03) |
|                                       |              |              |
| <b>Control variables</b>              |              |              |
| Age                                   | .01*** (.00) | .01*** (.00) |
| Education                             | .05** (.01)  | .02 (.01)    |
| SES change                            | -.01 (.03)   | .06 (.03)    |
| Health issues placing oneself at risk | .07 (.06)    | .08 (.06)    |
| Health issues placing others at risk  | .03 (.05)    | .04 (.05)    |
| Trust in science                      | .03 (.03)    | .02 (.03)    |
| Trust in media                        | -.05 (.02)   | -.06* (.03)  |
| Political orientation (conservative)  | .02 (.05)    | -.06 (.06)   |
| Political orientation (not disclosed) | .04 (.06)    | .16** (.06)  |
|                                       |              |              |
| Constant                              | -0.57 (.31)  | 0.17 (.30)   |
|                                       |              |              |
| <b>Rsqr</b>                           | <b>.62</b>   | <b>.61</b>   |

Note. Robust standard errors between parentheses. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

measures [7 = “always”] in each of the seven situations). The latter indicator exploits the notion that all participants who report anything less than full compliance admit to having violated the mitigation measures. As such, this represents a more restrictive measure of compliance than the average.

**Figure 1.**

*Compliance with safe-distance measures, early May to late July.*



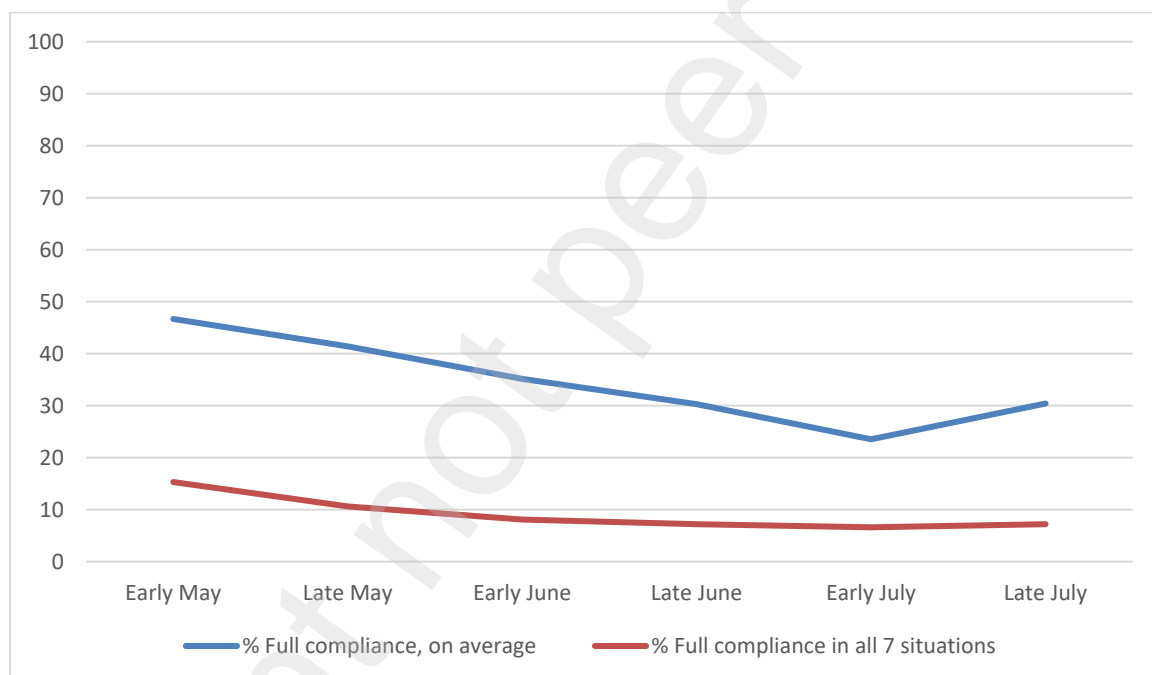
**Average compliance.** Levels of average compliance from early May to late July are displayed in Figure 1. Visually, the pattern suggests a mildly declining pattern in compliance with safe-distance measures from early May to late June. In early July, this decline appears to continue, but then seemed to halt, or even mildly reverse, in late July. As our previous working papers have focused on the months of May and June (Reinders Folmer et al., 2020a, 2020b), comparisons between these periods will not be repeated here. Instead, the analyses reported here will focus on two major questions: 1) whether compliance in July declined relative to the month of June, and 2) whether compliance in late July increased relative to early July. To test this statistically, we compared compliance levels between the six waves by means of an analysis of covariance (ANCOVA), with parameter estimates with robust standard errors (HC3). We zoomed in on the period between early June and late July by means of planned contrasts (L-matrices). The analyses controlled for age,

education, health issues placing oneself at risk, health issues placing others at risk, conservatism, trust in science, and trust in the media.

The results revealed that relative to June, compliance did indeed decline in July, ( $F(1, 6151) = 14.41, p < .001$ , Cohen's  $d = .09$ ). Relative to early June, compliance was lower both in early July ( $F(1, 6151) = 34.65, p < .001$ , Cohen's  $d = .15$ ) and late July ( $F(1, 6151) = 15.13, p < .001$ , Cohen's  $d = .09$ ). However, compared to late June, compliance was not significantly lower in early July ( $F(1, 6151) = 2.16, p = .14$ , Cohen's  $d = .00$ ) or late July ( $F(1, 6151) = 0.23, p = .63$ , Cohen's  $d = .00$ ).

**Figure 2.**

*Full compliance, early May to late July*



**Full compliance.** Levels of full compliance from early May to late July are displayed in Figure 2. Given that these represent count variables (i.e., the number of times [out of the 7 situations] that participants reported “always” complying), we relied on negative binomial regression to test their evolution from June to July. Again, we controlled for age, education, health issues placing oneself at risk, health issues placing others at risk, conservatism, trust in science, and trust in the media. The analysis revealed a significant difference in full compliance levels between all six waves, Wald  $\chi^2(5) = 173.56, p < .001$ . Zooming in on the period from early June to late July (by means of planned

contrasts), levels of full compliance declined by 20.8% from early June to early July (Wald  $\chi^2(1) = 24.01, p < .001$ ), and by 13.7% from early June to late July (Wald  $\chi^2(1) = 9.61, p < .005$ ). However, compared with the levels in late June, full compliance was not significantly lower in early July (Wald  $\chi^2(1) = 3.67, p = .05$ ) or in late July (Wald  $\chi^2(1) = 0.02, p = .88$ ).

Figure 2 displays the frequency of full compliance, in terms of (1) the percentage of participants that display full compliance, on average across the seven situations, and (2) the percentage of participants that display full compliance in all seven situations. From early May to early July, mean full compliance rates declined from an average of 46.7% (across all seven situations) to 23.5%. When zooming in on the number of participants who fully complied in all seven situations, this declined from 15.3% to 6.6%. By late July, however, mean rates of full compliance recovered to 30.4%, while the percentage of people who complied fully in all seven situations increased slightly to 7.2%.

In sum, these findings demonstrate that the compliance of Dutch citizens with safe-distancing measures has ceased to decline during the month of July – and provide some tentative indications that towards the end of the month, compliance levels may have been increasing again. We next turn to the question how the resources that have been sustaining compliance (those that we found to be significantly associated with compliance in the regression models) have developed across this period.

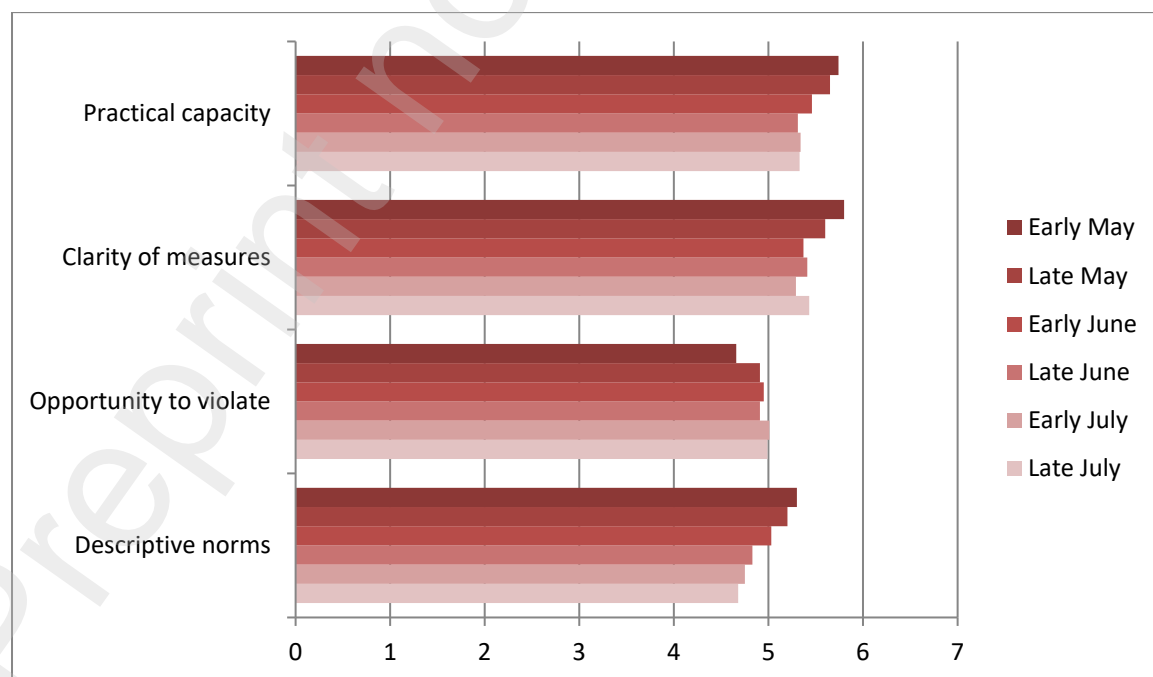
### **Development of resources for compliance, early May to late July**

Our regression analyses identified several processes that seem to have sustained compliance with safe-distance measures, including citizens' practical capacity to keep a safe distance from others, their agreement with mitigation measures, and perceptions of the threat of the COVID-19 virus. How have these and other resources developed across the month of July, and what may that imply for compliance with mitigation measures in the future? To explore these questions, we plotted their development from early May to late July, and statistically tested their evolution since June using analyses of covariance with parameter estimates with robust standard errors.

**Capacity to comply.** We first considered respondents' capacity to comply with social distancing measures (Figure 3). From early May to late June, a significant decline in capacity to comply was observed (see Reinders Folmer et al., 2020b). Relative to early June, Dutch citizens' capacity to comply was significantly lower in early July ( $F(1, 6151) = 8.13, p < .005$ , Cohen's  $d = .06$ ) and late July ( $F(1, 6151) = 7.96, p < .01$ , Cohen's  $d = .06$ ). But compared to the level in late June, their capacity to comply did not decline further in early July ( $F(1, 6151) = 0.22, p = .64$ , Cohen's  $d = .00$ ), nor in late July ( $F(1, 6151) = 0.22, p = .64$ , Cohen's  $d = .00$ ). Similarly, logistic regression indicated that, relative to early June (91.9% correct) and late June (91.7% correct), knowledge of safe distance measures among Dutch citizens did not decline significantly in early July (91.6% correct) or late July (91.2% correct), all Wald  $\chi^2$ s  $< 0.02$ , all  $p$ s  $> .65$ . Although perceptions of the clarity of mitigation measures initially decreased from late June to early July ( $F(1, 6151) = 6.95, p < .01$ , Cohen's  $d = .06$ ), these were no longer lower by the end of July ( $F(1, 6151) = 0.06, p = .81$ , Cohen's  $d = .00$ ). In sum, the erosion of Dutch citizens' capacity to comply seems to have halted toward the end of July.

**Figure 3.**

*Capacity to comply, opportunities for violating, and social norms regarding safe-distance measures, early May to late July.*



**Opportunity to violate and social norms.** During the month of May, Dutch citizens showed a clear increase in perceived opportunities to violate safe-distance measures (Reinders Folmer et al., 2020a). But relative to the level in June, perceived opportunities for violating did not increase significantly in July, ( $F(1, 6151) = 3.17, p = .07$ , Cohen's  $d = .06$ ). However, relative to June, perceived social norms toward compliance continued to decline in July, ( $F(1, 6151) = 42.42, p < .001$ , Cohen's  $d = .17$ ). Thus, even though their own capacity to comply has ceased to decline, Dutch citizens nevertheless continued to perceive social norms that sustained compliance as eroding.

**Figure 4.**

*Substantive support, early May to late July.*



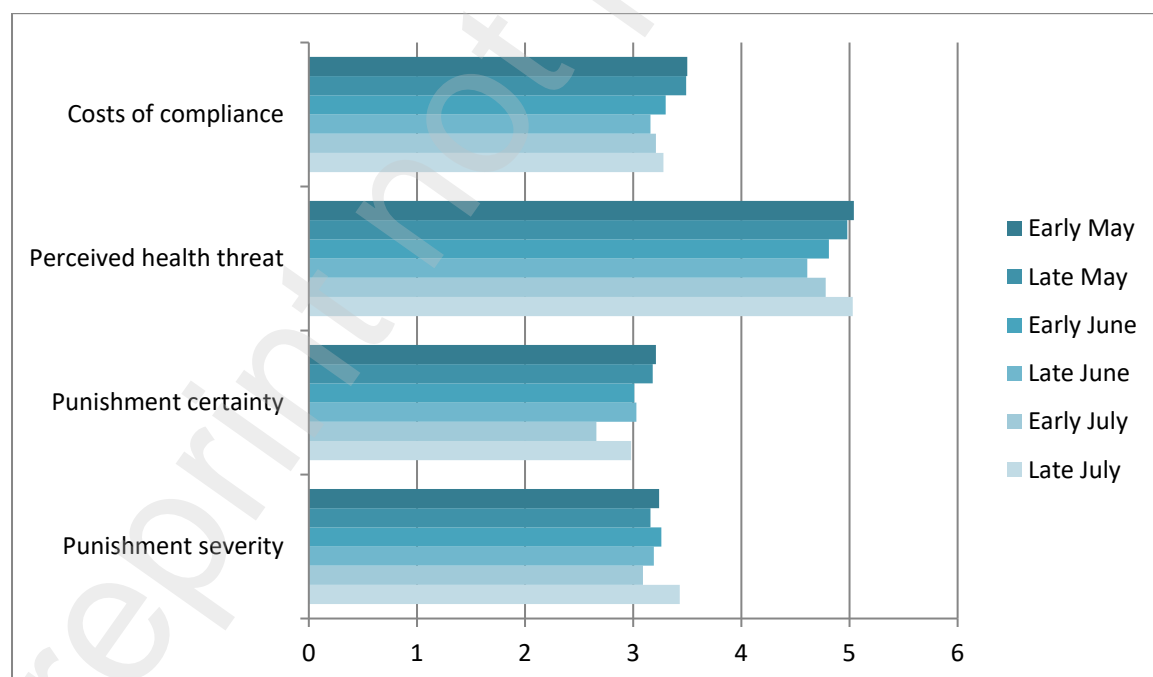
**Substantive support.** Figure 4 displays how Dutch citizens' substantive support for safe-distance measures has evolved from early May to late July. From May to June, we previously observed a significant decline in substantive support (in moral alignment with safe-distancing measures, normative obligation to obey the law, and obligation to obey rules in general; see Reinders Folmer et al., 2020b). From June to July, however, moral alignment with safe-distancing measures recovered, and the increase was significant,  $F(1, 6151) = 38.78, p < .001$ , Cohen's  $d = .15$ . Normative obligation to (unquestioningly) obey the authorities handling the Coronavirus also ceased to decline

from June to July ( $F(1, 6151) = 0.36, p = .55, \text{Cohen's } d = .00$ ); in late July, normative obligation was significantly higher again than in late June ( $F(1, 6151) = 6.94, p < .01, \text{Cohen's } d = .06$ ). The same applied for Dutch citizens' reported obligation to obey rules in general (i.e., rule orientation): here too, reported levels in July were no lower than in June ( $F(1, 6151) = 1.55, p = .21, \text{Cohen's } d = .00$ ), and by late July, it had increased significantly relative to late June ( $F(1, 6151) = 8.26, p < .005, \text{Cohen's } d = .06$ ). In sum, these results suggest that substantive support among Dutch citizens for COVID-19 mitigation measures is recovering.

No significant changes in non-normative obligation ( $F(1, 6151) = 0.73, p = .39, \text{Cohen's } d = .00$ ) were observed, however; perceptions of the procedural fairness of enforcement in fact declined somewhat relative to June ( $F(1, 6151) = 4.42, p < .05, \text{Cohen's } d = .06$ ). This was also the case for evaluations of the authority response, which by late July had declined significantly relative to the level in late June ( $F(1, 6151) = 10.92, p = .001, \text{Cohen's } d = .09$ ). These findings possibly reflect the notion that considerable regional differences in enforcement were exposed during this period.<sup>iv</sup>

**Figure 5.**

*Perceptions of costs and benefits and enforcement of compliance, early May to late July.*



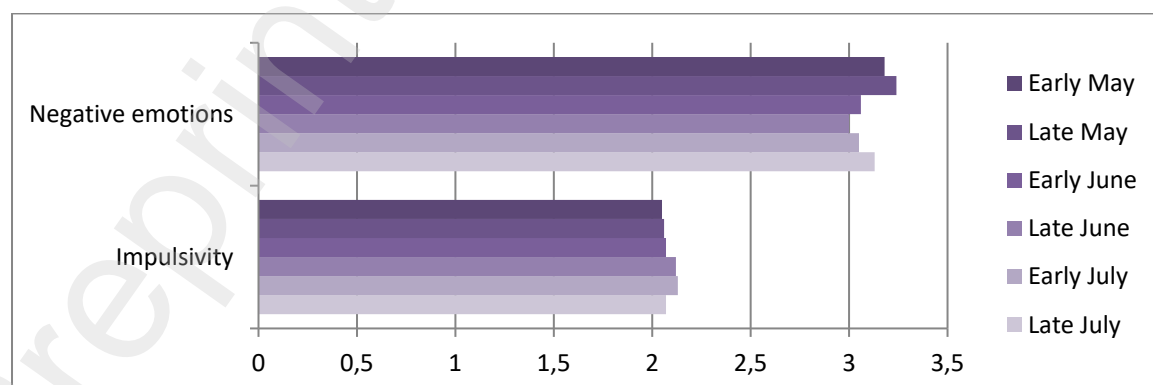
**Costs and benefits and enforcement.** Figure 5 displays the evolution of perceptions of the cost and benefits of compliance, and perceptions related to the enforcement of mitigation measures.

From May to June, a decline was observed in the perceived costs and benefits of compliance (i.e., personal costs, perceived health threat), as well as in the perceived likelihood of receiving punishment for violations (Reinders Folmer et al., 2020b). From June to July, the personal costs of compliance ceased to decline, however ( $F(1, 6151) = 0.04, p = .84, \text{Cohen's } d = .00$ ). Indeed, perceptions of the health threat of the virus increased relative to June ( $F(1, 6151) = 28.19, p < .001, \text{Cohen's } d = .14$ ), in line with the increase in reported infections during this period.<sup>iii</sup> With regard to the certainty of punishment, perceptions continued to fall in early July ( $F(1, 6151) = 5.91, p < .05, \text{Cohen's } d = .06$ ), but were restored by late July ( $F(1, 6151) = 0.53, p = .46, \text{Cohen's } d = .00$ ), whereas perceptions of punishment severity in fact increased by late July relative to late June ( $F(1, 6151) = 15.45, p < .001, \text{Cohen's } d = .11$ ). These findings also may reflect reports on the strictness of enforcement that emerged during this period.<sup>iv</sup>

**Negative emotions and impulsivity.** Finally, Figure 6 displays participants' reported negative emotions, as well as their levels of impulsivity. From May to June, there was a slight decline in Dutch citizens' reported negative emotions (but no change in impulsivity, see Reinders Folmer et al., 2020b). Relative to late June, negative emotions were significantly higher by late July ( $F(1, 6151) = 4.16, p < .05, \text{Cohen's } d = .06$ ). Levels of impulsivity were not significantly higher in July than in June ( $F(1, 6151) = 0.02, p = .88, \text{Cohen's } d = .00$ ).

**Figure 6.**

*Negative emotions and impulsivity, early May to late July.*





In sum, the decline in compliance with safe-distance measures that was observed from May to June seems to have halted in July, and has potentially started to reverse. This is also reflected in some of the key processes that sustain compliance; Dutch citizens' capacity to comply has ceased to decline, whereas perceptions of the threat of the virus, and their substantive support for mitigation measures, are on the rise again. Given that these variables all had positive effects on compliance in our regressions, these trends are likely to facilitate compliance with safe-distance measures. Nevertheless, perceived social norms for compliance continue to be eroding, which may continue to hinder people's tendency to comply.

### **Discussion**

During the month of July, the Netherlands implemented further relaxations to its (already comparatively lenient) COVID-19 mitigation measures. However, the Dutch approach continues to rely on safe-distance measures, by requiring citizens to keep a safe distance (i.e., 1.5 meters or more) from others. The month of July saw heated debate, and even protest, over such measures, and a reversal to the (previously declining, but now accelerating) infection rates. The findings of the July surveys indicate that in this context, the decline in compliance that was observed in May and June (Reinders Folmer et al., 2020b) has ceased, as has the erosion of important resources that sustain it. Dutch citizens' practical capacities for complying is no longer falling, and perceptions of the threat of the virus in addition to support for mitigation measures have increased by the end of July. Nevertheless, perceived social norms for compliance have continued to wane, and thereby may continue to undermine a return to previous levels of compliance.

Across all six surveys, the resources for enabling compliance have largely been identical: greater practical capacity to comply, greater perceived threat of the virus, greater support for mitigation measures, and social norms for compliance (Reinders Folmer et al., 2020a, 2020b). Additionally, the data from late June suggested that, in an environment where compliance is waning, extrinsic reasons for complying (like deterrence and fairness of enforcement) may become more influential (Reinders Folmer et al., 2020b). This hypothesis was not supported by the data from July

however; neither deterrence, nor fairness was significantly associated with compliance. This confirms prior findings that enforcement may not be an influential factor in compliance with safe-distance measures (see Kuiper et al., 2020; Reinders Folmer et al., 2020a, 2020b). Interestingly, perceptions of deterrence and fairness did show significant changes relative to June, which possibly reflects regional differences that were exposed during this period.<sup>iv</sup>

Perceiving more opportunities to violate mitigation measures did undermine compliance in July, however, as had (intermittently) been the case in May and June. Also, some personal factors seemed to be influential; poor impulse control was associated with lower compliance, as was the case in May and June. More negative emotions as a result of COVID-19 were associated with greater compliance, as was the case in late June. Conversely, other individual predictors, like personal rule orientation and personal health threat, did not consistently replicate. A possible reason for this is the covariates that were included in the analysis, which partially differed from those in the previous waves. To better understand the processes that sustain compliance, a future paper will explore these mechanisms across all six waves in a longitudinal analysis.

A crucial question that emerges is how these insights may be utilized in policy in order to increase compliance with safe-distance measures. From the present findings, it is clear that interventions that increase citizens' capacity to comply, reduce their opportunities to violate, increase perceptions of the health threat of the virus, enhance support for mitigation measures, or strengthen social norms for compliance may have favorable effects. In line with these ideas, the Dutch government has sought to highlight the continued threat of the virus, to facilitate work from home, and to frame compliance as the social norm.<sup>v</sup> As the infection rate has increased near the end of July, it seems that these resources indeed can be effectively restored. The challenge, however, is how to do so when infection rates are receding. Because our surveys demonstrate that perceptions of threat and support for measures are especially vulnerable to waning, it may be that measures that bolster people's practical capacity to comply, or eliminate their opportunities to violate (e.g., technical aids, distance work, contact-minimizing layouts), are the most practical for policy to exploit. These should be targeted and proportionate (e.g., high-risk situations) in order to justify obvious limitations.

## Limitations

We must acknowledge some limitations to the present study. First, our surveys rely on self-reported measures, which may be subject to response biases, such as imperfect recall or social desirability bias (Bauhoff 2011, Van de Mortel 2008). We do note, however, that the finding of high self-reported compliance is in line with objective data from Google COVID19 Community Mobility.<sup>vi</sup> For instance, in July, Google COVID19 Community Mobility continued to show a large decrease in human activity trends compared to data from before the pandemic, specifically with regard to retail and recreation, use of transit stations, and visits to workplaces. Furthermore, prior research shows that there can be strong concordance between self-reported and objective compliance measures when surveys are used (for an overview, see Kuiper et al. 2020, p. 29). Particularly relevant is a recent study that demonstrated that social desirability bias did not inflate the estimates of compliance with COVID-19 measures in online surveys (Larsen, Nystrup, and Bang Petersen 2020).

Finally, the analyses presented in this working paper focus solely on main effects, and do not yet explore changes across all six waves, interactions or structural models. We will explore these in detail in a future manuscript.

## Conclusion

During the month of July, the Netherlands has further loosened prior implemented mitigation measures attempting to contain the spread of COVID-19. At the same time, it has continued to rely on citizens' own responsibility and sense of self-discipline to keep a safe distance from others. The results of the present surveys indicate that Dutch citizens' compliance with safe-distance measures has ceased to decline in July, as have some of the key resources that sustain it, notably: citizens' capacity to comply, support for mitigation measures, and threat perceptions. However, social norms that support compliance have continued to wane, and thus continue to threaten a restoration of compliance. In our future research, we will continue to monitor these processes, to understand if (and why) the Dutch approach may avert a further wave of the pandemic.

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## Appendix A.1

*Kendall's tau correlations between demographic variables and compliance, Early July (Survey 5, N = 1064)*

|                     | Age     | Gender  | Employed | Education | Care for COVID | Minority | SES pre-COVID-19 | SES change | Health issues self | Health issues other | Conservatism | Trust in science | Trust in media |
|---------------------|---------|---------|----------|-----------|----------------|----------|------------------|------------|--------------------|---------------------|--------------|------------------|----------------|
| Gender              | -,201** |         |          |           |                |          |                  |            |                    |                     |              |                  |                |
| Employed            | -,092** | -,111** |          |           |                |          |                  |            |                    |                     |              |                  |                |
| Education           | -,101** | -0,009  | ,299**   |           |                |          |                  |            |                    |                     |              |                  |                |
| Care for COVID      | -,082** | ,084**  | ,163**   | 0,046     |                |          |                  |            |                    |                     |              |                  |                |
| Minority            | -,058*  | -0,009  | 0,010    | -,060*    | 0,023          |          |                  |            |                    |                     |              |                  |                |
| SES pre-COVID-19    | 0,035   | -,105** | ,234**   | ,271**    | 0,039          | -,081**  |                  |            |                    |                     |              |                  |                |
| SES change          | -0,016  | -0,019  | 0,014    | 0,010     | 0,023          | 0,004    | -,132**          |            |                    |                     |              |                  |                |
| Health issues self  | ,231**  | 0,007   | -,179**  | -,097**   | -0,004         | 0,003    | -,115**          | -0,023     |                    |                     |              |                  |                |
| Health issues other | ,075**  | ,091**  | -,106**  | 0,013     | 0,045          | -0,033   | -0,052           | -0,006     | ,296**             |                     |              |                  |                |
| Conservatism        | ,094**  | -,082*  | 0,035    | -,106**   | 0,013          | 0,004    | -0,028           | 0,040      | 0,006              | -0,004              |              |                  |                |
| Trust in science    | -0,025  | -0,020  | ,059*    | ,130**    | 0,025          | -,062*   | ,134**           | 0,029      | 0,015              | 0,025               | -,153**      |                  |                |
| Trust in media      | 0,023   | -0,027  | ,081**   | ,057*     | -0,002         | -0,030   | ,089**           | -0,012     | 0,017              | -0,026              | -,090**      | ,284**           |                |
| Compliance          | ,158**  | -0,005  | -0,049   | 0,044     | -,056*         | 0,018    | 0,012            | 0,022      | ,201**             | ,085**              | 0,017        | ,176**           | ,099**         |

Nb. \* – Correlation is significant at the .05 level. \*\* – Correlation is significant at the .01 level. Gender – Female as reference category. Minority – N = 1028, Conservatism – N = 754

## Appendix A.2

*Kendall's tau correlations between demographic variables and compliance, Late July (Survey 6, N = 1023)*

|                     | Age     | Gender  | Employed | Education | Care for COVID | Minority | SES pre-COVID-19 | SES change | Health issues self | Health issues other | Conservatism | Trust in science | Trust in media |
|---------------------|---------|---------|----------|-----------|----------------|----------|------------------|------------|--------------------|---------------------|--------------|------------------|----------------|
| Gender              | -,177** |         |          |           |                |          |                  |            |                    |                     |              |                  |                |
| Employed            | -,104** | -,178** |          |           |                |          |                  |            |                    |                     |              |                  |                |
| Education           | -,153** | -0,015  | ,270**   |           |                |          |                  |            |                    |                     |              |                  |                |
| Care for COVID      | -,062*  | 0,031   | ,148**   | ,069*     |                |          |                  |            |                    |                     |              |                  |                |
| Minority            | -,105** | 0,014   | 0,015    | -0,004    | ,126**         |          |                  |            |                    |                     |              |                  |                |
| SES pre-COVID-19    | 0,001   | -,106** | ,190**   | ,234**    | ,070*          | -,075**  |                  |            |                    |                     |              |                  |                |
| SES change          | 0,013   | -0,032  | -0,009   | -0,031    | 0,019          | 0,007    | -,133**          |            |                    |                     |              |                  |                |
| Health issues self  | ,218**  | -0,013  | -,188**  | -,107**   | 0,052          | 0,043    | -,124**          | -0,012     |                    |                     |              |                  |                |
| Health issues other | 0,032   | ,142**  | -0,059   | 0,020     | 0,017          | 0,026    | -0,042           | -0,040     | ,300**             |                     |              |                  |                |
| Conservatism        | ,113**  | -0,047  | ,080*    | -,063*    | 0,058          | -0,002   | -0,039           | ,071*      | 0,003              | -0,019              |              |                  |                |
| Trust in science    | -0,019  | 0,008   | 0,008    | ,087**    | 0,015          | -,062*   | ,111**           | 0,044      | 0,002              | ,060*               | -,115**      |                  |                |
| Trust in media      | 0,023   | 0,025   | -0,009   | 0,040     | 0,018          | -0,020   | ,067**           | ,055*      | 0,047              | -0,002              | -0,040       | ,301**           |                |
| Compliance          | ,180**  | 0,006   | -,057*   | -0,021    | -0,020         | -0,027   | -0,021           | ,053*      | ,178**             | ,088**              | -0,010       | ,166**           | ,113**         |

Nb. \* – Correlation is significant at the .05 level. \*\* – Correlation is significant at the .01 level. Gender – Female as reference category. Minority – N = 975, Conservatism – N = 715



## Appendix B.1

*Kendall's tau correlations between independent variables and compliance, Early July (Survey 5, N = 1064)*

|                         | Perceived health threat | Moral alignment | Evaluat. auth. response | Costs of compliance | Punishment certainty | Punishment severity | Capacity to comply | Opportunity to violate | Descr. soc. norms | Impulsivity | Rule orientation | Procedural justice enf. | Normative oblig. | Non-normative oblig. | Current measures | Clarity measures | Negative emotions |
|-------------------------|-------------------------|-----------------|-------------------------|---------------------|----------------------|---------------------|--------------------|------------------------|-------------------|-------------|------------------|-------------------------|------------------|----------------------|------------------|------------------|-------------------|
| Moral alignment         | ,484**                  |                 |                         |                     |                      |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Evaluat. auth. response | ,199**                  | ,315**          |                         |                     |                      |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Costs of compliance     | ,118**                  | 0,029           | -,055*                  |                     |                      |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Punishment certainty    | ,094**                  | 0,004           | 0,026                   | ,157**              |                      |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Punishment severity     | -,029                   | 0,023           | ,065**                  | -,118**             | -,091**              |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Capacity to comply      | ,255**                  | ,373**          | ,205**                  | -,0017              | 0,003                | ,045*               |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Opportunity to violate  | 0,001                   | ,048*           | -,0017                  | 0,012               | -,049*               | ,079**              | ,050*              |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Descr. social norms     | ,182**                  | ,268**          | ,238**                  | 0,000               | 0,036                | 0,015               | ,396**             | 0,021                  |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Impulsivity             | -,086**                 | -,120**         | -,0003                  | ,045*               | ,064**               | -,0004              | -,152**            | 0,005                  | -,094**           |             |                  |                         |                  |                      |                  |                  |                   |
| Rule orientation        | ,165**                  | ,256**          | ,174**                  | -,0040              | 0,032                | ,066**              | ,188**             | -,0013                 | ,096**            | -,181**     |                  |                         |                  |                      |                  |                  |                   |
| Procedural justice enf. | ,104**                  | ,148**          | ,134**                  | -,046*              | -,0040               | -,0010              | ,095**             | ,081**                 | ,071**            | -,104**     | ,043*            |                         |                  |                      |                  |                  |                   |
| Normative oblig.        | ,279**                  | ,442**          | ,322**                  | 0,037               | 0,018                | 0,025               | ,295**             | ,062**                 | ,214**            | -,115**     | ,311**           | ,187**                  |                  |                      |                  |                  |                   |
| Non-normative oblig.    | -,027                   | -,138**         | -,124**                 | ,142**              | ,134**               | -,152**             | -,048*             | -,052*                 | -,0029            | ,111**      | -,143**          | -,180**                 | -,069**          |                      |                  |                  |                   |

|                   |        |        |         |        |        |         |         |        |        |         |         |         |        |         |        |         |       |
|-------------------|--------|--------|---------|--------|--------|---------|---------|--------|--------|---------|---------|---------|--------|---------|--------|---------|-------|
| Current measures  | ,123** | ,153** | 0,043   | 0,011  | -0,009 | -,054*  | ,128**  | 0,022  | ,117** | -,101** | ,120**  | 0,026   | ,163** | -0,029  |        |         |       |
| Clarity measures  | ,192** | ,298** | ,352**  | -0,037 | 0,022  | ,079**  | ,257**  | 0,029  | ,199** | -,096** | ,206**  | ,106**  | ,323** | -,079** | ,097** |         |       |
| Negative emotions | ,104** | -0,004 | -,113** | ,338** | ,121** | -,186** | -,068** | -0,039 | -0,039 | ,096**  | -,082** | -,057** | -0,009 | ,226**  | 0,038  | -,086** |       |
| Compliance        | ,362** | ,464** | ,167**  | ,054*  | 0,024  | 0,006   | ,506**  | -0,010 | ,328** | -,198** | ,221**  | ,093**  | ,324** | -,068** | ,167** | ,231**  | 0,018 |

Nb. \* – Correlation is significant at the .05 level. \*\* – Correlation is significant at the .01 level.

## Appendix B.2

*Kendall's tau correlations between independent variables and compliance, Late July (Survey 6, N = 1023)*

|                         | Perceived health threat | Moral alignment | Evaluat. auth. response | Costs of compliance | Punishment certainty | Punishment severity | Capacity to comply | Opportunity to violate | Descr. soc. norms | Impulsivity | Rule orientation | Procedural justice enf. | Normative oblig. | Non-normative oblig. | Current measures | Clarity measures | Negative emotions |
|-------------------------|-------------------------|-----------------|-------------------------|---------------------|----------------------|---------------------|--------------------|------------------------|-------------------|-------------|------------------|-------------------------|------------------|----------------------|------------------|------------------|-------------------|
| Moral alignment         | ,504**                  |                 |                         |                     |                      |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Evaluat. auth. response | ,200**                  | ,301**          |                         |                     |                      |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Costs of compliance     | ,082**                  | 0,002           | -,074**                 |                     |                      |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Punishment certainty    | ,084**                  | -0,015          | 0,037                   | ,203**              |                      |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Punishment severity     | -0,017                  | ,085**          | ,124**                  | -,153**             | -,120**              |                     |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Capacity to comply      | ,214**                  | ,290**          | ,215**                  | -,050*              | 0,030                | ,071**              |                    |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Opportunity to violate  | -0,040                  | 0,044           | 0,013                   | -0,027              | -0,042               | 0,035               | 0,028              |                        |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Descr. social norms     | ,148**                  | ,177**          | ,206**                  | -0,025              | ,072**               | ,088**              | ,400**             | 0,038                  |                   |             |                  |                         |                  |                      |                  |                  |                   |
| Impulsivity             | -,072**                 | -,151**         | -0,041                  | 0,023               | ,067**               | -0,009              | -,134**            | -0,009                 | -,059**           |             |                  |                         |                  |                      |                  |                  |                   |
| Rule orientation        | ,168**                  | ,296**          | ,192**                  | -,083**             | -,058**              | ,101**              | ,169**             | 0,005                  | ,110**            | -,164**     |                  |                         |                  |                      |                  |                  |                   |
| Procedural justice enf. | ,104**                  | ,209**          | ,163**                  | -0,008              | -,083**              | 0,019               | ,127**             | 0,031                  | ,100**            | -,095**     | ,126**           |                         |                  |                      |                  |                  |                   |
| Normative oblig.        | ,304**                  | ,442**          | ,350**                  | 0,028               | 0,020                | ,105**              | ,227**             | 0,022                  | ,192**            | -,106**     | ,307**           | ,213**                  |                  |                      |                  |                  |                   |

|                      |        |         |         |        |        |         |         |         |         |         |         |         |         |         |        |         |        |
|----------------------|--------|---------|---------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|--------|
| Non-normative oblig. | 0,014  | -,168** | -,127** | ,143** | ,239** | -,123** | -0,045  | -,078** | -0,011  | ,166**  | -,222** | -,204** | -,111** |         |        |         |        |
| Current measures     | ,152** | ,199**  | ,141**  | -0,006 | -0,042 | -0,042  | ,124**  | 0,005   | ,083**  | -,124** | ,173**  | ,129**  | ,197**  | -,127** |        |         |        |
| Clarity measures     | ,250** | ,323**  | ,350**  | -0,039 | 0,025  | ,098**  | ,255**  | -0,009  | ,190**  | -,104** | ,211**  | ,176**  | ,325**  | -,096** | ,186** |         |        |
| Negative emotions    | ,105** | -0,036  | -,132** | ,307** | ,119** | -,140** | -,117** | -,078** | -,096** | ,111**  | -,121** | -,051*  | -0,030  | ,189**  | -0,037 | -,073** |        |
| Compliance           | ,360** | ,411**  | ,196**  | 0,021  | 0,021  | ,054*   | ,490**  | -,043*  | ,329**  | -,160** | ,203**  | ,120**  | ,290**  | -,097** | ,151** | ,274**  | -0,017 |

Nb. \* – Correlation is significant at the .05 level. \*\* – Correlation is significant at the .01 level.

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<sup>i</sup> <https://www.rijksoverheid.nl/actueel/nieuws/2020/06/24/per-1-juli-15-meter-blijft-norm>

<sup>ii</sup> <https://www.volkskrant.nl/tag/actiegroep-viruswaanzin>

<sup>iii</sup> <https://www.rivm.nl/nieuws/stijgende-trend-vastgestelde-besmettingen-covid-19-zet-door#Figuur1>

<sup>iv</sup> <https://www.volkskrant.nl/nieuws-achtergrond/grote-verschillen-in-coronaboetes-met-nijmegen-als-strengste-stad-van-het-land~beedd5fba/>

<sup>v</sup> <https://www.rijksoverheid.nl/onderwerpen/coronavirus-covid-19/documenten/mediateksten/2020/08/06/letterlijke-tekst-persconferentie-minister-president-rutte-en-minister-de-jonge-6-8-2020>

<sup>vi</sup> [https://www.gstatic.com/covid19/mobility/2020-08-07\\_NL\\_Mobility\\_Report\\_nl.pdf](https://www.gstatic.com/covid19/mobility/2020-08-07_NL_Mobility_Report_nl.pdf)