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## Fear of Coronavirus and Forbid/Allow Asymmetry as Determinants of Acceptance of COVID-19 Pandemic Related Restrictions and Persistence of Attitudes Towards These Regulations

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**Supplementary Materials:** Data [see Index of Supplementary Materials]



### Abstract

In this study (N = 110) factors influencing formation of attitudes toward COVID-19 related restrictions as well as factors influencing stability or change of these attitudes were tested. Specifically, the study concentrated on two possible determinants of formation and changing attitudes toward COVID-19 related restrictions – fear of coronavirus and presenting restriction in forbid vs. allow frames. A restriction presented in the forbid frame was rejected more strongly than a restriction presented in the allow frame. For changing attitudes, a mere thought paradigm was used. This activity was not able to change these negative attitudes toward a forbid framed restriction. A higher level of fear of coronavirus was related to a more positive (or rather – less negative) attitude toward an allow framed restriction and allows this attitude to be changed to be more supportive of restrictions than initially. Moreover, the effect of fear was partially mediated by the changes in the confidence of initial attitude inconsistent thoughts.



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## Keywords

fear of coronavirus, forbid/allow asymmetry, COVID-19 related restrictions, attitudes, mere thought

### Highlights

- The factors influencing acceptance of restrictions used as a means of prevention of the COVID-19 pandemic were studied.
- The impact of fear of coronavirus and presenting restriction in forbid vs. allow frames were analyzed.
- A restriction presented in the forbid frame (vs. allow) was rejected more strongly.
- A higher level of fear of coronavirus was related to a more positive attitude toward an allow framed restriction.
- A higher level of fear of coronavirus was related to mere thought activity resulting in more supportive attitudes toward an allow framed restriction.

The purpose of this study is to determine the factors underlying the effectiveness of communicating regulations and recommendations related to the prevention of the SARS-CoV-2 coronavirus pandemic. Especially, we are looking for factors influencing the formation of attitudes toward newly communicated COVID-19 related restrictions as well as factors influencing stability or change of these attitudes.

The first factor that we are interested in is the fear or anxiety evoked by the coronavirus pandemic (Loveday, 2020; Witte & Allen, 2000). As fear is associated with efforts to seek protection from the threatening agent, it should motivate compliance with restrictions presented as a form of coronavirus protective behavior. Moreover, fear increases cautiousness and motivates a search for information, decreases the salience of prior beliefs and reliance on previous preferences, and encourages reconsideration of choices on the basis of contemporary evaluations, increasing susceptibility to persuasion (Brader, 2005; Griskevicius et al., 2009; although it is possible that at high levels of fear persuasion is not very successful, see Shen & Dillard, 2014). In this study, we have tested attitude change using a mere thought paradigm, whereby simply thinking about attitude objects fosters attitude change. Fear can influence whether people focus more on attitude consistent or inconsistent thoughts, and whether attitudes are polarizing (becoming more extreme) or depolarizing (becoming less extreme). Clarkson et al. (2013) showed that fear of invalidity (fear of the wrong evaluation of the situation, making the wrong decision, etc.) increases people's reflection on their attitude-inconsistent (rather than attitude-consistent) thoughts, which can result in attitude depolarization.

However, the impact of fear can be modified by the framing of restriction. Regulations and recommendations communicated to the public may significantly differ in their form. For example, the obligation to cover one's face in public places may be communi-

cated in the form of an order, a recommendation or a ban on visiting public places without a covered face, etc. In this study we measured attitudes toward the introduction of limited hours for outdoor activities. The participants were randomly shown one of two versions of this restriction proposition: one group was asked about their attitude toward restrictions forbidding outdoor activities (e.g., running or biking) outside the hours of 7 A.M. and 9 A.M. and 7 P.M. and 9 P.M. (forbid frame), and the other was asked about their attitude toward restrictions allowing outdoor activities (e.g., running or biking) only between 7 A.M. and 9 A.M. and 7 P.M. and 9 P.M. (allow frame).

Framing such a regulation or recommendation may affect the tendency of citizens to comply with it and to act in a way that contributes to reducing epidemiological risk. Each type of wording (allow vs. forbid) may differ in the extent to which they draw attention to the emergence of restrictions on the lives of citizens, and as a consequence - to what extent they are accepted or rejected. Previous studies showed that when participants' attention was not drawn to the restrictive nature of the policy, they reacted favorably to policies, endorsing them and reducing the importance of the restricted freedom. However, when participants were cued to focus their attention on the restrictive nature of the policy, they display reactance and respond negatively to the policies (Laurin et al., 2013). The decisive factor in whether recipients' attention will be directed to the restrictions imposed on them by a given regulation or a recommendation may be the way in which they were framed. In what has already become a classic study, Rugg (1941) showed that the responses to a survey question about forbidding public speeches against democracy differed from those to a survey question about allowing such speeches. If the question concerned allowing public speeches against democracy, 75% of the respondents chose an answer indicating that they were against such speeches. However, if the question concerned forbidding public speeches against democracy, only 54% of the respondents were against such speeches. Subsequent studies confirmed the existence of the forbid vs. allow asymmetry (Hippler & Schwarz, 1986; Holleman, 2006): responses to questions about forbidding something differed from those to the seemingly equivalent questions about allowing the same object. Specifically, more people were willing not to allow something than to forbid it.

This forbid/allow asymmetry may also have consequences for the susceptibility to change of attitudes towards a given regulation or recommendation. Koniak and Cwalina (2019) showed that attitudes toward forbidding an object are more susceptible to change than attitudes toward allowing the same object. The forbid frame leads to generating less biased cognitive responses and evaluations of the presented arguments than the allow frame and, at the same time, does not affect the number of generated responses. Moreover, the higher susceptibility of attitudes toward forbidding an object being changed than allowing it is based on a reduced bias of cognitive responses. However, attitude objects used by Koniak and Cwalina (2019) were rather abstract and general ones, affecting values of participants rather than their everyday life (GMO and euthanasia).

In this research, we measured attitudes toward a more concrete issue – the proposition of a restriction that can affect everyday activities and impose constraints on daily functioning. Our research question is whether forbid/allow framing moderates the impact of fear on acceptance of COVID-19 pandemic related restrictions and persistence of attitudes towards these regulations.

## Method

### Participants

A total sample of 110 participants ( $M_{\text{age}} = 27.78$  years,  $SD = 10.42$ , 92 women, 83.6%) were recruited to participate in the experiment via social media (invitations to participate were sent by email and posted on Facebook pages and other social media channels). All participants completed the survey online and were not compensated.

This study was realized at the end of May 2020. At this time previous COVID-19 pandemic related restrictions were changing – most of them were retracting in nature (for example, the obligation to cover one's face during outdoor activities) and others were modified or introduced in a new form (for example, limiting the number of guests in restaurants and special rules for using restaurant services). Overall, when the study was conducted the majority of society was afraid of coronavirus (CBOS, 2020). However, at the same time public opinion was expecting mitigation of the existing restrictions rather than introducing new ones ('Sondaż. Co Polacy myślą o noszeniu maseczek?', 2020).

Due to the highly dynamic pandemic situation and ongoing changes in the restrictions and regulations, we were forced to keep the respondents' recruitment process short, so we planned a study in which we did not need large samples. A sensitivity analysis conducted with G\*Power (Faul et al., 2007) showed that our sample provided 80% power ( $\alpha = .05$ ) to detect small effects ( $f^2 = .07$ ).

### Procedure

The participants were asked to imagine that various COVID-19 related restrictions and regulations are planned to be introduced in Poland. Next, they were presented with five propositions and asked about their attitudes toward them. Four of these propositions served as a buffer issue. Embedded within them was a target proposition of restrictions: it was focused on the introduction of limited hours for outdoor activities. The participants were randomly shown one of two versions of this proposition: one group was asked about their attitude toward restrictions forbidding outdoor activities (e.g., running or biking) out of hours 7 A.M. and 9 A.M. and 7 P.M. and 9 P.M. (forbid frame), and the other was asked about their attitude toward restrictions allowing outdoor activities (e.g., running or biking) only between 7 A.M. and 9 A.M. and 7 P.M. and 9 P.M. (allow frame). This restriction was chosen due to the fact that it was not discussed in Poland. At the

same time, it was a realistic proposition – it was a modified version of the coronavirus related restrictions implemented in other European countries. Moreover, it was possible to present it either as a proposition for forbidding or allowing.

The participants declared their attitude toward each issue on three 11-point scales ranging from -5 (“Very strongly against this proposal”; “This is a very bad idea”; “This should definitely not be introduced”) to 5 (“Very strongly in favor of this proposal”; “This is a very good idea”; “This should definitely be introduced”). Responses to the items related to our focal restriction proposition were averaged to create a composite attitude index ( $\alpha = .99$ ).

Next, participants were prompted to list any thoughts about introducing (allowing or forbidding, depending on group) limited hours for outdoor activities. They were instructed to spend up to three minutes listing a maximum of 12 thoughts in separate boxes. After doing so, participants again reported their attitudes toward introducing (allowing or forbidding) limited hours for outdoor activities, again using the same scales as used at the beginning of the experiment ( $\alpha = .99$ ). Next, they were indicating how easy it was to think about this restriction – on a slide scale with ends described as “very easy” and “very hard” (ranging from 0 to 100).

After that participants were shown their thoughts and asked to indicate whether each one was favorable, unfavorable, neutral or unrelated toward the given form of our focal restriction. Based on these ratings, thoughts were later coded to reflect whether they were consistent or inconsistent with initial attitudes toward allow or forbid framed restrictions (i.e., favorable thought was coded as inconsistent with the initial attitude for participants who initially opposed the introduction of the restriction, etc.).

The self-validation hypothesis (Petty et al., 2002) indicates that the impact of thoughts on attitudes is a function not only of the amount and valence of thoughts people have, but also of the confidence with which people hold those thoughts. Thoughts held with high confidence (validated thoughts) have a greater impact on people’s attitudes than thoughts held with low confidence (invalidated thoughts). Moreover, the impact of thought confidence on attitudes is independent from the impact of thought consistency (Clarkson et al., 2011). For this reason, participants were also asked about their confidence in thoughts consistent and inconsistent with their initial attitudes – on 7-point scales ranging from -3 (very uncertain) to 3 (very certain).

At the end of the experiment, participants were asked about their fears related to COVID-19. On 7-point scales ranging from -3 to 3 they indicated whether they perceived it as a threat (it’s a high risk – it’s a low risk), whether they were afraid about their health and their relatives’ health (very much – not at all), and whether they were worried about overloading of hospitals and healthcare inefficiency (very much – not at all). Responses to these items were reversed and averaged to create a fear of coronavirus index ( $\alpha = .85$ ), where a high score indicated higher levels of fear.

## Results

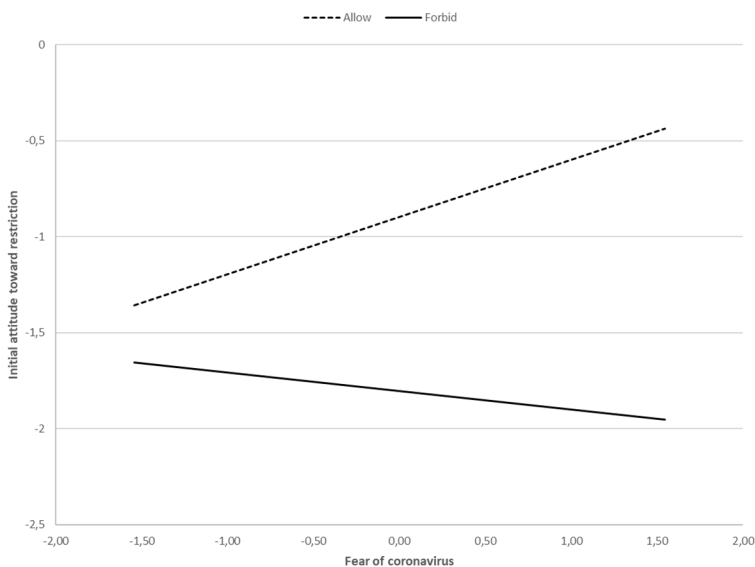
Unless stated otherwise each dependent variable was subjected to the Hayes (2018; PROCESS macro version 3.5) model 1, in which fear of coronavirus served as the predictor, and allow versus forbid frame as a moderator (0 = allow, 1 = forbid), which allows us to explore both main effects of these variables as well as their interaction effect. Only continuous variables that define products were mean centered.

### Initial Attitudes Toward Restriction

For the initial support for the introduction of limited hours for outdoor activities we found a significant effect of frame,  $b = -0.91$ ,  $SE = 0.36$ ,  $t(106) = 2.52$ ,  $p = .013$ . Although both frames aroused participants' reactance, the opposition was stronger when the focal restriction was presented in the forbid frame ( $M = -1.80$ ,  $SD = 1.77$ ) than in the case of the allow frame ( $M = -0.90$ ,  $SD = 1.99$ ). Although the effect of coronavirus related fear did not reach the conventional level of significance,  $b = 0.30$ ,  $SE = 0.17$ ,  $t(106) = 1.76$ ,  $p = .081$ , there was a trend indicating that an increasing level of fear was related to increasing support (or rather decreasing opposition) toward the proposed restriction. This effect was qualified by the interaction between frame and fear,  $b = -0.39$ ,  $SE = 0.23$ ,  $t(106) = 1.69$ ,  $p = .094$  (Figure 1).

**Figure 1**

*Predicted Initial Attitude Toward Restrictions as a Function of Fear of Coronavirus and Forbid/Allow Frame*



In the case of the forbid frame the effect of fear was insignificant. However, when the restriction was presented in the allow frame, there was a trend indicating that increasing fear was related to an increased acceptance of this limitation,  $b = 0.30$ ,  $SE = 0.17$ ,  $t(106) = 1.76$ ,  $p = .081$ .

## Attitude Change

Mere thought opportunity can result in both attitude polarization (i.e., attitudes becoming more extreme) and attitude depolarization (i.e., attitudes becoming less extreme). However, depending on whether the initial attitude of the given participant is located on the pro or con side of the continuum, polarization can be the result of increasing support or increasing opposition for the proposed restriction, and depolarization can stand both for lowering support or lowering opposition. To be able to interpret whether attitude change means increasing or decreasing support for a given proposition, we need to know what the initial issue stand of the given participant was. However, probably due to the timing of the research, opponents of our focal restriction prevailed in our sample ( $N = 82$ ), and we are unable to split the results between opponents and proponents. For this reason, in this and subsequent analyses we included only opponents of the proposed restriction – proponents ( $N = 24$ ), participants initially neutral toward it ( $N = 4$ ), as well as one participant identified as an outlier with an extremely high attitude change index (equal to a whole range of attitude scale) were excluded.<sup>1</sup>

Attitude change index was created by subtracting the attitudes at Time 1 from the attitudes at Time 2 for participants. As a result, positive scores indicated a change in the direction that was opposite from a given participant's initial attitude (cf. Pomerantz et al., 1995; Taber et al., 2009) – in this case this means change in the direction of more supportive attitudes. The change index was then analyzed.

We found a significant negative effect of coronavirus related fear,  $b = 0.24$ ,  $SE = 0.08$ ,  $t(77) = 2.92$ ,  $p = .005$ . As the fear increased, the attitude toward restriction also changed in a more supporting (or rather – less opposing) direction. In the case of the framing effect, there was a trend indicating that the attitudes of participants in the allow frame group changed more in the supporting direction than the attitudes of participants in the forbid frame group,  $b = -0.31$ ,  $SE = 0.17$ ,  $t(77) = 1.87$ ,  $p = .065$ . These effects were qualified by the interaction between fear and frame;  $b = -0.22$ ,  $SE = 0.12$ ,  $t(77) = 1.93$ ,  $p = .058$  (Figure 2). In the case of the forbid frame the effect of fear was insignificant. The overall mean in the forbid group ( $M = 0.06$ ,  $SD = 0.50$ ) was not significantly different from zero ( $t < 1$ ), indicating that attitudes in this group was actually unaffected by the mere thought task. However, when the restriction was presented in the allow frame, increasing fear

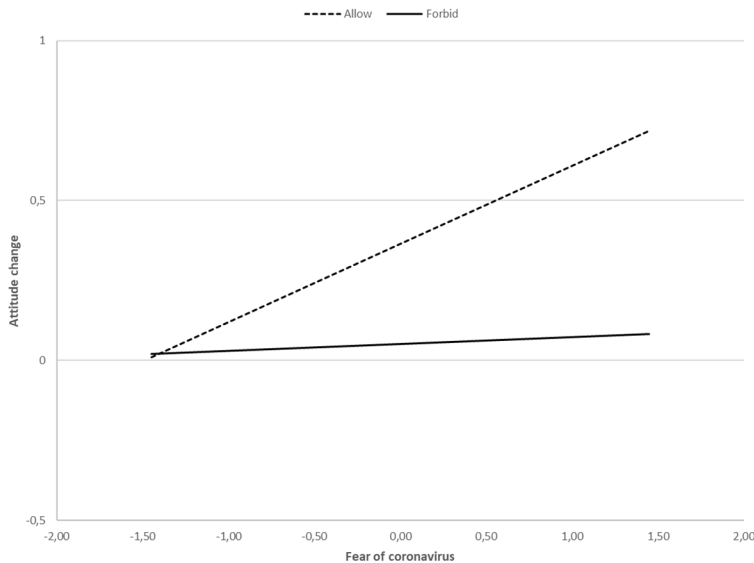
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1) It should be noted that our reduced sample still provided 80% power ( $\alpha = .05$ ) to detect small effects ( $f^2 = 0.08$ ). Moreover, all the subsequently reported analyses lead to an identical pattern of results when both proponents and opponents of proposed restrictions are included (with the attitude change coded for the depolarization/polarization).

was related to an increased support for the restriction;  $b = 0.25$ ,  $SE = 0.08$ ,  $t(77) = 2.92$ ,  $p = .005$ .

**Figure 2**

*Predicted Attitude Change as a Function of Fear of Coronavirus and Forbid/Allow Frame*



## Number of Thoughts and Ease of Thought Generation

For the number of restriction related thoughts generated by participants, we did not find any significant effects. Similarly, neither the framing of the restriction, level of fear of coronavirus nor the interaction between them affected the declared easiness of the thought generation task. Overall, participants generated  $M = 2.64$  thoughts ( $SD = 1.73$ ) and found this task rather easy ( $M = 41.62$ ,  $SD = 31.72$ ).

## Thought Consistency and Thought Confidence

A thought consistency index was computed for each participant by subtracting the number of inconsistent thoughts (in this case - unfavorable toward the given form of restriction) from the number of consistent thoughts (favorable toward the given form of restriction) (e.g., Clarkson et al., 2013). Higher values thus reflected more consistent relative to inconsistent thoughts.

For thought consistency we did not find any significant effects. Overall, participants generated more consistent than inconsistent thoughts – the index of thought consistency

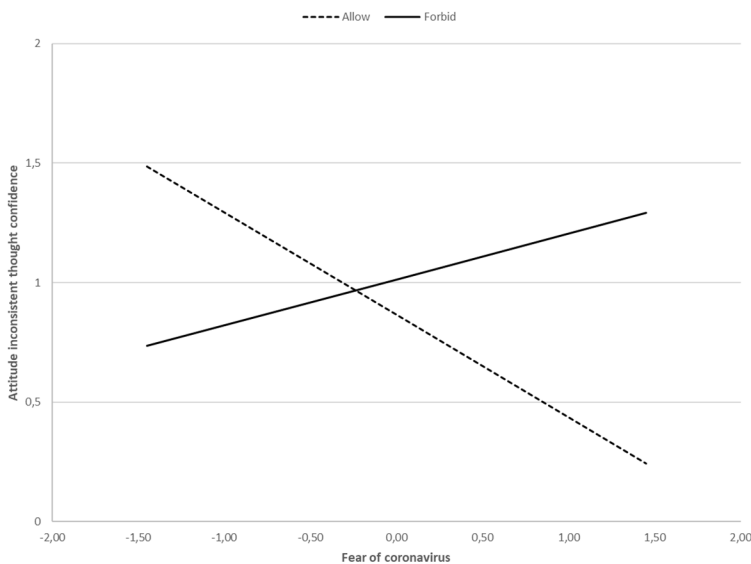


was significantly above zero (which indicates equivalence between consistent and inconsistent thoughts):  $M = 0.94$ ,  $SD = 2.61$ ,  $t(80) = 3.23$ ,  $p = .002$ .

Additionally, we did not find any significant effects for confidence in the attitude consistent thoughts (overall, participants were rather confident in these thoughts:  $M = 1.62$ ,  $SD = 1.43$ ). However, participants' confidence in their attitude inconsistent thoughts was affected by the level of coronavirus related fear,  $b = -0.43$ ,  $SE = 0.18$ ,  $t(77) = 2.32$ ,  $p = .023$ . As the level of fear increased, confidence in attitude inconsistent thoughts decreased. This effect was qualified by the interaction between fear and frame,  $b = 0.62$ ,  $SE = 0.26$ ,  $t(77) = 2.42$ ,  $p = .018$  (Figure 3). Confidence in the attitude inconsistent thoughts was not related to the level of fear in the forbid frame condition. However, participants in the allow frame condition become less confident in their attitude inconsistent thoughts as their level of coronavirus related fear increased,  $b = -0.43$ ,  $SE = 0.18$ ,  $t(77) = 2.32$ ,  $p = .023$ .

**Figure 3**

*Predicted Confidence in Attitude Inconsistent Thoughts as a Function of Fear of Coronavirus and Forbid/Allow Frame*



We used Hayes process macro model 8 (5000 bootstraps) to test whether the conditional (moderated by frame) effect of fear on attitude change is mediated by the confidence in attitude inconsistent thoughts. Results showed that the interactive effect of fear and frame on attitude change became insignificant,  $b = -0.16$ ,  $BootSE = 0.12$ , 90% CI  $[-0.3590, 0.0192]^2$ . However, in the case of confidence in attitude inconsistent thoughts' effect on attitude change there was a trend indicating that lowering confidence in these thoughts

increased support for the restriction,  $b = -0.10$ ,  $BootSE = 0.06$ , 90% CI [-0.2035, -0.0085]. Moreover, in the allow frame condition, effect of fear on attitude change was mediated by the confidence in attitude inconsistent thoughts,  $b = 0.04$ ,  $BootSE = 0.03$ , 90% CI [0.0013, 0.1078]. However, direct effects of coronavirus related fear,  $b = 0.20$ ,  $BootSE = 0.10$ , 95% CI [0.0270, 0.4301], and forbid/allow framing,  $b = -0.30$ ,  $BootSE = 0.16$ , 90% CI [-0.5805, -0.0359] on attitude change remained significant. Taken together, these results suggest that confidence in attitude inconsistent thoughts only partially mediated the effects of fear and framing on attitude change.

## Discussion

Our results suggest that fear of coronavirus results in more positive (or rather – less negative) attitudes toward proposed restrictions and allows for this attitude to be changed to be more restriction supportive than initially. Moreover, the effect of fear is partially mediated by the changes in the confidence of initial attitude inconsistent thoughts. This result parallels the conclusion of Clarkson et al. (2013) that fear (in their research – fear of invalidity) can increase reflection on attitude-inconsistent (rather than attitude-consistent) thoughts, which can result in attitude depolarization. At the same time fear does not affect the consistency of thoughts with initial attitude, which can suggest, that in this case attitude change is based on more subtle processes related to self-validation of thoughts rather than to changes in the content or the value of these thoughts. However, fear is also related to attitude change directly suggesting that this change can be a result of simple, not based on thoughts, cautiousness and acceptance of suggested restrictions presented as a form of coronavirus protective behavior. It should also be noted that due to the exploratory nature of our study and moderation analysis results that can be interpreted only as statistical trends they should be interpreted with caution.

The impact of fear on attitudes was present only in the allow frame condition. Restrictions presented in the forbid frame led to participants' reactance, and mere thought activity was not able to change these negative attitudes. It is possible that this reactance was related to the time when the research was conducted – after more than two months of lockdown the participants were tired of the constraints and were looking for limitations to be relieved rather than the implementation of new ones. With the eventual change of social moods, e.g., due to a change in a pandemic situation, it is possible that the impact of fear and forbid/allow framing on attitudes toward restrictions could be different. In particular, future research should test for the possibility that when reactance aroused by the forbid frame is not so strong, and consequently when there is a ground for attitude change, a forbid frame can result in more attitude change than an allow frame (Koniak & Cwalina, 2019).

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2) Due to the relatively small sample size we used 90% CI.

It is also possible that the effect a forbid/allow frame has on attitude change depends on the abstractness vs. concreteness of the issue. An abstract (vs. concrete) level of construal opens the space for attitude depolarization (Yang, Preston, & Hernandez, 2013). This could also possibly explain why in Koniak and Cwalina's (2019) research, where abstract attitude objects were used, a forbid frame resulted in more attitude change than an allow frame, and in this research, attitude object was more concrete, a forbid frame resulted in attitudes that were strongly resistant to change. Moreover, the novelty of an attitude object can be another factor influencing our results. Generating thought concerning the novel proposition of restriction can be harder than generating thought toward already existing and known regulations.

Lastly, in our opponents dominated sample, change of attitude to more supportive is in fact attitude depolarization. It is not clear what would happen in the case of attitudes for a proposition initially arousing more support. If the depolarization is the result of mere thought (for high fear participants), it is possible that thinking about attitudes initially supportive toward a given restriction would result in the decrease of this support.

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**Data Availability:** For this article, a dataset is freely available (Koniak & Cwalina, 2020).

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## Supplementary Materials

The supplementary includes the data set and codebook used for this study (for access see [Index of Supplementary Materials](#) below).

### Index of Supplementary Materials

Koniak, P., & Cwalina, W. (2020a). *Supplementary materials to "Fear of coronavirus and forbid/allow asymmetry as determinants of acceptance of COVID-19 pandemic related restrictions and persistence of attitudes towards these regulations"* [Research data and codebook]. *PsychOpen*. <https://doi.org/10.23668/psycharchives.4414>

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