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# Advocating for Mask-Wearing Across the Aisle: Applying Moral Reframing in Health Communication

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#### ABSTRACT

During the COVID-19 pandemic, the United States public polarized along political lines in their willingness to adopt various health-protective measures. To bridge these political divides, we tested moral reframing as a tool for advocating for wearing face masks when audiences vary in their moral priorities. We additionally address a gap in prior moral reframing research by comparing responses to a topic-relevant non-moral appeal. Across two studies, we examined effects on perceived message effectiveness, intentions to wear masks, support for a nationwide mask mandate, and willingness to share messages on social media. We find support for the efficacy of ideology-matched moral arguments and generally find support for the boomerang effect of ideology-mismatched moral arguments. However, these effects were restricted to relatively liberal audiences; politically conservative message recipients did not differentiate between message conditions. We discuss these asymmetric effects and their implications for theory in moral rhetoric.

Although reactions to the COVID-19 pandemic in the United States were eventually marked by political polarization, it did not begin that way. Early polls showed that despite some disagreement, both Republicans and Democrats were largely supportive of social distancing and closing businesses to halt the spread of the novel coronavirus. For example, in one survey, 91% of Democrats and 85% of Republicans reported trying to stay at home as much as possible in April 2020 (Edwards-Levy, 2020; also see Van Green & Tyson, 2020). Within a few months, however, partisan gaps widened. Although Democrats and Republicans only differed by 12 percentage points (~90 versus ~78%) in practicing social distancing in mid-March, this gap widened to a 40-point difference by early June (~88 versus ~48%; Bird & Ritter, 2020). Other research tracking actual commitments to staying at home also showed that a partisan gap widened from relatively minimal to more substantial between March 9 and May 28 2020, resulting in gaps in COVID-19 infection and fatality growth (Gollwitzer et al., 2020).

The political divide grew beyond social distancing. By June 2020, whereas 63% of Democrats and Democrat-leaning independents said that people in their community should always wear face masks in public places where they may be near others, only 29% of Republicans and Republican-leaning independents did (Pew Research Center, 2020). Geographic data similarly show that mask-wearing was lower in counties that more strongly favored Trump in the 2016 election (Kahane, 2021). Openness to vaccination shows similar divides (Fridman et al., 2021; see also Latkin et al., 2021). Recent work integrating the risk information seeking and processing model (Griffin et al., 1999) and the theory of planned behavior (Ajzen, 1991) found that liberal versus conservative media use was associated with a cascade of cognitive and attitudinal processes that result in diverging intentions to practice a range of COVID-mitigating behaviors (e.g., handwashing, self-quarantining; Moon et al., 2022).

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But is resistance to public health measures inherently tied to one's political views? Perhaps not. The same partisan gaps surrounding COVID-19 in the United States seem not to have occurred in other nations such as the United Kingdom (Anderson & Hobolt, 2020). Even within the U.S., the gaps grew over time, which seems to be driven in part by polarization in elite rhetoric (Green et al., 2020). Therefore, if partisan gaps in support for public health measures are separable from the ideologies themselves, then communication strategies could close these gaps. A bevy of recent work in health communication has identified a variety of compelling persuasion strategies with the potential to promote health during the COVID-19 pandemic and any similar situations that may arise in the future (e.g., Conlin et al., in press; Gillman et al., in press).

In the present research, we examine whether *moral* appeals are a viable way to bridge these ideological divides. Some limited work has shown that health appeals can indeed invoke moral values to encourage behavior change (Hansen et al., 2018). Prior research in psychology and political communication has shown enhanced persuasion on politically divided issues by appealing specifically to the recipient's own moral values. We conducted two experiments to test how well this approach can be applied in the context of public health communication and the COVID-19 pandemic.

# **Theoretical background**

#### Persuasive message matching

Decades of research have highlighted how messages are often more persuasive when they adopt arguments or frames that are matched to some characteristic of the recipient (Pope et al., 2018; Teeny et al., 2021). For example, Latimer et al. (2005) found that messages encouraged women to participate in mammography screenings more when they were tailored to the recipients' cognitive and coping styles. Mann et al. (2004) found that gain- versus loss-framed messages promoting flossing were more effective when delivered to recipients with corresponding (vs. contrasting) approach/avoidance orientations. Meta-analyses have supported the efficacy of message matching for cancer communication (Huang & Shen, 2016), interventions to promote mammography screening (Sohl & Moyer, 2007), and a range of other health outcomes (Noar et al., 2007).

More recently, the promise of message matching has been extended to health communication in the COVID-19 era. For example, arguments to practice social distancing as a way to protect other people (versus to protect oneself) resonate more among people who already see public health as a moral issue (Luttrell & Petty, 2021). Appeals to wear face masks, practice social distancing, and get a vaccine were also especially effective when they aligned with the recipient's religious identity (DeMora et al., 2021; Dennis et al., 2021), with the recipient's personality (Blagov, 2021), or with the recipient's political party affiliation (Pink et al., 2021).

# Moral foundations, political ideology, and persuasion

An emerging body of work has also considered how different moral arguments appeal to different political audiences. To garner support for an issue that an audience with a particular ideology usually opposes, a communicator can "reframe" the issue in terms of that audience's moral values (Feinberg & Willer, 2019). The notion of moral reframing rests on Moral Foundations Theory (Graham et al., 2013), which holds that there are several universal foundations for people's sense of right and wrong. The most studied foundations are the concerns for minimizing harm, striving for fairness, obedience to authority, loyalty to one's group, and protecting purity. The former two foundations (care and fairness) make up "individualizing" foundations and tend to be endorsed more strongly by liberals than conservatives; the latter three (authority, loyalty, and purity) make up the "binding" foundations and tend to be endorsed more strongly by conservatives than liberals (Graham et al., 2009; Kivikangas et al., 2021). As a result, these groups often talk past each other, appealing to moral values that the other group does not prioritize (Feinberg & Willer, 2015).

Therefore, if a communicator deploys arguments that resonate with the audience's moral foundations, greater persuasion should follow. Indeed, liberal audiences tend to be more persuaded by arguments rooted in concerns for care and fairness, and conservative audiences tend to be more persuaded by arguments rooted in concerns for loyalty, authority, and purity (for a review, see Feinberg & Willer, 2019). The impact of moral reframing has been shown for a variety of messages, including arguments for environmentalism (Feinberg & Willer, 2013; Hurst & Stern, 2020; Kidwell et al., 2013; Whitmarsh & Corner, 2017; Wolsko et al., 2016), contentious political issues such as same-sex marriage and military spending (Feinberg & Willer, 2015), political candidates (Voelkel & Feinberg, 2017), and charitable organizations (Winterich et al., 2013). It is important to reiterate, however, that these effects are based on the premise that liberals and conservatives tend to prioritize different moral foundations, which is why different moral appeals work better for one group than the other. These political ideologies are not *defined* by these moral values. Therefore, we use the term "ideology-matched" messages to mean messages appealing to the moral values that tend to be endorsed more among people with that ideology, not that these messages speak directly to liberal or conservative ideologies themselves.

The work on moral reframing reflects a growing interest in moral message content within communication science. For instance, Tamborini's (2013) model of intuitive morality and exemplars (MIME) provides a framework for understanding the reciprocal relationship between a culture's moral intuitions and the content of that culture's media. Similar to moral reframing's premise that messages will be more effective when they align with the audience's moral values, the MIME holds that in the long term, selective exposure to agreeable moral media content can reinforce one's moral values (see Eden et al., 2021). Similarly, some preliminary work in health communication has highlighted the potential connections between different moral foundations and various health behavior attitudes (e.g., Wang et al., in press; Yang et al., 2018). In sum, theoretical frameworks across communication and psychological sciences highlight the close connection between media and individuals' moral priorities with implications for health messaging.

#### **Present research**

Because moral reframing enhances persuasion among conservatives for positions they often oppose (e.g., environmentalism, universal healthcare), we applied moral reframing in the domain of health messaging to test its ability to overcome conservative resistance to wearing face masks during the COVID-19 pandemic in the United States. We designed three brief pro-mask messages: one simply urged people to wear a face mask (control), one added an appeal to care and fairness (individualizing message), and the other instead added an appeal to loyalty and purity (binding message). These messages differ only in the presence and type of moral appeal. Across two studies, we tested five key hypotheses.

**H1.** Participants' self-reported political ideology will moderate the relative effects of each type of message on several markers of persuasive influence.

**H2.** Relatively liberal participants will be more persuaded by the *care-fairness* message than the *loyalty-purity* message.

**H3.** Relatively conservative participants will be more persuaded by the *loyalty-purity* message than the *care-fairness* message.

In line with prior research in other domains, we expected that the relative impact of care-fairness versus loyalty-purity messages will depend on recipients' political ideology (H1). This result would reflect a general moral reframing effect; however, we planned to decompose the statistical interactions to probe several more specific hypotheses.

First, because liberals tend to prioritize care and fairness values over others, they should be relatively more swayed by arguments centered on those values (H2). There may, however, be reason to doubt this hypothesis. As Feinberg and Willer (2019) write in their summary of the literature: "most moral reframing studies to date have found nonsignificant effects for the untargeted group - that is, the group that already supports the policy stance being argued for" (p. 6). Because relatively liberal people in the United States tend to already support face masks, the moral framing manipulation may have limited impact for this audience. Nevertheless, it remains possible that ideology-consistent framing could further entrench liberals (Day et al., 2014) and/or ideologyinconsistent framing could produce a boomerang effect whereby such messages are even less persuasive than a nonmoral frame.

Second, because conservatives tend to prioritize loyalty and purity more than liberals do, they should be relatively more swayed by arguments centered on those values (H3). Such evidence would not only converge with prior research in moral reframing but would also provide a communication tool for promoting public health under conditions of political polarization.

**H4.** Ideology-matched messages will be more persuasive than a non-moral control message.

**H5.** Ideology-mismatched messages will be less persuasive than a non-moral control.

Finally, because we include a control condition that provides a relevant, non-moral persuasive appeal, our studies also provide the unique opportunity to probe an important question in the moral reframing literature: does a value-matched appeal enhance persuasion and/or does a value-mismatched appeal reduce persuasion? Many moral reframing studies do not include a control condition and focus instead on comparisons between binding and individualizing frames. Although several studies do include a control condition, these are either irrelevant messages (e.g., a brief history of neckties in a study on environmental attitudes; Feinberg & Willer, 2013) or no message at all (Wolsko et al., 2016).<sup>1</sup> It is difficult to interpret comparisons to such controls because they confound the use of a particular moral frame and the presentation of attituderelevant information. For example, if conservatives express more favorable attitudes following a binding-framed message, compared to either an individualizing-framed or irrelevant message, it could be that any relevant message that avoided

liberal language could have been effective – not the binding frame itself.

Therefore, our studies allow for tests of two additional hypotheses. First, it is plausible that ideology-matched messages will be more persuasive than a non-moral control message (H4) because moral reframing works by presenting an especially compelling moral frame. Second, it is also plausible that moral reframing can produce a "boomerang" effect (Byrne & Hart, 2009) whereby ideology-mismatched messages will be less persuasive than a non-moral control (H5) by presenting a frame that is especially objectionable. Whether or not these hypotheses are supported will help address whether communicators should make a concerted effort to tailor their message to the audience's moral values or should instead be more careful to avoid appealing to the values of the audience's political outgroup.

Data, materials, and analysis scripts for both studies are available on the Open Science Framework (https://osf.io/ 2eus6/). This research was approved by the Institutional Review Board at the authors' university (#1696194).

# Study 1

In the first test of our hypotheses, we surveyed a sample of participants, measured their political ideology, and randomly presented one of three pro-mask messages. To assess persuasion outcomes, we measured perceived message effectiveness, intentions to wear a mask, and attitudes toward a national mask mandate. Analyses of these data provide an initial test of moral reframing in the context of public health messaging.

#### Method

#### Participants

Three hundred U.S. participants ( $M_{age} = 33.84$ , SD = 12.62) were recruited online using *Prolific* and paid \$0.75 for responding to the survey. Participants were roughly split by gender identification (55.7% female; 43.0% male; 1.3% non-binary or alternative identity). On a 7-point continuum of political identification ("Very liberal" to "Very conservative"), 57.7% selected some degree of "liberal" identity, 21.7% selected some degree of "conservative" identity, and 20.7% identified as strictly "moderate." Data were collected in early February 2021, before vaccines were widely available to the American public.

After inspecting responses, we found that a minority of participants spent very little time reading the message on mask-wearing and presumably were not attending to the key manipulation. Notably, reading time was uncorrelated with political ideology, r(298) = .10, p > .05, but it did differ between message conditions, F(1, 297) = 5.01, p = .01. The control message was shorter than the others and thus median read time was lower in that condition (*median* = 8.26 sec) than the carefairness (*median* = 15.92 sec) and loyalty-purity (*median* = 18.30 sec) conditions. Thus, to filter out cases where the participant seemed to skip the message without penalizing the control condition, we implemented the simple criterion that participants who spent less than one median absolute deviation

(MAD) below the median reading time in their condition would be dropped from analyses.<sup>2</sup> This cutoff was 2.8 seconds in the control condition, 6.8 seconds in the care-fairness condition, and 7.4 seconds in the loyalty-purity condition. This procedure resulted in the exclusion of 27 participants in total (9% of the sample) and 8–10 participants within each condition. The final sample size (N = 273) still provided 80% power to detect rather small interaction effects ( $f^2 = .029$ ;  $\alpha = .05$ ).

#### Procedure

Upon agreeing to participate in the study and completing a brief demographic inventory that included the previously reported measure of political identification, we informed participants that they would see "a brief message about the use of face masks as a protective measure during the COVID-19 pandemic." On the following page, participants saw one of three brief messages. In the *control* condition, the message communicated basic information about the COVID-19 pandemic and the use of face masks:

The COVID-19 pandemic has undeniably changed the way we live our lives. Mask mandates have presented a new addition to our daily lives, with wearing a mask in public becoming the new "norm." Individuals should wear a mask during the COVID-19 pandemic, as infection continues to spread.

The care-fairness and loyalty-purity conditions expanded on the control message by specifically invoking their corresponding moral foundations. The former message (titled "Why Masks are the Fair Solutions to this Harmful Pandemic") emphasized masks' ability to mitigate harms and inequities caused by the pandemic: "It's about fairness and caring. Individuals should wear a mask during the COVID-19 pandemic in order to ensure a fair chance for all citizens, including the most vulnerable, to avoid harm, dangerous health complications, and death." The latter message (titled "Why Masks are the Patriotic Solution to this Disgusting Pandemic") emphasized masks' ability to protect one's community and invoked disgust-related rhetoric in characterizing the virus: "It's about protecting our community and rooting out disease. Individuals should wear a mask during the COVID-19 pandemic so that our fellow Americans can remain strong, free of sickness, and not infected by the foreign virus."

These messages were evaluated to ensure that they each conveyed their intended moral values. First, linguistic analyses using the Moral Foundations Dictionary 2.0 (Frimer et al., 2019) show that each morally framed message uniquely communicates its corresponding moral foundations. Second, a pilot survey (N = 150) asked respondents to rate messages according to the moral content contained therein, and results show that messages differed as intended without the carefairness and loyalty-purity messages differing in the perceived strength of their arguments. See the online supplement for a complete report of these validation tests.

After reading the message, participants reported their evaluations of the message's effectiveness, intentions to wear masks, and support for a nationwide mask mandate.<sup>3</sup>

#### Dependent measures

*Perceived message effectiveness.* We measured people's evaluations of the message's efficacy with a three-item instrument

used in prior research on health messaging during the COVID-19 pandemic (Luttrell & Petty, 2021). Specifically, participants indicated how persuasive, convincing, and effective the message was, using 5-point scales anchored at "not at all" and "extremely." Responses showed good internal reliability ( $\alpha = .92$ ) and were averaged to form an overall index of people's evaluations of the message (M = 3.05, SD = 1.00).

*Intentions.* Participants indicated their intentions to wear face masks by reporting how often they intended to wear a mask outside their homes using a 5-point scale anchored at "never" and "all the time" (M = 4.45, SD = .84). Notably, 63% of the sample indicated that they intended to wear masks "all the time" and an additional 23% said they planned to wear them "often." At this point in the pandemic, intentions were already quite high on average.<sup>4</sup>

Support for mask mandate. Finally, participants reported their support for "a nationwide mask mandate in the United States" on a 7-point scale from "Strongly oppose" to "Strongly support." Support was also relatively strong across the sample (M = 6.12, SD = 1.70).

#### Results

Our hypotheses centered on a statistical interaction between political ideology and message framing condition (H1). To test this interaction between a continuous measured variable and a three-level manipulated variable, we followed the regressionbased procedure outlined by Hayes (2018). We computed new dummy coded variables to code for the three-level message manipulation, and we employed them as predictors in regression models depending on the simple comparisons we needed to test. Main effects are interpreted from models entering mean-centered ideology and two dummy coded message variables as predictors. Interactions between ideology and particular message conditions are interpreted from models that add the two corresponding ideology  $\times$  (dummy coded) message frame interaction terms. Overall tests of two-way interactions were conducted by comparing model fit before and after entering the two interaction terms. See Table 1 for a full set of regression results for each model across outcome variables.

# Perceived message effectiveness

Overall, more conservative participants evaluated the messages as less compelling, B = -.14, t(268) = -4.05, p < .001, 95% CI: [-.21, -.07]. The care-fairness message was seen as significantly more persuasive (M = 3.25, SD = 1.02) than the loyalty-purity message overall (M = 2.85, SD = 1.00), B = .42, t(268) = 2.88, p = .004, 95% CI: [.13, .71]. Although perceived effectiveness of the control message fell between the two morally framed messages (M = 3.07, SD = .97), it was not significantly different from either of them in the aggregate, ps > .10.

Supporting H1, there was an overall ideology × message interaction, F(2, 266) = 4.68, p = .01,  $f^2 = .035$ . Most relevant to the study's aims, the specific interaction between reframed messages (care-fairness vs. loyalty-purity) and ideology was significant, B = -.18, t(266) = -2.20, p = .03, 95% CI: [-.35, -.02]. Political ideology did not predict evaluations of

Table 1. Results of multiple regression models on dependent measures (Study 1).

1 3	Model 1A	Model 2A	Model 1B	Model 2B		
Perceived Message Effectiveness						
Ideology	-0.14**	-0.04	-0.14**	-0.10		
Care-Fairness vs. Control Message (A)	0.23	0.23				
Loyalty-Purity vs. Control Message (B)	-0.20	-0.21	0.20	0.21		
Care-Fairness vs. Loyalty-Purity (C)			0.42**	0.44**		
Ideology $ imes$ Message (A)		-0.24**				
Ideology $ imes$ Message (B)		-0.06		0.06		
Ideology $ imes$ Message (C)				-0.18*		
Intentions to Wear a Mask						
Ideology	-0.16**	-0.13**	-0.16**	-0.09†		
Care-Fairness vs. Control Message (A)	-0.04	-0.03				
Loyalty-Purity vs. Control Message (B)	-0.10	-0.10	0.10	0.10		
Care-Fairness vs. Loyalty-Purity (C)			0.06	0.08		
Ideology $ imes$ Message (A)		-0.13†				
Ideology $ imes$ Message (B)		0.04		-0.04		
Ideology $ imes$ Message (C)				-0.17*		
Support for Mask Mandate						
Ideology	-0.50**	-0.36**	-0.50**	-0.43**		
Care-Fairness vs. Control Message (A)	0.24	0.25				
Loyalty-Purity vs. Control Message (B)	0.17	0.14	-0.17	-0.14		
Care-Fairness vs. Loyalty-Purity (C)			0.08	0.11		
Ideology $ imes$ Message (A)		-0.34**				
Ideology $ imes$ Message (B)		-0.07		0.07		
ldeology $ imes$ Message (C)				-0.27*		

\*\*p < .01, \*p < .05, †p < .10; Numbers in the table are unstandardized regression coefficients. In Models 1A/B, message is dummy coded with the control condition as the reference group. In Models 2A/B, message is dummy coded with loyalty-purity as the reference group. Note that this affects the interpretation of whether "Loyalty-Purity vs. Control Message" coefficients are positive or negative.

the loyalty-purity message, B = -.10, t(266) = -1.64, p = .10, 95% CI: [-.21, .02]. However, in line with moral reframing, increasingly liberal participants evaluated the care-fairness message more favorably, B = -.28, t(266) = -4.81, p < .001, 95% CI: [-.39, -.17].

For the remaining hypotheses, we tested the differences between messages at different levels of ideology. Figure 1 presents estimated differences between conditions at each level of ideology. These coefficients and their confidence intervals are drawn from simple slopes analyses, centering ideology at each point on the 7-point ideology scale and including dummy coded message variables needed to highlight particular group comparisons. Each column depicts the estimated difference between two messages on each dependent variable at each level of political ideology. Message comparisons are dummy coded as indicated. This figure shows, for example, that "very liberal" people are expected to report 0.45 higher intentions to wear a mask following the care-fairness (vs. loyalty-purity) message, which is significantly different from zero (B = -.45, 95% CI: [-.84, -.07].

Supporting H2, at all three levels of "liberal" identification, the care-fairness message outperformed the loyalty-purity message (ps < .05). Inconsistent with H3, however, the loyalty-purity message did not outperform either care-fairness or control messages at any level of political identity.

Finally, we turn to results accounting for the non-moral control condition. Results supported an interaction between the control vs. care-fairness message and ideology, B = -.24, t (266) = -2.93, p = .004, 95% CI: [-.41, -.08], but not an interaction between the control vs. loyalty-purity message and ideology, B = -.06, t(266) = -.72, p = .47, 95% CI: [-.23, .10].

Supporting H4, at all three levels of "liberal" identification, the care-fairness message at least marginally outperformed the control message (ps < .07), as depicted in Figure 1. However, in contrast to H4, the loyalty-purity message did not significantly differ from a control message among conservative participants. Also, inconsistent with H5, ideology-mismatched messages did not underperform relative to the control condition.

#### Intentions to wear a mask

As with perceived message effectiveness, more conservative respondents reported lower intentions to wear face masks outside their homes overall, B = -.16, t(269) = -5.82, p < .001, 95% CI: [-.22, -.11]. There were no main effects of message condition, ps > .40. Overall, however, the data supported the ideology × message interaction (H1), F(2, 267) = 3.54, p = .03,  $f^2$ = .03. Most central to the study's aims, the specific interaction between reframed messages (care-fairness vs. loyalty-purity) and ideology was significant, B = -.17, t(267) = -2.55, p = .01, 95% CI: [-.31, -.04]. Estimated effects of message differences from simple slopes analyses at each level of ideology are presented in Figure 1. These show that at increasingly strong liberal identification, the care-fairness message outperformed the loyalty-purity message (supporting H2), and at increasingly strong conservative identification, the loyalty-purity message outperformed the care-fairness one (supporting H3). At no ideology level, however, did either reframed message differ from the control message (inconsistent with H4 and H5).

#### Support for mask mandate

Once again, more conservative participants supported a nationwide mask mandate less overall, B = -.50, t(269) =



Figure 1. Simple slopes of message comparisons on all three dependent variables in Study 1. Error bars are 95% confidence intervals.

-9.50, p < .001, 95% CI: [-.60, .40]. No main effect of message emerged, ps > .27. However, supporting H1, there was an overall ideology  $\times$  message interaction, F(2, 267) = 3.92, p = .02,  $f^2 = .03$ . Most central to the study's aims, the specific interaction between reframed messages (care-fairness vs. loyalty-purity) and ideology was significant, B = -.27, t (267) = -2.10, p = .04, 95% CI: [-.52, -.02]. Figure 1 shows the estimated differences between messages at each level of ideology. On this outcome, neither H2 nor H3 are supported; the care-fairness and loyalty-purity messages did not differ across the political spectrum. However, we see partial support for H4. Among more liberal participants, the care-fairness message led to more support for a mask mandate than the control message. The other form of H4 was not supported: the loyalty-purity message did not outperform the control message for more conservative participants. The data also generally fail to support H5-ideologymismatched messages did not significantly differ from a control.

# Discussion

The results of Study 1 generally support moral reframing effects for relatively liberal audiences, but not for conservative audiences. We observed significant interactions between ideology and message frame on people's evaluations of the message's efficacy, their intentions to wear face masks, and support for a nationwide mask mandate. Overall, the care-fairness appeal was evaluated most favorably and was most influential for liberal participants, but we found no evidence that conservative participants differentiated between the message frames.

Although the simple slopes results generally found that ideology moderated the relative effects of care-fairness versus loyalty-purity messages across outcome variables, we note that simple slope effects were less consistently supportive of hypotheses accounting for the control condition for intentions and support for a mandate. This is perhaps unsurprising given the timing of this study. By the time participants responded to our brief messages, they had likely already decided on their mask-wearing intentions and support for a mask mandate due to engrained habits, social norms, and local regulations. A brief message presented after vaccine rollouts had been announced may not have changed these outcomes even if it was the kind of argument that most resonated with the participant.<sup>5</sup> Nevertheless, although the effects were relatively small, a message framed in terms of ideologically consistent moral values affected intentions and policy support even under these circumstances.

Despite supporting the efficacy of messages framed in terms of care and fairness for liberal audiences, it is curious that we did not observe a complementary effect for conservative participants. This null finding may simply be a consequence of our failure to recruit as many conservative participants in this study; Study 1's sample was relatively liberal on average. Perhaps if our sample had included a wider range of participants across the political spectrum, we would have had more power to detect a matching effect for conservative audiences. We conducted an additional study to address this.

# Study 2

Study 2 implemented two key changes. First, we specifically recruited a sample that was balanced in political affiliation. This provided the additional advantage of more simply treating political orientation as a categorical variable. Second, given concerns with constrained variance in mask-wearing intentions and support for a mask mandate, we dropped these outcome variables but added another: willingness to share the message on social media. To our knowledge, prior research has not examined the effects of moral reframing on willingness to share a message. However, communication research has increasingly considered the spread of messages through social media platforms as an important way in which information can rapidly influence large groups of people (Liang & Kee, 2018). Indeed, messages that are tinged with moral content have proven especially virulent online (Brady et al., 2017). Because people show an ego-centric bias in message generation, drawing upon moral arguments that fit with their own political worldview (Feinberg & Willer, 2015), we thought that they might similarly have a preference for spreading messages that use ideology-consistent moral appeals (cf. Kouchaki et al., 2021).

# Method

#### **Participants**

To increase statistical power both overall and for each party identity specifically, we aimed to double the sample size from Study 1. However, to account for the exclusion criterion we defined in the previous study, we increased the target sample size by another 100 participants. Thus, we recruited N = 700 participants in total. To ensure an even distribution of political identities, we used *Prolific*'s custom prescreening feature to

deliberately recruit 350 participants who identified themselves as Democrats and another 350 participants who identified themselves as Republicans. When the survey closed, 701 participants had completed the survey, but four of these respondents could not be traced to Prolific participation data, leaving N = 697 in the full dataset ( $M_{age} = 34.41$ , SD = 12.58). Participants were again roughly split by gender (54.0% female, 44.5% male, 1.43% non-binary or third gender, 0.14% preferring not to indicate their gender), and this time the average political ideology was roughly at the midpoint of the scale (M= 3.76, SD = 2.05). Data were collected in mid-April 2021.

We implemented the same exclusion criterion from Study 1 to omit respondents who spent exceptionally little time reading the message. Reading times did not differ between Democrats and Republicans, t(689.3) = -.31, p = .76, d = -.02, nor did they differ between conditions, F(2, 694) = 1.16, p = .32, but reading times in the control condition (*median* = 11.96 sec) were still quicker than those in the care-fairness (*median* = 16.52 sec) and loyalty-purity (*median* = 15.43 sec) conditions, so we again used the same method to identify exclusion cutoffs within each condition (4.78–6.53 sec). This procedure resulted in the exclusion of 65 participants (9.3% of the sample): 19–24 participants within each condition. The final sample size (N = 632) still provided 80% power to detect rather small interactions ( $f^2 = .01$ ;  $\alpha = .05$ ).

# Procedure

The study proceeded as it did in Study 1 with two notable differences. First, because this study was fielded after vaccines became more widely available, which could provoke some confusion about the continued value of face masks, we added the following statement to all three messages: "Even as vaccination rates increase, individuals should continue to wear a mask during the COVID-19 pandemic ..." The messages were otherwise identical to those used in Study 1. Second, the dependent measures of interest only include perceived message effective-ness and intentions to share the message on social media.

#### Dependent measures

*Perceived message effectiveness.* This was assessed with the same three items as Study 1, which again showed good internal reliability ( $\alpha = .92$ ) and were averaged to form a composite (M = 3.06, SD = 1.08).

*Sharing intentions.* Participants responded to a single item— "How likely would you be to share a message like this on social media?" —on a 5-point scale anchored at "very unlikely" and "very likely" (M = 2.40, SD = 1.40).

#### Results

Because participants were recruited based on categorical selfidentification as "Democrat" or "Republican," we could analyze the data more simply and intuitively using 2 (Party Identity: Democrat vs. Republican)  $\times$  3 (Message: Control vs. Care-Fairness vs. Loyalty-Purity) between-subjects Type III analyses of variance (ANOVA). We decomposed significant interactions by centering variables on the condition(s) of interest. Nevertheless, we still measured political ideology on a continuum and analyzed the data as in Study 1. The results are very similar to those we present here; they are available in full in the online supplement.

# Perceived message effectiveness

Results of a 2 × 3 ANOVA found a main effect of political identity: Democrats found the message more compelling (M = 3.31, SD = .92) than Republicans (M = 2.80, SD = 1.16), F(2, 626) = 37.92, p < .001,  $\eta_p^2 = .06$ . There was also a main effect of message, F(2, 626) = 9.18, p < .001,  $\eta_p^2 = .03$ ; relative to the control message (M = 3.05, SD = 1.10), participants generally evaluated the care-fairness message as more effective (M = 3.27, SD = 1.04) and the loyalty-purity message as less effective (M = 2.85, SD = 1.05). However, this effect was qualified by the hypothesized two-way interaction, F(2, 626) = 5.34, p = .005,  $\eta_p^2 = .02$  (Figure 2).

Consistent with H2, Democrats evaluated the care-fairness message as significantly more persuasive (M = 3.68, SD = .77) than the loyalty-purity message (M = 2.93, SD = .93), F(1, 626) = 27.91, p < .001,  $\eta_p^2 = .04$ . However, in contrast to H3, Republicans did not respond differently to the care-fairness (M = 2.88, SD = 1.11) versus loyalty-purity (M = 2.77, SD = 1.17) messages, F(1, 626) = .53, p = .47.

Further accounting for the control message, consistent with H4, Democrats saw the care-fairness message as significantly more persuasive than the control (M = 3.31, SD = .91), F(1, 626) = 7.02, p = .008,  $\eta_p^2 = .01$ ; however, in contrast to H4, Republicans did not see the loyalty-purity message as significantly more persuasive than the control, F(1, 626) = .01, p = .93. In line with H5, Democrats saw the loyalty-purity message as significantly *less* persuasive than the control message, F(1, 626) = 7.24, p = .007,  $\eta_p^2 = .01$ . For Republicans, however, the carefairness message was not any less persuasive than the control message, F(1, 626) = .65, p = .42.

#### Sharing intentions

Results of a 2  $\times$  3 ANOVA found a main effect of political identity: Democrats expressed more willingness to share the

message (M = 2.69, SD = 1.33) than Republicans (M = 2.10, SD = 1.40), F(2, 626) = 31.29, p < .001,  $\eta_p^2 = .05$ . The results also support a main effect of message, F(2, 626) = 11.12, p < .001,  $\eta_p^2 = .03$ . Once again, relative to the control message (M = 2.48, SD = 1.45), participants were generally more willing to share the care-fairness message (M = 2.66, SD = 1.38) than the loyalty-purity message (M = 2.06, SD = 1.29); however, this was qualified by a significant two-way interaction, F(2, 626) = 4.10, p = .02,  $\eta_p^2 = .01$  (Figure 3).

Consistent with H2, Democrats indicated significantly greater willingness to share messages like the care-fairness message (M = 3.12, SD = 1.29) than the loyalty-purity message (M = 2.15, SD = 1.15), F(1, 626) = 27.05, p < .001,  $\eta_p^2 = .04$ . In contrast to H3, however, Republicans' willingness to share the message did not differ between the care-fairness (M = 2.21, SD = 1.32) and loyalty-purity (M = 1.97, SD = 1.42) messages, F(1, 626) = 1.76, p = .19.

Regarding the comparisons to a control message, the results do not support H4—Democrats did not report significantly more willingness to share the care-fairness message than the control message (M = 2.82, SD = 1.36), F(1, 626) = 2.65, p = .10,  $\eta_p^2 < .01$ . Republicans' willingness to share the loyalty-purity message was similarly no different than their willingness to share a control message (M = 2.11, SD = 1.47), F(1, 626) = .55, p = .46.

Results did, however, support H5 in that Democrats were less willing to share the loyalty-purity message than the control message, F(1, 626) = 13.17, p < .001,  $\eta_p^2 = .02$ . Nevertheless, for Republicans, the willingness to share the care-fairness message did not differ from willingness to share the control message, F(1, 626) = .32, p = .57.

# Discussion

Study 2 largely replicated the patterns detected in Study 1. We still observed interactions between participants' self-reported political views and the morally framed pro-mask messages.



Figure 2. Interaction between party identity and message frame on perceived message effectiveness (Study 2).



Figure 3. Interaction between party identity and message frame on sharing intentions (Study 2).

Support for moral reframing emerged only for Democrats' responses, and we found no message effects for Republican participants despite efforts to recruit a relatively large, balanced sample.

# **General discussion**

Two studies tested moral reframing in the context of political polarization and public health communication. In addition to a general application of prior theory to COVID-19 messaging, we also tested novel hypotheses regarding the benefits of ideology-matched communication versus the drawbacks of ideology-mismatched communication and extended the results beyond personal persuasion to message propagation intentions. Across four types of persuasion outcomes, the results supported interactions between the recipient's political orientation and the use of different pro-mask messages. Strength of support for the more specific hypotheses, however, differed by political orientation.

#### Effects for relatively liberal audiences

We observed the strongest support for moral reframing among relatively liberal message recipients. In these cases, a pro-mask appeal emphasizing care and fairness moral foundations produced more positive outcomes than a similar appeal that instead emphasized loyalty and purity foundations. Although this is consistent with the theoretical basis for moral reframing, it remains somewhat unusual in this literature for effects to emerge for recipients who are already most prone to agree with the message (Feinberg & Willer, 2019). In this case, there has been a strong tendency for more liberal people in the U.S. to comply with various behaviors intended to mitigate the spread of COVID-19. Nevertheless, our studies show that it is more liberal people who show the most sensitivity to the message manipulation across studies.

Notably, our results comparing effects to a topic-relevant, non-moral control message suggest that these moral reframing effects for relatively liberal audiences can arise both because care-fairness messages are particularly influential and because loyalty-purity messages are objectionable. Curiously, whether the matching effect is driven by one of these forces and/or the other was inconsistent across studies and outcomes. With respect to ideology-matched messages, relatively liberal participants evaluated the care-fairness message as more persuasive than the control message in both studies. They also expressed more support for a nationwide mask mandate after reading the care-fairness (vs. control) message. They did not, however, express stronger mask-wearing intentions or willingness to share the message in response to the care-fairness (vs. control) message, although patterns were in the expected direction. On the other hand, with respect to the boomerang effect of ideology-mismatched messages, Study 2 showed that relatively liberal audiences evaluated the loyalty-purity message as less persuasive than the control message and were less willing to share it. Together, these patterns highlight that there is an advantage to invoking moral values when designing health messages, but only when those values are likely to match the audience's orientation. There is more tentative evidence that invoking values can be a disadvantage when they conflict with the audience's orientation.

#### Effects for relatively conservative audiences

For relatively conservative message recipients, however, the effects of moral reframing were not apparent. These null results are especially relevant to the practical concern motivating this research: the relative opposition to COVID-mitigating behaviors by conservatives in the U.S. Even when we deliberately sampled Republican participants (Study 2), we found no evidence that a moral appeal to loyalty and purity was any more effective than either a control message or the care-fairness

message. There are at least two reasons we might have failed to observe a moral reframing effect for conservative audiences. First, our loyalty-purity message may not have adequately captured the moral foundations of interest. We modeled our messages after prior moral reframing research and our reading of the Moral Foundations literature. In addition, we validated the manipulation by using text analysis and linguistic dictionaries for moral foundations (Frimer et al., 2019; Graham et al., 2009) in addition to directly surveying people about the degree to which the messages invoked these values. Nevertheless, perhaps the loyalty-purity message fell short of activating moral concerns for loyalty and purity in some way.

Second, there may have still been too many other influences driving conservative opposition to face masks, which drowned out or prevented the effects of moral reframing. If relatively conservative people were not motivated to elaborate on a promask message, they may not have attended to the message enough to notice the otherwise compelling ideology-matched argument (Petty & Cacioppo, 1986). Recent research on the phenomenon of "message fatigue" may also help explain conservative disengagement with COVID messaging (Kim, So, et al., 2018). However, when people have highly accessible attitudes and they encounter a counter-attitudinal message, they tend to process it more due to a motivation to defend their view (Clark et al., 2008). Nevertheless, even if relatively conservative participants did process the message and its appeal to moral values, it may have made little difference if their initial opposition to masks was non-moral in nature. The efficacy of moral appeals can depend on the audience having a preexisting moral basis for their initial attitude (Luttrell et al., 2019). Therefore, if conservative audiences tended to approach the issue of face masks primarily for group affiliation reasons (Boykin et al., 2021; Powdthavee et al., 2021) or through what seemed like scientific analysis of masks' efficacy, then a moral appeal (even one relying on otherwise audience-appropriate moral foundations) may not have much impact. Nevertheless, the data we present cannot directly interrogate these possibilities; future research should consider how an audience's initial attitude moralization may constrain the impact of even otherwise relevant moral arguments.

Even if we adequately instantiated binding foundations in the loyalty-purity message and relatively conservative participants openly considered the argument, perhaps such appeals simply are not as robust as prior research suggests. Consider our appeal to purity. By referring to the pandemic as "disgusting" and using language such as "disease" and infection by a "foreign virus," this message mirrors prior successful appeals to purity (e.g., Feinberg & Willer, 2013) and connects to an established relationship between political conservatism, disgust sensitivity (Terrizzi et al., 2013), and concern about infectious disease - particularly from foreign sources (O'Shea et al., 2022). However, there is an apparent contradiction in that political conservatism is associated both with concerns for purity and avoiding pathogens but also a reluctance to take a global pandemic seriously. In response to this dilemma, Ruisch et al. (2021) provide a critical reexamination of several aspects of this literature and present data suggesting that the relationships between political ideology, disgust sensitivity, and pandemic response may have been overstated. Therefore,

although Moral Foundations Theory would anticipate that purity appeals are compelling to more conservative recipients, emerging evidence is consistent with our findings that such appeals were not particularly persuasive to this audience.

Finally, although conservatives tend to endorse care and fairness foundations less than liberals do, prior data and theory emphasize that conservatives generally endorse all five foundations about equally (Graham et al., 2013). As such, perhaps it makes sense that conservative audiences would not distinguish between moral messages in this study because they both appealed to values that resonate with conservative ideology. From this perspective, however, it is curious that prior moral reframing research has found that conservatives were *more* persuaded by binding appeals than by individualizing appeals (e.g., Feinberg & Willer, 2015). We invite further efforts to reconcile these somewhat inconsistent findings in prior research.

#### Limitations and future directions

Although these studies provide good statistical validity from using relatively large samples and good external validity from being fielded in the midst of a salient health crisis, we acknowledge some limitations of our findings. First, although we made an effort to sample across the political spectrum, our participants nevertheless self-selected into these studies, which raises some questions about how well they represent the general population. Nevertheless, for research on political ideology, results from online convenience samples tend to reasonably approximate results from true nationally representative samples (Clifford et al., 2015).

Second, our results are clearest when we considered effects on perceived message effectiveness. As we discussed previously, we suspect that the effects on perceived persuasiveness are especially revealing when people's mask-wearing behavior and attitudes toward related policies are likely to have become quite crystallized. Meta-analytic evidence has also shown that ratings of perceived persuasiveness reliably correspond with resulting attitudes, intentions, and actual behavior (Dillard et al., 2007). Other meta-analytic evidence has shown that for comparisons of different messages in particular, the size of the effect seems invariant across different outcome measures, including actual behavior (O'Keefe, 2013). Nevertheless, moral reframing research with behavioral outcome measures remains scant (cf. Kidwell et al., 2013; Winterich et al., 2013; Wolsko et al., 2016), and we encourage future research to consider how much ideology-consistent moral messages can act as a behavior change intervention. These efforts, however, will likely require conducting research at a time when the health behavior of interest is viable but the population of interest is still pondering their willingness to do it. The COVID-19 pandemic, by contrast, was unique in the massive public discourse surrounding mask-wearing, local mandates, and the need for individuals to grapple with the issue before even leaving their homes.

Third, it is worth highlighting that our loyalty-purity message referenced a "foreign virus" to invoke relevant moral foundations. Although this was done with the intention of merely communicating ingroup loyalty values using rhetoric

that was observed during the pandemic, this decision raises important ethical questions for researchers and message designers. The potential benefit of this kind of language in health communication was that it could increase maskwearing in a segment of the population that engaged in this behavior less frequently than other segments. On the other hand, this language could also worsen intergroup relations by evoking unique ethnocentric considerations. Endorsing binding foundations has been linked to greater prejudice (Forsberg et al., 2019; Hadarics & Kende, 2018), and media frames referring to COVID as the "Chinese virus" or explicitly connecting COVID to China led to greater anti-Asian sentiment (Darling-Hammond et al., 2020; Dhanani & Franz, 2021; Holt et al., 2022). In the end, messaging that could have improved certain public health outcomes might have come at the expense of reinforcing racist attitudes. In the present work, however, we found no evidence that this language affected conservatives' health attitudes or intentions, so it would be relatively easy to conclude that this cost/benefit analysis does not favor such a message at all. But more generally, communication scholars should contend with potential undesirable side effects of what might otherwise appear to be promising interventions.

Finally, in trying to understand how to bridge the political divide in mask-wearing, we only considered moral reframing; however, other forms of message tailoring can be effective when addressing audiences with different political views. For example, relatively conservative (vs. liberal) audiences tend to be more persuaded by messages highlighting nostalgia (Lammers & Baldwin, 2018), social hierarchy (Kim, Han, et al., 2018), and maintaining social status (Kim, Han, et al., 2018). There may be many ways in which a message can be oriented toward concerns that are unique to a particular political audience as a way to reduce polarization.

#### Conclusion

Two studies tested the application of moral reframing as a communication technique to advocate for mask-wearing across the political spectrum. Although results largely supported the efficacy of tailored moral appeals for liberal audiences, they did not support corresponding effects for conservative audiences. This research responds to the call for using insights from social science – and communication science in particular – to devise evidence-based solutions to the COVID-19 pandemic (Nan et al., 2022; Susmann et al., 2022). Our results highlight the importance of rigorously testing hypotheses from established communication theory when considering applications to new domains. Future research should further probe the promise and limits of moral reframing as a health communication device.

#### Notes

1. Kidwell et al. (2013) incorporated a relevant non-moral message as a control condition in their studies, but three of these studies collected data for this condition post-hoc. Because participants were not randomly assigned to the control versus experimental conditions, unmeasured sampling variables could confound the conclusions one can draw. In their fourth experiment, they implemented this control condition in the main study but do not report simple slopes analyses.

- 2. Although this minor exclusion did not change the statistical significance of many results, it did strengthen some results that would otherwise have been nonsignificant. We report statistical analyses of the full sample without exclusions in the online supplement for transparency.
- 3. For transparency, we acknowledge that we also measured *social dominance orientation* and *right-wing authoritarianism* as exploratory variables. See the online supplement for a rationale and full analyses of these ancillary variables.
- 4. As a robustness check to guard against potential issues with ceiling effects, we also tested the ideology × message interactions on intentions and attitudes using binomial logistic regression models, dichotomizing these outcomes by whether or not participants selected the most extremely pro-mask response option. Results of these models reveal a marginally significant interaction on intentions and significant interaction on attitudes. See the online supplement for full analyses.
- 5. Indeed, some participants left feedback to this effect in a final invitation for open-ended comments. For example, one respondent wrote: "Although I don't believe that blurb was very persuasive or convincing, I do believe everyone regardless should be wearing masks when out in public spaces." Such sentiment reinforces the utility of examining perceived message effectiveness in a context of high exposure to such messages in the environment.

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