"If Only" in America: Counterfactual Thinking in Response to Politicized Negative Events

by

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DEDICATION

To my family; I wouldn't change anything about you.

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Thank you to my friends. Thank you Julian, Jessica, Richa, Valeria, Joe, Tasha, Crispy, Mei, and Belinda for not only being my friend but living at [address redacted] with me. Coming home to you at the end of each day has been such a blessing to me. Thank you to my cat Elwing, although I know that this cannot validate you because you can't read. Thank you Kelly for making up that joke and for your constant friendship and faithful correspondence. Thank you Matt for cheering me on. Thank you Stephanie, Ashley, Amanda, Trey, and Angie. Thank you to the "bagel unimind" and to Tarana, Jennie, Nuala, Aggie, Morgan, Xinyi, Andrea, Jennifer, Sam, and Pam.

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Standing on the shoulders of giants is truly a concept that applies not only to scientific research, but to everything I have done in my life so far. Thank you for lifting me up.

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ABSTRACT

In this dissertation, I share seven studies detailing how counterfactual thinking relates to partisan affiliation, cultural orientation, policy support, and normative beliefs. In Study 1, I identify a partisan pattern to counterfactual thinking such that Democrats are more likely to mention public policies as potential solutions that might have prevented negative events from occurring, whereas Republicans are more likely to mention the actions of individuals or private groups such as families or companies. In Studies 1-3, I show that a communitarian cultural orientation, defined as a preference for societal intervention in problem-solving, predicts mentioning public policies in counterfactual statements. On the other hand, an individualist cultural orientation, defined as a preference for non-intervention, predicts mentioning individuals as the primary problem-solvers responsible for preventing politicized negative events. In Studies 2 and 3, I show that counterfactual thinking predicts policy support such that the more likely a person is to mention a public policy as a potential solution to a negative event, the more they tend to support policies aimed at addressing relevant societal issues.

In Chapter 3, I describe two studies showing that counterfactual thinking about politicized topics is resistant to norm-based manipulations that typically influence apolitical counterfactual thinking. Specifically, telling participants that a policy (versus non-policy) solution came "barely too late" to prevent a negative event did not make them more likely to mention policies in their counterfactual statements. Instead, partisan affiliation predicted counterfactual content and policy support, and participants tended to mention policy solutions that they supported.

In Chapter 4, I discuss how partisans differ in their normative beliefs about the United States and the world at large, and how these differences in norm perceptions are related to counterfactual responses to national tragedies. In Study 6, I show that partisans hold different descriptive normative beliefs, with Democrats viewing it as more common for guns to be sold and kept irresponsibly, for Americans to be poor or homeless, and for countries around the world to have single-payer healthcare. I also show that normative beliefs predict counterfactual content: participants are more likely to wish for policy solutions after reading about mass shootings and homelessness when they see irresponsible gun behavior and poverty as more common in the United States. They are also more likely to wish for policy solutions to healthcare inaccessibility when they see single-payer healthcare and price caps on medications as more common policies worldwide. In other words, par-

ticipants wished for policy solutions when they saw misfortune as widespread. They also wished for policies that they thought other countries had.

In Study 7, I used two manipulations to shift participants' normative beliefs, but found that participants showed reactance to these manipulations. Even among participants who complied with the research task, results did not support a causal relationship between descriptive normative beliefs and counterfactual content. In Chapter 5, I discuss the implications of this work for political policy, polarization, and gridlock, as well as highlight possible avenues for future research.

CHAPTER 1

Introduction

On May 21, 2020, a *New York Times* article stated: "If the United States had begun imposing social distancing measures one week earlier than it did in March, about 36,000 fewer people would have died in the coronavirus outbreak" (Glanz & Robertson, 2020). When people experience negative events as individuals, as a nation, or, in the case of the Coronavirus pandemic, as a global society, they often think about how things could have turned out better than they did. Although the claim in the *Times* is based on disease modeling, laypeople often construct their own if-then statements about how situations could have turned out differently. Imagining these alternatives to reality is known as counterfactual thinking (Kahneman & Miller, 1986; Kahneman & Tversky, 1981).

Counterfactual thinking affects both emotional responses to events and the actions that people take to bring about more positive outcomes in the future. When it comes to negative events, counterfactual thinking about how things could have turned out better than they did is associated with regret, but it can also serve an important functional purpose by helping people mitigate or prevent similar negative events in the future (Roese, 1994; Roese & Olson, 1997; Smallman & Roese, 2009).

In the context of group decision making, counterfactual thinking is associated with better group decisions via increased information sharing (Galinsky & Kray, 2004). Theoretically, counterfactual thinking (for example, thinking about how past catastrophes could have been prevented and considering worst-case-scenarios that could result from present decisions) should be useful for improving even highly consequential group decisions by increasing group information search and sharing. This may be especially useful when counterfactual thinking elicits negative emotions, when the problem task is complex, and when decision making groups can think complexly and minimize affective conflict (Tripathi & Nath Srivastava, 2016).

Decision making at the national level is characterized by extremely high task complexity and group diversity. However, when laypeople engage in counterfactual thinking, they don't do so in the context of a cohesive decision-making unit, and affective conflict is often high, especially as

people become more polarized in their emotions about political outgroups (Iyengar et al., 2019). The counterfactual statement at the beginning of this chapter implies a belief that things would have turned out better (36,000 people would have been saved) if the United States had begun social distancing sooner, but regardless of whether such an assertion is based on statistical modeling or lay theories, citizens rarely agree on what a nation should do to combat wide-reaching tragedies such as the COVID-19 pandemic. In the wake of a mass shooting, people disagree over what gun control measures are needed; in the wake of a terror attack, people disagree on whether measures should be taken to restrict immigration or increase surveillance. In the face of chronic national issues such as lack of access to affordable healthcare, poverty, and discrimination, people disagree over whether universal healthcare, progressive taxation, affirmative action, and a host of other possible policies would improve the situation. These disagreements often take place along party lines, such that policy preferences are strongly predicted by partisan identification.

In this work, I explore how Americans reason about the causes of and potential solutions to politicized negative events. Specifically, I explore the counterfactual possibilities that Americans bring to mind in the wake of such events: what they think could have happened "if only" the circumstances surrounding the events had been different. I ask how political partisans differ in terms of what they change in their mental simulations of a better world, and where these differences come from. That is, I explore how cultural and normative differences in how they see the world can predict the solutions that people see as feasible and effective. In this chapter, I provide some background information about research on counterfactual "if only" thinking and how it can be helpful for problem solving. I then provide an overview of past research on counterfactual thinking as it relates to politics.

1.1 Counterfactual Thinking

Counterfactual thinking was first described as a mental operation akin to the availability heuristic, whereby what is most cognitively available can have an effect on decision making that is disproportional to its statistical relevance (Kahneman & Tversky, 1981). The availability heuristic involves retrieving instances of events and using the ease of retrieval as a proxy for likelihood. Counterfactual thinking takes this process one step further: counterfactual scenarios are not recalled but constructed. In this way, not only real events but the events that people imagined might have happened can impact people's predictions, perceptions of likelihood, emotions, causal judgments, and plans.

Counterfactual thinking is a useful tool to examine partisan differences in responses politicized negative events because they occur spontaneously after negative events and reveal causal beliefs (McEleney & Byrne, 2006). Although thinking about how things could have been done differently to facilitate a better outcome is associated with regret, these thoughts can prepare people to take

action (Roese & Olson, 1997; Smallman & Roese, 2009). Thinking about what actions could have led to a better result can suggest actions that can be done (or avoided) in the future to prevent similar negative outcomes from happening again (Roese & Olson, 1993)

In a complex world, there are infinite possible ways that people can imagine an event turning out differently. Yet, not all of these possibilities are equally cognitively available or equally compelling. A counterfactual "if-then" statement like the social distancing headline above is only compelling if one both believes that the antecedent (e.g. social distancing being enacted sooner) could have been likely and that the outcome (e.g. 36,000 lives being saved) would be likely if the antecedent were true (Petrocelli et al., 2011). The perceived likelihood of the antecedent is known as "if likelihood", and the perceived likelihood of the consequent given the antecedent is "then likelihood". The term "counterfactual potency" refers to combination of these two likelihoods; the more likely both the antecedent and consequent seem, the more impact the counterfactual thought should have on emotions and planning.

Importantly, when thinking about the past, the term "likelihood" may be thought of not as the likelihood that something *will* happen (since it has already happened or not happened) but as the extent to which it *could have* happened or *almost* happened (Kahneman & Miller, 1986; Kahneman & Tversky, 1981). Solutions that come too late are good examples of this phenomenon. For example, with regards to the COVID-19 pandemic, people who lost loved ones before vaccines were available might imagine counterfactual scenarios in which their loved ones had been able to get vaccinated before getting the disease. The extent to which they believe their loved one would have gotten vaccinated (the "if likelihood") and the vaccine would have saved them (the "then likelihood") influences how potent the counterfactual is. Additionally, how soon the vaccine became available after the death of their loved one matters. If the vaccine came out very soon after their loved one became ill or died, counterfactual thoughts about the vaccine are likely to be highly salient and potent because it seems that their loved one was *almost* able to get the vaccine and would have survived if only the vaccine came a little sooner. In other words, the less a person has to change about a scenario to mentally bring about a better outcome, the more powerful counterfactual thoughts are likely to be. I return to this concept in the section on Norm Theory.

In addition to the perceived likelihood of events surrounding a counterfactual statement, features of the statement itself matter in determining the impact of a thought for emotions and planning. Retrospective counterfactual statements are said to mentally "mutate" or change certain parts of what happened to produce simulations of what could have happened instead. In the COVID-19 example, the headline mutates the timing of social distancing measures. Mutations may involve mentally adding to or subtracting from the original scenario. An additive counterfactual suggests an action that might have been taken (for example, "if we had started social distancing earlier") to bring about a different outcome, and a subtractive counterfactual suggests an action that might

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have been avoided (for example, "if we hadn't reopened restaurants") to bring about a different outcome. Additive counterfactuals are more common in response to negative events, are perceived as more impactful (Dunning & Parpal, 1989), and tend to facilitate behavioral change compared to subtractive counterfactuals (Roese & Olson, 1997).

Another way to think about counterfactual mutations is in terms of their direction, or whether the imagined outcome in a counterfactual is better or worse than the real outcome. Upward counterfactuals adjust the real-life narrative so that the outcome is better – for instance, by referring to an alternative outcome in which 36,000 fewer people would have died. In response to highly negative events, upward counterfactuals are much more common, although people do sometimes generate downward counterfactual statements along the lines of "at least the outcome wasn't worse" (McMullen & Markman, 2000). For example, in response to the COVID-19 pandemic, statements indicating that the United States is doing better than some countries, in certain categories, imply that things could be worse (Breuninger, n.d.).

Upward counterfactuals can alleviate some of the negative emotional effects that come from dwelling on what might have been, but they are not as useful for generating solutions (Roese & Olson, 1997). As might be expected, upward counterfactuals facilitate behavioral change more than downward counterfactuals, because downward counterfactuals encourage us to be content with the way things turned out in comparison to an imagined worse alternative. As such, these types of statements are rare in response to negative situations or events and become less common as events become more negative and it becomes harder to identify a bright side. Upward counterfactuals, by contrast, prompt action by suggesting actions that can be taken to facilitate better outcomes in the future. Because upward counterfactuals are more common after negative events, and more related to prevention efforts, I focus primarily on upward counterfactual statements in this research.

However, counterfactual thoughts do not simply motivate people to act by signaling that there is a problem through negative affect. Rather, counterfactual statements help people to make specific plans. Thoughts about what might have been can help people to reason out the causes of negative events as well as actions that might have been taken to bring about better outcomes (Mandel & Lehman, 1996; Smallman & Roese, 2009; Spellman & Mandel, 1999). Counterfactual thoughts involving specific, concrete actions (such as beginning social distancing on March 9th instead of March 16th) facilitate intentions to act more than those involving abstract actions or traits (Smallman, 2013).

1.2 Counterfactuals and Politics

In the previous section, I detailed some features of counterfactual thinking that can make the process more or less emotionally impactful and more or less useful for identifying solutions. Most of the

research I drew upon in this section involves participants considering scenarios in which a single person – either the participant or a fictional character – suffered a negative event. In these cases, it is common to focus on what actions the target – or whoever is the focus of the story – could have taken to avoid or mitigate the negative event (Kahneman & Tversky, 1982). Of course, in the case of large-scale politically relevant negative events, individual actors have less control over the actions they take or the situations in which they find themselves. During a pandemic, for example, individuals can stay home to avoid getting sick, but individuals cannot mandate masks be worn by strangers they encounter when they do go out. In any such large-scale challenge where outcomes are determined by many different actors, the power to prevent negative outcomes might lie not only with individuals to protect themselves, but also with policymakers to protect citizens as a whole.

In cases such as these, the types of counterfactual statements that come to citizens' minds might involve not only ideas as to what individuals might have done differently to avoid negative outcomes themselves, but also ideas as to what policies could be used to address issues at a national level. In this research, I was interested in the content of counterfactual thoughts about large scale negative events that affect a country as a whole. What comes to people's minds when they think about these issues? What solutions do they propose, not just for themselves, but for their country or society? And how might social or cultural groups differ in the types of solutions they favor?

1.3   Cultural Orientation

Sociocultural groups in the United States are likely to differ in terms of what seems normative to them, what seems possible to enact, and even what seems possible to imagine (Tetlock et al., 2000). Insofar as the major political parties in the United States tend to suggest different causes and solutions to national problems, partisan participants might also systematically differ in the types of "if only" statements they come up with in response to a tragedy. What is it about partisanship that might contribute to these partisan differences? One way to think about partisanship is to think of each party as a sub-culture within American culture. As such, partisans may differ from one another along dimensions of cultural cognition (Kahan et al., 2010). Specifically, the extent to which citizens prefer low versus high government or societal intervention in day-to-day life (that is, the extent to which they take an individualistic, versus communitarian, view of society) might influence the avenues they view as appropriate for affecting political and societal change, including the solutions they view as plausible for preventing negative outcomes.

Consider, for example, the case of outpatient commitment laws that allow courts to mandate mental health treatment. Past research shows that individuals high in indiviudalism (favoring self-determination over societal intervention) and egalitarianism (favoring social equality) are more likely to oppose such laws, whereas those high in communitarianism (favoring societal intervention)

and who ascribe to a hierarchical view of society are more likely to favor them (Kahan et al., 2010). These two cultural orientations result in somewhat contradictory predictions for political partisans, because Democrats tend to be higher in both communitarianism and egalitarianism, whereas Republicans tend to be higher in individualism and hierarchy (Federico & Tagar, 2014). When it comes to policies like outpatient commitment laws where attitudes are not clearly defined along partisan lines it is these cultural variables that determine support for an opposition to such policies. However, even when it comes to more entrenched political beliefs, such as support for and opposition to gun control, cultural orientation is a stronger predictor of attitudes than liberalism and conservatism (Kahan & Braman, 2003). Thus, cultural orientation may be an important driver behind partisan and ideological attitudes, and it might influence what sorts of solutions to national problems seem plausible and desirable.

1.4   Norm Theory

Another important consideration when predicting the types of solutions people will generate is what types of solutions are most normative. A major determinant of counterfactual content is which features of the situation (i.e. antecedents to the negative event) seem normal or abnormal (Kahneman & Miller, 1986). In this case, abnormality refers to the ease with which alternatives, whether real or imagined, come to mind. A given stimulus event will seem abnormal when it is easy to imagine something else happening instead. Because of this, of the many antecedents that precede a negative outcome, those antecedents that seem unusual are most likely to be featured in mutations.

For example, in Kahneman and Tversky's Kahneman and Tversky (1982) scenario, a man named Mr. Jones leaves work either on time and early, and travels along either his usual route or a scenic route that he occasionally takes. After hearing that he is killed in a car accident, when asked to generate counterfactuals, participants are more likely to say that Mr. Jones should have left on time when he is said to have left early, and more likely to say that he should have taken his usual route when he is said to have taken the scenic route. In other works, it is easiest for participants to come up with ways to "undo" the antecedent that is presented as abnormal.

In the case of politically relevant counterfactuals, participants might disagree on what is abnormal in a given situation. For a pandemic, legislation to enact social distancing can be seen as either normal or abnormal, depending on a person's beliefs about what information is relevant to the judgment. A person whose frame of reference is the United States' behavior during their lifetime might see lockdowns as abnormal and might therefore be unlikely to generate counterfactual scenarios in which lockdowns happened sooner or were more strict. On the other hand, a person whose frame of reference is the policies of countries around the world might compare the United States to countries where lockdowns began sooner and thus consider the United States' delay, rather

than the lockdown itself, to be abnormal. A person who sees the delay as abnormal, then, would be more likely to target it as a cause of the negative outcome.

For each of these hypothetical people, the counterfactual that most easily comes to mind is likely to be the one that "undoes" what they see as most abnormal about the scenario. On one hand, a person who sees the United States' timing as abnormally late compared to the rest of the world is likely to undo that delay in their counterfactual thoughts. If only the United States had begun social distancing earlier, as would be in line with their normative beliefs, the outcome could have been better. On the other hand, a person who sees lockdowns themselves as abnormal would be unlikely to generate such a statement. Instead, they might refuse to think counterfactually about the pandemic and consider it inevitable. They might generate counterfactuals about events they see as abnormal, such as traveling while sick. They might focus not on the spread of disease but on disruptions to daily life and generate counterfactuals in which the United States never locked down at all. The major prediction of norm theory is that the more unusual an event seems, the easier it is to imagine alternatives to it, and the more likely it is to be targeted in counterfactual statements.

1.5 Theoretical Model

Based on previous research on counterfactual thinking about politicized and apolitical topics, I constructed a theoretical model of how counterfactual thinking about politicized negative events might lead to support for public policies aimed at preventing similar events in the future.

In this model, diagrammed in Figure 1.1, political partisanship predicts the content of participants' counterfactual statements, such that Republicans and Democrats should change different antecedents to negative events that are politically relevant. In turn, counterfactual content should predict policy preferences such that mentioning a policy as a potential solution to a negative event should be associated with high support for the policy.

Cultural orientation - whether participants are individualistic or communitarian in their preferences for societal intervention - should predict counterfactual content such that the more communitarian a participant is, the more likely they will be to mention societal or governmental solutions in their counterfactual statements. Cultural orientation should also be highly related to partisanship, such that Republicans are more individualistic and Democrats more communitarian.

This model predicts that norms will function in two ways. First, antecedents that seem most abnormal - that is, those for which alternatives are highly available, will be most likely to be mutated in participants' counterfactual statements. Second, participants' prior beliefs about what events are descriptively normative in the United States and in the world at large will influence the availability of alternatives and, in turn, counterfactual content. These prior normative beliefs are distinct from the perceived normality of antecedents to negative events as described by Kahneman and Miller

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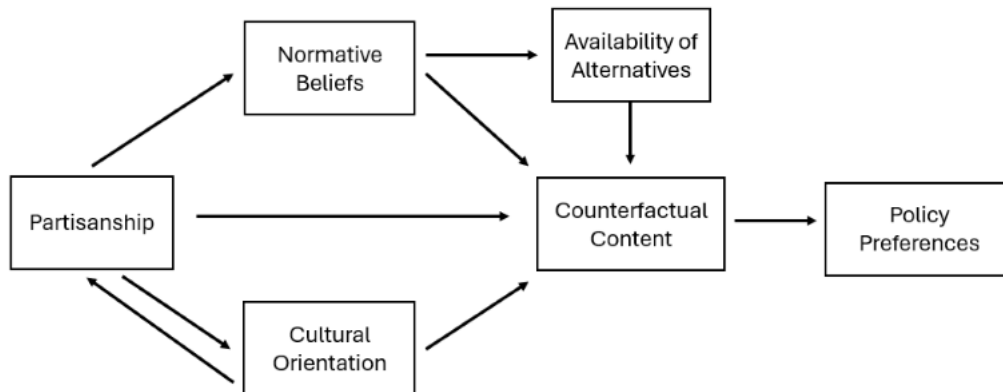
Figure 1.1: Theoretical model depicting hypothesized relationships between partisanship, cultural orientation, normative beliefs, counterfactual thinking, and policy preferences.

Kahneman and Miller (1986) in that, rather than being constructed ad hoc in the context of a particular (negative) event, they are expected to already exist as part of participants' worldviews and to be influenced by participants' ideological and partisan beliefs.

1.6 Overview

In this dissertation, I explore some of the relationships depicted in this model in seven studies about how counterfactual thinking relates to partisan affiliation, cultural orientation, policy support, and normative beliefs and expectations.

In Chapter 2, I describe three studies documenting the relationship between partisanship, counterfactual content, policy preferences, and cultural orientation. Specifically, I show systematic differences in counterfactual content by partisanship and cultural orientation, with Democrats and Communitarians mentioning more groups and public policies and Republicans and Individualists mentioning more individuals and private entities. I also show that counterfactual content predicts policy preferences, though not always over and above partisanship.

In Chapter 3, I describe two studies in which I tried to manipulate counterfactual content to determine whether there is a causal relationship between counterfactual thinking and policy preferences. Instead, I show that counterfactual thinking about politicized topics is resistant to norm-based manipulations that typically affect apolitical counterfactual thinking. Specifically, I attempted to manipulate the availability of different (policy or non-policy) alternatives by manipulating which

one seemed to "almost" have happened. However, unlike apolitical scenarios, politicized negative events elicited partisan-aligned counterfactuals regardless of experimental condition.

In Chapter 4, I examined a possible reason that partisans might not have been as flexible when reasoning about politicized topics as they would have been in an apolitical context. Specifically, I discuss how partisans differ in their preexisting beliefs about the types of events that are statistically normative in the United States and the world at large. I show that these differences in norm perceptions predict counterfactual responses to national tragedies, but that they may be difficult to manipulate and that even manipulating these normative beliefs may not meaningfully shape counterfactual content. Finally, in Chapter 5, I discuss the implications of this work for political policy, polarization, and gridlock, as well as highlight possible avenues for future research.

CHAPTER 2

Partisan Differences in Counterfactual Thinking

2.1 Introduction

As noted in Chapter 1, American partisans often disagree about the feasibility and desirability of potential solutions to the nation's problems. In this chapter, I will discuss how partisans differ in terms of their counterfactual "if only" statements about policized negative events, and how these differing counterfactual judgments predict their policy preferences. In addition, I explore cultural orientation - that is, individualism versus communitarianism - as another predictor, beside partisanship, of counterfactual content.

2.2 Study 1

In Study 1, I identified some factors that predict the content of Americans' counterfactual thoughts in response to nationally-relevant negative events. Because these events are often politicized, I expected that Republicans and Democrats would differ systematically in their responses, mutating different antecedents in their counterfactual statements. This would imply different beliefs about what caused the negative events in the first place, and about what solutions might be desirable in the future.

Specifically, I predicted that Republicans would be more likely than Democrats to mention things that individuals could have done differently to prevent or mitigate the negative events, and that Democrats would be more likely than Republicans to mention things that groups of two or more people could have done differently. Among those who did mention groups, I expected that Democrats would be more likely than Republicans to mention public policy, and that Republicans would be more likely than Democrats to mention the actions of private groups such as companies or families. I did not make specific predictions about the types of individuals participants might mention when they implicated individuals in their counterfactual statements.

I did expect that counterfactual content would be predicted not only by partisanship but by participants' overall preferences for societal versus individual solutions to social problems (a concept known as cultural cognition; (Kahan et al., 2010)). Specifically, I expected that participants who endorsed more societal intervention (i.e. those with a more communitarian cultural orientation) would be more likely to mention public policies, and that those who endorsed less societal intervention (i.e. those with a more individualistic cultural orientation) would be more likely to mention individuals.

2.2.1 Method

Data for Study 1 were collected in April of 2019.

2.2.1.1 Participants

Demographics   I recruited 25 Republicans and 25 Democrats using Amazon's Mechanical Turk crowdsourcing platform and TurkPrime. Participants ranged in age from 23 to 61 ($M = 38.90$, $SD = 8.74$). Women made up 33.33% of the sample and men 66.67%. In terms of ethnicity, 81.25% were White or European American, 8.33% were Asian, 8.33% were Hispanic or Latino/a, and 4.17% were Black or African American. In this and all subsequent studies, participants selected all ethnicities that applied to them.

Partisan Identification   Although I recruited Republicans and Democrats based on their previous party identification on TurkPrime, I also asked participants to indicate party identification using a seven-point bipolar scale with the options "Strong Democrat", "Democrat", "Lean Democrat", "Independent", "Lean Republican", "Republican", and "Strong Republican." This measure was correlated at $r = .92$ with the question "How would you describe yourself politically?" measured on a bipolar scale with the endpoints "Very Liberal" and "Very Conservative". I report the centered Democrat-Republican scale in all models. I excluded two participants who did not generate any counterfactual statements.

2.2.1.2 Materials

Vignettes   I created ten vignettes loosely based on Kahneman and Tversky's (Kahneman & Tversky, 1981) "Mr. Jones" vignette. Each vignette described a highly negative event from the third-person perspective of a named "main character". In each scenario, I described several antecedents leading up to the negative outcome. The negative events were related to highly politicized topics: two vignettes each were related to healthcare, poverty, public acts of violence, and abortion, and one vignette each was related to immigration and racism. Participants were aware that the events were fictional but based on real events.

Of the healthcare-related vignettes, one described a man with diabetes who could no longer afford his insulin and passed away, and the other described a man with HIV who could not afford a medication he needed to treat an infection and passed away. The vignettes related to poverty described a single mother who was struggling to afford basic needs for herself and her children, and a veteran who had recently become homeless. The vignettes related to public violence described a woman who was killed in a terror attack on her place of business, and a student who was killed in a school shooting. The vignettes related to abortion described a teenager who got an abortion to avoid being kicked out of her home, and a woman with cancer who decided not to terminate her pregnancy in order to receive treatment and passed away as a result. The vignette about immigration described a woman who sought asylum in the United States and was separated from her child at the border, and the vignette about racism described a highly qualified Black job candidate who suspected he was passed up for a job because of his race. All of the vignettes are provided in full in Appendix A.

As an example, the vignette related to the school shooting read:

> Noah was a fifteen-year-old freshman in high school. He played the oboe in his school orchestra and had just made the school's soccer team. One day, a senior student, who Noah didn't know, brought a gun to school. The senior had been in trouble several times for discipline issues, and eventually had been suspended. On the day of his suspension, the senior came to the school cafeteria during lunch and began shooting at random. Several students, including Noah, were killed.

Participants read all ten vignettes in random order. I asked participants to generate counterfactual statements in response to each scenario using the following prompt adapted from Kahneman and Tversky (Kahneman & Tversky, 1981):

> When I hear about such stories in the news, I often think "if only . . ." How would you continue this thought? Please write one or more likely completions.

By asking participants to generate statements beginning with the phrase "if only", I effectively asked them to specifically generate upward counterfactual statements – that is, to imagine how the situation could have turned out better, rather than worse, than it did. I did so because these types of counterfactual statements are associated with the preparatory function of counterfactual thoughts – that is, with suggesting ways the problem could have been avoided in the past in order to better prepare to avoid the same problem in the future (Roese, 1994). Participants had the opportunity to generate up to two counterfactual statements in response to each scenario. With ten vignettes and 48 respondents, participants could generate a maximum of 960 statements and actually generated 906. All analyses are conducted with the statement as the unit of analysis.

Cultural Cognition After participants responded to all ten vignettes, I asked them to complete a measure of the individualism-communitarianism cultural worldview (Kahan et al., 2010). This scale contains 16 items designed to measure preferences for individual versus societal solutions to problems. For 11 items, affirmative responses indicate individualism (example: *society works best when it lets individuals take responsibility for their own lives without telling them what to do*) and for five items affirmative responses indicate communitarianism (example: *the government should do more to advance society's goals, even if that means limiting the freedom and choices of individuals*). Participants answered these items on a six-point Likert-type scale ranging from "Strongly Disagree" to "Strongly Agree." In our analyses, I reversed the five communitarian items so that higher scores on the scale indicate a more individualistic worldview. All scale items are available in Appendix B.

2.2.1.3   Coding Scheme

One research assistant who was unaware of the study's hypotheses or participants' political orientations coded participants' open-ended responses according to several criteria. First, each statement was coded as either a counterfactual statement or a non-counterfactual statement. Next, in keeping with other research on counterfactual thinking, statements were coded for direction (upward or downward) and structure (additive or subtractive; Roese, 1994).

I introduced a new coding scheme for the purpose of this research to determine the actor that participants implicated in their counterfactual statements – that is, who they stated might have changed or prevented the negative event through their actions or inaction. As diagrammed in Figure 2.1, the coder first determined whether each statement implicated an individual person or a group (two or more people, an organization or a cultural group). When it was not possible to determine whether an individual or group was responsible for acting, the statement was coded as implicating "the situation." Among statements implicating an individual, individuals were coded as either the "Target" or named main character of the vignette, or another person ("Other"). Among statements implicating a group, groups were coded as either private groups (such as families or private companies) or public groups (that is, the government). I included any references to public policies in the Public Group category.

For example, in response to the school shooting scenario above, individual implications about the target person (Noah) included statements such as "if only Noah had stayed home that day", and implications about another person included statements about the shooter or about ambiguous others – for example, "if only someone had been paying more attention to the senior student". Public group implications included general or specific policy suggestions such as "if only gun laws were stricter", and private group implications included statements such as "if only the school had better security". Finally, I used "situation" to code for statements that could not be attributed to an individual or group, including vague statements such as "if only this hadn't happened."

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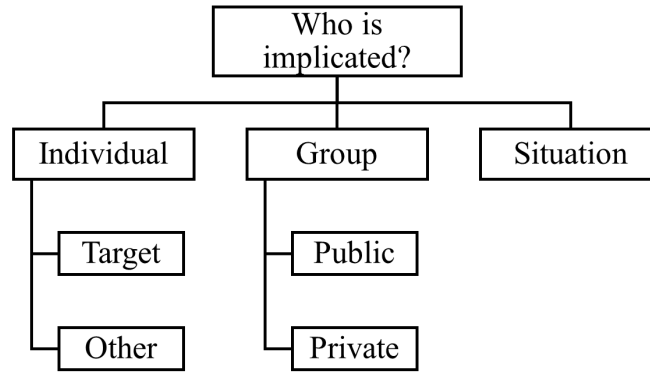
Figure 2.1: Graphical representation of the coding scheme for participants' open-ended responses.

2.2.2 Results

Because participants responded to multiple scenarios and had the opportunity to respond to each one multiple times, I conducted binomial generalized linear mixed-effects models with statement number at level 1, vignette at level 2, and participant at level 3 using the lme4 package in R (Bates et al., 2014). I first regressed the binary likelihood of a statement being counterfactual, being upward in direction, and being additive in structure on political affiliation, treating the vignette and the participant as random variables (Austin & Merlo, 2017).

Almost all of participants' statements (99.22%) were counterfactual. Political orientation was unrelated to the likelihood of generating counterfactual statements, $\beta = 0.10$, $z = 0.24$, $p = .814$. As is typical with highly negative events, and with statements beginning with the phrase "if only," all of the counterfactual statements were upward, indicating a way that the situation could have turned out better, rather than worse, than it actually did. In terms of structure, 73% (653 statements) were additive and 27% (236) were subtractive. There were no partisan differences in the structure of the counterfactual statements, $\beta = -0.02$, $z = -0.45$, $p = .655$.

2.2.2.1 Partisan Differences

As a reminder, our political affiliation variable is continuous and mean-centered across all studies. For ease of communication, I use the shorthand "Republicans" and "Democrats" to indicate those expressing a stronger affiliation with the Republican and Democratic parties, respectively.

Across the ten different scenarios, statements generated by Republicans were less likely to implicate a group, $\beta = -0.22$, $z = -2.61$, $p = .009$, 95% CI [-0.39, -0.05], and more likely to implicate an individual, $\beta = 0.25$, $z = 2.61$, $p = .009$, 95% CI [0.06, 0.45][1]. There was no relationship between

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[1]These models were singular with all random terms included, and Response Number did not predict any of the variance in responses. Therefore, the random term for Response Number was excluded.

partisanship and the likelihood that a statement was coded as implicating the situation, β = -0.08, z = -0.88, p = .378, 95% CI[].

Considering only those statements that implicated an individual, those generated by Republicans were marginally more likely to mention the target person in the scenario than those generated by Democrats, β = 0.19, z = 1.74, p = .083, 95% CI [-0.03, 0.42][2]. Among statements that implicated a group, those generated by Republicans were less likely to mention a public actor (that is, the government or a public policy) than those generated by Democrats, β = -0.23, z = -3.27 p = .001, 95% CI [-0.38, -0.09][3].

2.2.2.2 Analyses by Vignette

In this study, I was interested primarily in whether there were systematic partisan differences in responses to negative events across a wide variety of topics. However, in order to closely examine how responses might differ between topics, I also analyzed the likelihood of mentioning an individual and group for each vignette in the study. As before, I conducted multilevel binomial logistic regressions, treating participants as a random variable[4].

Across most of the vignettes, our overall pattern held such that statements generated by Democrats were more likely to mention groups and those generated by Republicans were more likely to mention individuals. These relationships reacted statistical significance for the vignette about the homeless Veteran. The same pattern held but was marginal for the Single Mom and Immigration scenarios. In response to the scenario about Insulin, Democrats were more likely to mention groups, but Republicans were not significantly more likely to mention individuals. For the HIV and Racism scenarios, Democrats were not significantly more likely to mention groups, but Republicans were marginally more likely to mention individuals. There was no significant effect of partisanship on the likelihood of mentioning groups or individuals for the Risky Pregnancy, Teen Pregnancy or School Schooling scenarios. Statistics are available in Table 2.1.

2.2.2.3 Cultural Cognition

Cultural cognition was correlated with political affiliation at r = .71, with participants being more individualistic the more they identified as Republicans. Higher individualism scores are not represented among participants who identify as Strong Democrats (highest individualism score 2.57) or Democrats (highest score 3.88), and lower scores are not represented among those who identify as Republicans (lowest score 2.81) or Strong Republicans (lowest score 4.00). I had initially planned to run models predicting counterfactual content from both cultural orientation and political affiliation, but decided to treat the two separately because of the strong correlation.

Cultural orientation predicted counterfactual content such that statements were less likely to

Table 2.1: Group and Individual Mentions Predicted by Partisanship for Each Vignette, Study 1

Analysis	β	z	p	95% CI
Veteran				
Group Mentions	-0.45	-2.91	.004	[-0.76, -0.15]
Individual Mentions	0.57	2.62	.009	[0.14, 1.00]
Insulin				
Group Mentions	-0.38	-2.66	.008	[-0.66, -0.10]
Individual Mentions	0.49	1.48	.138	[-0.16, 1.15]
Single Mom				
Group Mentions	-0.51	-1.73	.084	[-1.10, 0.07]
Individual Mentions	0.39	1.83	.068	[-0.03, 0.82]
Refugee				
Group Mentions	-0.24	-1.75	.080	[-0.51, 0.03]
Individual Mentions	0.29	1.90	.058	[-0.01, 0.60]
HIV				
Group Mentions	-0.14	-0.98	.330	[-0.43, 0.14]
Individual Mentions	0.35	1.78	.075	[-0.04, 0.73]
Racism				
Group Mentions	-0.14	-0.83	.406	[-0.48, 0.20]
Individual Mentions	0.28	1.80	.072	[-0.03, 0.58]
Shooting				
Group Mentions	-0.16	-1.25	.211	[-0.41, 0.09]
Individual Mentions	0.20	1.32	.187	[-0.10, 0.51]
Teen Pregnancy				
Group Mentions	-0.17	-1.02	.308	[-0.48, 0.15]
Individual Mentions	0.26	1.38	.169	[-0.11, 0.64]
Risky Pregnancy				
Group Mentions	0.02	0.10	.924	[-0.45, 0.50]
Individual Mentions	0.10	0.59	.554	[-0.23, 0.43]
Terror				
Group Mentions	-0.04	-0.29	.772	[-0.33, 0.24]
Individual Mentions	0.09	0.64	.525	[-0.19, 0.36]

mention groups the higher the participants who generated them were in individualism, β = -0.66, z = -3.77, p < .001, 95% CI [-1.01, -0.31]. Or, to put it another way, the higher participants were in communitarianism, the more likely they were to mention groups. I found the opposite for individual mentions: the higher participants were in individualism, the more likely they were to mention individuals in their counterfactual statements, β = 0.66, z = 3.23, p = .001[5]. There was no relationship between cultural orientation and the likelihood of a statement being coded as a "situation", β = -0.05, z = -0.24, p = .808, 95% CI [-0.43, 0.33][6].

Taking only statements that mentioned a group, statements were less likely to mention public policy the higher the participants who generated them were in individualism, β = -0.48, z = -2.93, p = .003, 95% CI [-0.83, -0.17]. Among statements mentioning an individual, there was no relationship between cultural orientation and the likelihood of mentioning the target person versus another individual, β = 0.37, z = 1.57, p = .116, 95% CI [-0.11, 0.86].

2.2.3 Discussion

The results of Study 1 suggest that there are systematic differences in the way partisans approach problems that are relevant to the nation as a whole. Both Republicans and Democrats suggested ways that these clearly negative events could have been prevented or improved, but they disagreed about how such problems should be addressed. Specifically, Republicans tended to ascribe to a more individualistic cultural orientation, reporting preferences for less societal intervention in everyday problems. Their counterfactual statements reflected this orientation; the more participants identified as Republicans, the more they tended to focus on what individuals and private groups such as families or companies could have done to reduce the harm or prevent it from occurring. Democrats, on the other hand, tended to ascribe to a more communitarian cultural orientation, reporting preferences for more societal intervention to solve everyday problems. Consistent with this worldview, the more participants identified as Democrats, the more likely they were to focus on what groups could have done and especially what public policies could have been enacted to mitigate or prevent the negative events.

It is worth noting that although this was the case in general, there were some vignettes for which this pattern did not emerge. For several scenarios, the relationship between partisanship and the likelihood of citing groups or individuals did not reach significance, but the only scenario in which the pattern was not in the direction of Democrats mentioning groups and Republicans mentioning individuals was the Cancer Treatment vignette, in which the slope was positive (indicating greater likelihood of mentioning for Republicans) in both the group and individual models. For this vignette, mentioning groups was rare, with only 6 responses (6.7%) mentioning a group, compared to 58 (65.2%) mentioning an individual and 25 (28.1%) mentioning the situation.

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2.3 Study 2

In Study 2, I was interested in whether the content of participants' counterfactual statements predicts their preferences for related policies. Using a procedure similar to that in Study 1, I asked participants to generate counterfactual statements in response to a subset of vignettes: the healthcare scenario related to HIV, the immigration scenario, the poverty scenario about the homeless veteran, and the gun violence scenario. Using the same coding scheme as in Study 1, I coded responses for whether participants suggested policy solutions or more private approaches. I examined the relationship between counterfactual content and support for specific policies that might have affected the outcome of each vignette. I also examined the associations between counterfactual content, policy support, partisanship and cultural orientation. I tested three major hypotheses:

    1. Political affiliation will predict counterfactual content such that statements generated by Democrats will be more likely to implicate groups, especially the government, whereas those generated by Republicans will be more likely to implicate individuals or private groups.

    2. Statements generated by participants high in individualism will be more likely to implicate individuals as problem-solvers, whereas those generated by participants high in communitarianism will will be more likely to implicate groups.

    3. Counterfactual content will be related to policy support such that, for each topic, generating policy-related counterfactuals will predict greater support for policies aimed at addressing the relevant problems through government intervention.

2.3.1 Method

Data for Study 2 were collected in February of 2020.

2.3.1.1 Participants

I recruited 100 Democrats and 100 Republicans from Amazon's Mechanical Turk crowdsourcing platform. I removed from the sample two participants who either did not answer any open-ended questions or who generated exclusively statements that were coded as non-counterfactual, leaving us with a final sample of 197 participants.

    Participants ranged in age from 20 to 72 ($M = 38.39$, $SD = 11.85$). Political orientation was slightly correlated with age such that more Republican leaning participants tended to be older ($r =$ .23). The gender distribution was 50.5% female, 49.5% male, and there were no differences in party affiliation by gender, with women reporting an average party affiliation of 3.88 and men reporting an average affiliation of 3.95 on our seven-point scale. In terms of ethnicity, 78.6% of participants were White, 6% were Asian, 5.5% were Black, 3.8% were Hispanic or Latino/a, and 6% were

mixed or other races.

2.3.1.2 Vignettes and Cultural Orientation

As in Study 1, participants read the vignettes in random order and generated one or two counter-factual responses beginning with the phrase "if only". With four scenarios and 182 respondents, participants could generate a maximum of 1456 statements. Participants also completed the cultural orientation scale as in Study 1.

2.3.1.3 Policy Preferences

Participants also indicated their preferences for policies related to healthcare, gun control, poverty, and immigration. All policy opinions were measured using a five-point Likert-type scale ranging from "strongly favor" to "strongly oppose". To measure support for gun control, I used ten items adapted from a Pew Research Center survey (2017), reverse-scoring items that indicated a preference for easing gun restrictions (four items). Sample items include "to what extent do you favor banning assault-style weapons?" and "to what extent do you favor allowing concealed carry in more places?" (R).

I also adapted the questions on immigration policy from a Pew Research survey (Pew Research Center, 2019). These items were specifically about asylum policy affecting immigrants entering the U.S. through Mexico. I reverse-coded two items for which agreement indicated a preference for stricter immigration policy. Sample items include "to what extent do you favor increasing the number of judges handling asylum cases?" and "to what extent do you favor making it harder for asylum seekers to be granted legal status in the U.S.?" (R).

Items about economic policy included items about the federal minimum wage and universal basic income as well as progressive taxation and specific housing policies that might be relevant to homelessness. Sample items include "To what extent do you favor raising the federal minimum wage to $15 per hour?" and "to what extent do you favor creating a National Housing Stabilization Fund, which would provide emergency assistance to families vulnerable to losing their housing after a financial shock?"

Items about healthcare included questions about single payer healthcare as well as price gouging of medications specifically. Sample items include "to what extent do you favor a national health plan in which Americans who want to could get their insurance from a single government plan?" and "to what extent do you favor limiting the amount pharmaceutical companies can charge for medications?" Complete lists of all policy items are included in Appendix C.

2.3.1.4   Procedure

Participants completed the survey items in randomized blocks, such that participants either saw the vignettes (in random order) followed by the five policy preference scales (in random order) or vice versa. Policy items were always arranged by issue (i.e. gun control, immigration, economics, and healthcare), but individual items were randomized within blocks.

2.3.1.5   Qualitative Coding

Three research assistants coded participants' open-ended responses according to the coding scheme used in Study 1. Coders were unaware of the study's hypotheses and did not have access to any information about participants beyond what they wrote in their open-ended responses. Each coder coded a subset of participants' responses, with 15 participants coded by all three coders. Inter-rater reliability (with all three coders agreeing) was 99% for determining whether a statement was a counterfactual; 99% for direction; 95% for structure; 87% for whether a statement implicated an individual, group, or situation; and 78% for whether a statement implicated the target person, another individual, a public group, or a private group. Note that the inter-rater reliability is necessarily lower at more specific levels of our coding scheme, as coding for *who* the statement implicated is depended on coding for the *number* of people the statement implication (individual or group), which is dependent on whether the statement was coded as a counterfactual (as non-counterfactual statements were not coded).

2.3.2   Results

2.3.2.1   Counterfactual Content

As in Study 1, I specified multilevel logistic regression models with Response Number (1 or 2), Topic (HIV, Refugee, Shooting, and Veteran), and Participant as random variables. Whenever one or more of these variables did not predict any of the variance, I removed them from the model.

Because I specifically asked participants to generate counterfactual statements, almost all of their responses (1,370 out of 1402) were counterfactual. Political affiliation was not related to the likelihood of a statement being counterfactual, $\beta = 0.05$, $z = 0.17$, $p = .869$, 95% CI [-0.57, 0.68].

As in Study 1, our vignettes were highly negative, and I asked participants to begin their statements with "if only", which led participants to generate mostly counterfactual statements in an upward direction (99.9%). More statements were additive (82.9%) than subtractive (17.1%), and political affiliation did not predict counterfactual structure, $\beta = -0.03$, $z = -0.68$, $p = .497$, 95% CI [-0.10, 0.05].

I replicated the partisan pattern I observed in Study 1. Statements were less likely to mention groups the more those who generated them identified as Republicans, $\beta = -0.16$, $z = -3.92$, $p < .001$, 95% CI [-0.24, -0.08]. Conversely, Republicans were more likely to mention individuals in their statements, $\beta = 0.24$, $z = 4.12$, $p < .001$, 95% CI [0.14, 0.34]. There was a marginal relationship between partisanship and the likelihood of a counterfactual statement being coded as "the situation", with Democrats slightly more likely to implicate the situation, $\beta = -0.09$, $z = -1.79$, $p = .073$.

Taking only statements that mentioned a group, those generated by Democrats were more likely to mention public policy, $\beta = -0.23$, $z = -5.23$, $p < .001$, 95% CI [-0.31, -0.14]. Taking only statements that mentioned an individual, those generated by Republicans were more likely to mention the target person in the vignette, $\beta = 0.14$, $z = 2.42$, $p = .015$, 95% CI [0.02, 0.26].

2.3.2.2 Analyses by Vignette

As in Study 1, I also analyzed the likelihood of mentioning a group or individual separately for each vignette. I found that Democrats were more likely to mention groups, and Republicans were more likely to mention individuals, for the HIV and Refugee vignettes. For the Veteran vignette, Republicans were more likely to mention individuals but Democrats were not significantly more likely to mention groups, and for the School Schooling vignette I did not observe partisan differences. Statistics for these analyses are available in Table 2.2.

2.3.2.3 Cultural Orientation

As in Study 1, cultural orientation was highly correlated with political affiliation ($r = .70$) with Republicans being more individualistic. I analyses counterfactual content predicted by cultural orientation separately from partisanship. The more communitarian participants were, the more likely they were to mention a group in their counterfactual statements, $\beta = -0.43$, $z = -5.01$, $p < .001$, 95% CI [-0.60, -0.26]. The more individual participants were, the more likely they were to mention individuals, $\beta = 0.62$, $z = 5.78$, $p < .001$, 95% CI [0.41, 0.84]. There was a marginal relationship betwen cultural orientation and mentioning "the situation", with those higher in communitarianism slightly more likely to mention the situation, $\beta = -0.19$, $z = -1.71$, $p = .087$.

Among statements that mentioned a group, higher communitarianism was associated with higher likelihood of mentioning a public policy, $\beta = -0.53$, $z = -5.68$, $p < .001$, 95% CI [-0.72, -0.35]. Among statements that mentioned an individual, higher individualism was marginally associated with a higher likelihood of mention the target person in the vignette, $\beta = 0.23$, $z = 1.91$, $p = .056$, 95% CI [-0.01, 0.48].

Table 2.2: Group and Individual Mentions Predicted by Partisanship for Each Vignette, Study 2

Vignette	β	z	p	95% CI
HIV				
Group Mentions	-0.28	-4.09	$< .001$	[-0.43, -0.15]
Individual Mentions	0.37	3.91	$< .001$	[0.20, 0.58]
Refugee				
Group Mentions	-0.32	-4.32	$< .001$	[-0.49, -0.19]
Individual Mentions	0.37	4.13	$< .001$	[0.21, 0.58]
Veteran				
Group Mentions	-0.08	-1.36	.175	[-0.20, 0.03]
Individual Mentions	0.24	3.33	.001	[0.11, 0.39]
School Shooting				
Group Mentions	0.01	0.21	.835	[-0.13, 0.15]
Individual Mentions	0.04	0.64	.521	[-0.09, 0.18]

2.3.2.4 Policy Support

Due to technical errors, two of the items from the economic policy scale were not displayed to respondents, some of the economic policy items were miscoded, and the gun control policy measures were only displayed to half of respondents (those who completed the policy items first, followed by the counterfactual statements). In this section, I first focus on policies pertaining to immigration and healthcare, followed by the analysis I was able to run on those pertaining to gun policy. Unfortunately, I was not able to run analyses on the economic items with confidence, but I report them in Study 3.

I was interested in the extent to which participants' political preferences predicted the content of their counterfactual statements as well as the extent to which what they said in their statements predicted their policy preferences. For each topic, I first ran a linear regression predicting participants' policy preferences from whether they had mentioned a policy (public group) in either of their counterfactual statements (as a dichotomous variable), the condition they were in (counterfactuals first or policy first) and their interaction. I also separated participants by condition and analysed the two order conditions separately. For participants who reported their policy preferences first and then provided counterfactual statements in response to the scenarios, I ran binomial regressions predicting whether participants mentioned a policy in either of their counterfactual statements from their policy opinions. For participants who provided counterfactual statements first and then reported their policy preferences, I ran linear regressions comparing the policy opinions of participants who did and did not mention a policy in at least one of their counterfactual statements.

Immigration In response to the Immigration vignette, 47.7% of participants mentioned a public group in at least one of their statements. For participants who answered the policy questions first, policy preferences predicted counterfactual content such that the more participants supported policies that would make immigration easier, the more likely they were to mention a policy in response to the Refugee vignette, $\beta = 0.74$, $z = 3.86$, $p < .001$, 95% CI [0.38, 1.15].

For participants who provided counterfactual responses first and answered questions about their policy preferences second, counterfactual content predicted support for more lenient immigration policies such that participants supported such policies more if they had mentioned a policy in their counterfactual statement than if they had not, $\beta = 0.59$, $t(79) = 2.53$, $p = .013$, 95% CI [0.13, 1.06].

I also ran a binomial regression predicting whether participants mentioned a policy in one of their statements from their immigration policy support (centered), political affiliation (centered), and condition (policies first or counterfactuals first). In this model, only partisanship predicted policy mentions, $\beta = -0.30$, $z = -2.80$, $p = .005$, 95% CI [-0.51, -0.09].

Health   In response to the HIV vignette, 50.3% of participants mentioned a public group in at least one of their responses.

For participants in the policy first condition, policy preferences predicted whether a participant mentioned a policy such that greater endorsement of the healthcare policy items was associated with a greater likelihood of mentioning a policy, $\beta = 0.98$, $z = 3.93$, $p < .001$, 95% CI [0.51 1.49].

For participants who answered the counterfactual items first and then reported their policy preferences, mentioning a policy predicted support for the healthcare policies such that participants reported more support if they had mentioned a policy in at least one of their statements, $\beta = 0.56$, $t(79) = 3.16$, $p = .002$, 95% CI [0.21, 0.92].

In a binomial regression predicting counterfactual mentions from healthcare policy support (centered), political affiliation (centered), and condition (Policies First or Counterfactuals First). Only policy support predicted counterfactual mentions, with higher policy support associated with a greater likelihood of mentioning a policy in response to the HIV vignette, $\beta = 0.67$, $z = 2.77$, $p = .006$, 95% CI [0.21, 1.16].

Gun Control   In response to the event about the school shooting, 21.3% of participants mentioned a public group in at least one of their statements. Because participants in the Policy First condition were not shown the gun control items, I only analyzed participants in the Counterfactuals First condition. As before, I conducted a linear regression predicting gun control policy preferences from whether participants had mentioned a public group in either of their counterfactual statements. I found that policy mentions did predict policy preferences such that those who mentioned a policy preferred policies that increased restrictions related to guns, $\beta = 0.99$, $t(79) = 3.08$, $p = .003$, 95% CI [0.35, 1.64].

Only ten participants in the Counterfactual First condition mentioned a policy in one of their statements. Two of these identified as Strong Democrats (1), six as Democrats (1), and two as Republicans (6) on our seven-point scale.

I ran a linear regression predicting gun policy support from whether or not a participant mentioned a public group in one of their statements, political affiliation (centered) and their interaction. Although this analysis is preliminary due to the small sample, I found that policy mentions predicted policy support, even with political affiliation included in the model, $\beta = 0.71$, $t(77) = 2.15$, $p = .035$, 95% CI [0.05, 1.36]. That is, participants who mentioned a policy in at least one of their statements reported greater support for gun control measures. Political affiliation also predicted policy support, with more Republican-leaning participants supporting gun control less, $\beta = -0.32$, $t(77) = -6.47$, $p < .001$, 95% CI [-0.41, -0.22]. I did not observe any interactions between the two.

2.3.3 Discussion

In Study 2, I replicated the partisan pattern from Study 1: Democrats were more likely to mention groups, especially public groups, in their counterfactual statements, and Republicans were more likely to mention individuals. I also found that support for policies aimed at addressing issues related to immigration and healthcare predicted counterfactual content – the more participants supported such policies, the more likely they were to mention policy in their counterfactual responses to the vignettes related to healthcare and immigration. I also found that the reverse was true: counterfactual content predicted policy support. When I included policy preferences, partisan identification, and condition in the same models, I found a slightly different pattern for the healthcare and immigration topics. When it came to the immigration, partisan identification predicted counterfactual content over the other variables, but healthcare policy support was more important for predicting policy mentions in the healthcare counterfactuals.

This provides evidence that counterfactual content often aligns with political preferences, with participants endorsing relevant policies when they think of policies as particularly useful for addressing politicized negative events. It also suggests that partisanship may be more or less important than endorsement of specific policies depending on topic.

2.4   Study 3

Because some of the policy items in Study 2 were not properly displayed to participants, Study 3 was essentially a replication of Study 2, with two caveats. In Study 3, I sampled unaffiliated participants in addition to Republicans and Democrats, because I suspected that those who are unaffiliated might be willing to be more flexible in terms of their policy opinions and that I might observe a stronger relationship between the types of counterfactuals they generated and their policy preferences than I would among Republicans and Democrats, whose policy preferences might be less changeable.

Because Study 3 was run April 3, 2020, shortly after the United States began social distancing, I also added a prompt after participants had responded to the four vignettes from Study 2 asking participants to reflect on the Coronavirus pandemic and generate counterfactual statements.

Specifically, participants read:

> "We just asked you to share your thoughts about negative events that people might hear about in the news. Right now, one could say that I are facing a negative event as a country with regards to the COVID-19, or Coronavirus, pandemic. When you think about what is going on, are there any "if only" thoughts that have been coming to mind? If so, would you share a couple of them with us here?"

2.4.1 Method

2.4.1.1 Participants

I recruited 100 Republicans, 100 Democrats, and 100 unaffiliated participants on MTurk and excluded five participants who did not enter any counterfactual statements. As before, I measured political affiliation using a seven-point bipolar scale ranging from "Strong Democrat" to "Strong Republican" with the midpoint "Independent" and report this continuous measure in all analyses. Participants were 45% female and 54% male with affiliation equal across gender (MF = 3.71, MM = 3.72). Participants ranged in age from 18 to 78 ($M = 38.31$, $SD = 12.21$), with age slightly correlated with affiliation ($r = .13$) such that Republicans were slightly older. Ethnically, the sample was 76.6% White, 8.5% Asian, 6.8% Black, 3.7% Hispanic or Latinx, and 1.4% American Indian or Alaska Native, with the remaining participants reporting mixed or other ethnicities.

2.4.1.2 Coding

Three research assistants coded the counterfactual statements using the same coding scheme as in Studies 1 and 2, coding ten of the same participants (randomly selected). Inter-rater reliability was 96% for counterfactual/non-counterfactual statements, 98% for direction, 97% for structure, 83% for individual vs. group vs. situation, and 77% for target, other individual, public group, or private group.

For the statements participants generated about COVID-19, I also created five new codes. For items coded as mentioning private or public groups, I added a Nationality variable, coding for whether the participant mentioned the American or Chinese people or government, with options "other" and "unspecified" indicating an explicit mention of another nation or lack of ability to determine which nation was being mentioned, respectively. For items coded as mentioning individuals, since there was no target person in the prompt, I coded the statements for whether participants mentioned themselves or others. I also coded for whether each statement focused on public health or the economy, whether the statement denied the existence or seriousness of COVID-19, and whether the statement was temporal – that is, whether the main focus of the statement was when, rather than whether, something was done. For example, the New York Times headline that began this article ("If the U.S. had begun enacting social distancing just a week earlier in March, about 36,000 lives could have been saved") would have been coded as mentioning a group that is public and American ("the U.S."), focusing on public health ("lives could have been saved") rather than the economy, not denying the seriousness of the virus, and being temporally focused ("a week earlier").

2.4.2 Results

As in Studies 1 and 2, I conducted binomial multiple regressions with Participant, Topic, and Response Number as random variables. Any random variable which didn't predict any variance was removed from the model. Participants generated a total of 2950 statements, 97% of which were counterfactuals. Of those, all but two were upward in direction, and 81.5% were additive in structure. Partisanship was unrelated to the likelihood of generating counterfactual, as opposed to non-counterfactual statements, $\beta = 0.13$, $z = 0.46$, $p = .649$, 95% CI [-0.44, 0.71] or generating additive, versus subtractive statements, $\beta = 0.01$, $z = 0.22$, $p = .824$, 95% CI [-0.07, 0.09].

2.4.2.1 Counterfactual Content

Partisanship predicted the likelihood of mentioning a group in response to the vignettes, with Democrats more likely to mention a group than Republicans, $\beta = -0.17$, $z = -4.42$, $p < .001$, 95% [-0.25, -0.10]. Republicans were more likely to mention individuals in their counterfactual responses than Democrats, $\beta = 0.23$, $z = 4.82$, $p < .001$, 95% CI [0.14, 0.32]. There were no partisan differences in the likelihood of a statement being coded as implicating the situation, $\beta = -0.02$, $z = -0.39$, $p = .694$, 95% CI [-0.10, 0.06].

Taking only statements that mentioned a group, those generated by Democrats were more likely to implicate a public group than those generated by Republicans, $\beta = -0.09$, $z = -2.54$, $p = .011$, 95% CI [-0.16, -0.02]. Taking only statements that mentioned an individual, those generated by Republicans were more likely to mention the target person in the story than those generated by Democrats, $\beta = 0.18$, $z = 2.95$, $p = .003$, 95% CI [0.06, 0.31].

2.4.2.2 COVID-19 Specific Codes

Most (76.4%) of the counterfactual statements participants generated surrounding COVID-19 were related to healthcare, rather than the economy (6.3%) or unspecifiable. Statements were more likely to mention health if generate by Republicans, $\beta = 0.20$, $z = 2.58$, $p = .010$, 95% CI [0.05, 0.36]. There was no relationship between partisanship and mentioning the economy, $\beta = 0.06$, $z = 0.24$, $p = .814$, 95% CI [-0.46, 0.58].

Twenty-eight percent of statements about COVID-19 were temporal in nature, such that participants' main focus was the timing of various actions. The likelihood of a statement being temporal was unrelated to political affiliation, $\beta = -0.04$, $z = -0.78$, $p = .438$, 95% CI [-0.15, 0.06]. Only 1% of participants denied the existence or seriousness of the virus. Forty-five point four percent of statements mentioned the United States, and 19.8% mentioned China. Affiliation was related to the nationality of the implicated party such that the more participants identified as Republicans, the more likely they were to mention China ($\beta = 0.36$, $z = 4.91$, $p < .001$, 95% CI

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[0.22, 0.51]) and the less likely they were to mention the United States (β = -0.20, z = -3.21, p = .001. 95% CI [-0.32, -0.08]).

2.4.2.3   Analyses by Topic

For the HIV, Refugee, and Veteran topics, statements were more likely to mention individuals and less likely to mention groups the more participants identified as Republicans. There was no relationship between partisanship and group or individual mentions in response to the School Shooting topic. In response to the question asking participants to generate counterfactuals about COVID-19, there was no relationship between partisanship and group mentions, but statements generated by Democrats were more likely to mention individuals, the opposite relationship than that in other topics and previous studies. However, since these answers were not in response to a vignette but in response to the pandemic that participants were experiencing, the types of individuals mentioned in participants' counterfactuals were not fictional characters but real people. Popular individuals for participants to mention included then-president Trump and themselves.

2.4.2.4   Cultural Orientation

Cultural cognition was correlated with political affiliation at r = .58. The highest individualism score for a participant who identified as a Strong Democrat was 2.27 out of 6, and the lowest individualism score for a Strong Republican was 2.27. Because the correlation between affiliation and cultural orientation was lower than in previous studies and because independents were represented across a wide range of cultural orientations, I took the opportunity to examine cultural orientation and political affiliation, and their interaction in the same models. Both variables were centered.

Communitarianism predicted group mentions, with statements generated by communitarian participants more likely to mention a group, β = -0.28, z = -3.31, p = .001, 95% CI [-0.45, -0.12]. With both cultural orientation and partisan identification in the model, partisanship only marginally predicted group mentions, β = -0.08, z = -1.68, p = .093, 95% CI [-0.17, 0.01]. Conversely, individualism predicted individual mentions; statements generated by more individualist participants were more likely to mention an individual, β = 0.38, z = 3.76, p < .001, 95% CI [0.18, 0.58]. Partisanship again only marginally predicted individual mentions in this model, β = 0.10, z = 1.73, p = .085, 95% CI [-0.01, 0.21]. There was no relationship between either partisanship or cultural orientation and the likelihood of mentioning a situation, although there was a marginal interaction between the two, β = -0.08, z = -1.88, p = .060, 95% [-0.16, 0.00]. Taking only statements that mentioned a group, those generated by communitarian participants were more likely to mention a public group, β = -0.02, z = -2.53, p = .011, 95% CI [-0.36, -0.05]. With cultural orientation in the model, partisan identification did not predict policy mentions. Taking only statements that

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Table 2.3: Group and Individual Mentions Predicted by Partisanship for Each Topic, Study 3

Topic	β	z	p	95% CI
HIV				
Group Mentions	-0.23	-4.30	$< .001$	[-0.35, -0.13]
Individual Mentions	0.28	4.38	$< .001$	[0.16, 0.41]
Refugee				
Group Mentions	-0.28	-4.50	$< .001$	[-0.41, -0.16]
Individual Mentions	0.32	4.34	$< .001$	[0.19, 0.48]
Veteran				
Group Mentions	-0.33	-4.39	$< .001$	[-0.49, -0.19]
Individual Mentions	0.57	4.84	$<.001$	[0.34, 0.80]
School Shooting				
Group Mentions	-0.08	-1.29	.197	[-0.22, 0.04]
Individual Mentions	0.19	2.39	.017	[0.03, 0.34]
COVID-19				
Group Mentions	0.10	1.37	.169	[-0.04, 0.25]
Individual Mentions	-0.41	-3.42	.001	[-0.70, -0.20]

mentioned an individual, individualism predicted mentions of the target person in the story, as opposed to someone else, $\beta = 0.48$, $z = 3.73$, $p < .001$, 95% CI [0.23, 0.74]. Partisan identification did not predict target mentions in this model.

2.4.2.5   Policy Support

As in Study 2, I conducted binomial and linear regressions predicting counterfactual content from policy support for participants in the "Policy First" condition, and predicting policy support from participants in the "Counterfactuals First" condition, respectively. I also conducted a model for each topic predicting counterfactual content from policy preferences, condition, and political affiliation, with the continuous variables centered. Because I had a larger sample in this study, I also included all two- and three-way interactions.

Immigration   In response to the Refugee vignette, 54.6% of participants mentioned a policy in at least one of their counterfactual statements. For participants who answered policy questions first, policy preferences predicted counterfactual content such that support for more lenient immigration policies was associated with a higher likelihood of mentioning a public group in at least one counterfactual about the Refugee vignette, $\beta = 0.65$, $z = 3.73$, $p < .001$, 95% CI [0.32, 1.01].

In contrast to Study 2, counterfactual content did not predict support for immigration policy in Study 3, $\beta = 0.16$, $t(128) = 0.87$, $p = .385$, 95% CI [-0.20, 0.51]. In a binomial regression predicting policy mentions from immigration policy support, condition, political affiliation, and all two- and three-way interactions, Condition predicted policy mentions, with participants in the Policies First condition more likely to mention a policy in at least one of their statements, $\beta = 0.84$, $z = 2.88$, $p = .003$, 95% CI [0.27, 1.42]. There was a marginal interaction between immigration policy support and political affiliation, $\beta = -0.22$, $z = -1.90$, $p = .057$, 95% CI [-0.45, 0.00]. The interaction was such that support for more lenient immigration predicted a higher likelihood of mentioning policies for more Democratic-leaning participants but not for more Republican leaning participants.

Health   In response to the HIV vignette, 41.3% of participants mentioned a public group in at least one of their counterfactual statements. For participants who answered the policy questions first, participants who favored healthcare policies such as price caps and medicaid expansion more were more likely to mention public groups, $\beta = 0.80$, $z = 3.57$, $p < .001$, 95% CI [0.37, 1.25].

For participants who completed the counterfactual responses section first, policy mentions marginally predicted policy preferences, $\beta = 0.29$, $t(128) = 1.92$, $p = .057$, 95% CI [-0.01, 0.59]. In the model predicting policy mentions from policy support, condition, political affiliation, and all two- and three-way interactions, policy support ($\beta = 1.03$, $z = 2.99$, $p = .003$, 95% CI [0.40, 1.76]) and Condition ($\beta = 1.20$, $z = 3.08$, $p < .001$, 95% CI [0.61, 1.83]) predicted policy mentions, with

more support for healthcare policies predicting a higher likelihood of mentioning a policy, and a higher likelihood of mentioning a policy in the Policy First condition.

Gun Control   In response to the school shooting vignette, 18.6% of participants mentioned a public group in at least one of their statements. In the Policy First condition, preferences for stricter gun control were associated with a higher likelihood of mentioning a policy, $\beta = 0.99$, $z = 3.52$, $p < .001$, 95% CI [0.48, 1.60].

In the counterfactuals first condition, participants who mentioned a policy reported more support for stricter gun control, $\beta = 1.03$, $t(128) = 4.77$, $p < .001$, 95% [0.61, 1.46]. In a model predicting policy mentions from gun control support, political affiliation, condition, and all two- and three-way interactions, support for gun control was associated with a higher likelihood of mentioning policies, $\beta = 3.11$, $z = 2.43$, $p = .001$, 95% CI [1.61, 5.21]. Condition also predicted policy mentions, with participants in the Policy First condition more likely to mention policies, $\beta = 1.85$, $z = 2.36$, $p = .018$, 95% CI [0.54, 3.70]. There was an interaction between condition and gun control policy support such that the relationship between policy support and policy mentions was stronger in the Counterfactuals First condition, $\beta = -2.35$, $z = -2.45$, $p = .014$, 95% CI [-4.52, -0.70].

Economy   In response to the vignette about the homeless veteran, 48.1% of participants mentioned a public group in at least one of their counterfactual statements. For participants who reported their policy preferences first, those preferences predicted counterfactual content such that the more they supported policies aimed at alleviating poverty, the more likely they were to mention policies, $\beta = 0.75$, $z = 4.05$, $p < .001$, 95% CI [0.40, 1.13].

For participants who provided counterfactual statements first and answered policy questions second, those who mentioned a public policy in at least one statement reported higher policy support, $\beta = 0.70$, $t(128) = 3.81$, $p < .001$, 95% CI [0.34, 1.06]. In a model predicting policy mentions from policy support, political affiliation, and condition, policy support predicted policy mentions, $\beta = 1.01$, $z = 3.78$, $p < .001$, 95% CI [0.52, 1.57]. Political affiliation also marginally predicted policy mentions, $\beta = 0.27$, $z = 1.85$, $p = .064$, 95% CI [-0.01, 1.57].

2.4.3   Discussion

In Study 3, I replicated the partisan pattern I observed in Studies 1 and 2, with Republicans mentioning more individuals and Democrats mentioning more groups, especially public groups, in their counterfactual statements about politicized negative events. This was true for all topics except for the school shooting vignette, where there was no significant partisan pattern and for the question about participants' own experiences of the COVID-19 pandemic, where Democrats were more likely to mention individuals, such as the president or themselves.

As in previous studies, cultural orientation was associated with the likelihood of mentioning a group such that those with a more individualist orientation were less likely to mention a group, especially a public group.

I also found that policy support predicted counterfactual content for each of the four topics. Counterfactual content also predicted support for policies related to gun control and poverty alleviation, but not for immigration and only marginally for healthcare. The models including condition revealed that participants in the Policy First condition were more likely to mention policies in their counterfactual statements than participants in the Counterfactuals First condition for the Immigration, Health, and Gun Control topics. This might be because answering questions about specific policies reminded participants of policies they could mention in their counterfactual statements that they didn't think of in the Counterfactuals First condition.

2.5   Chapter 2 Discussion

In Chapter 2, I outlined some systematic partisan differences in counterfactual thinking in response to politicized negative events. Briefly, the more participants identify as Democrats, the more likely they are to mention groups, especially the government, in their counterfactual statements.

Cultural orientation also predicted counterfactual statements, with more individualistic participants more likely to mention individuals in their statements and more communitarian participants more likely to mention groups in their statements. In Study 3, cultural orientation emerged over partisanship as a predictor of counterfactual content, suggesting that overall preferences for societal intervention might be an even more important predictor of the types of solutions participants generate for societal problems.

Other recent research has also shown that the cultural variables egalitarianism and individualism predict partisanship which predicts perceived climate change risk (Nowlin & Rabovsky, 2020). Thinking about partisanship as a cultural difference is potentially informative because it draws attention to cultural norms and scripts which might be important predictors of political attitudes and actions but might be ignored if one thinks of Republicans and Democrats as simply hard-wired differently. I return to this idea in the discussion section of Chapter 3 and again in the general discussion.

In Studies 2 and 3, I also showed that counterfactual content is related to policy support. Policy support both predicts and, to a lesser extent, is predicted by counterfactual content: the more participants favor policies aimed at addressing immigration issues, healthcare access, gun control, and poverty, the more likely they are to mention such policies in their open-ended reactions to negative events that depict the same problems.

Although the two order conditions in Studies 2 and 3 shed some light on the relationship

between counterfactual content and policy support, they do not tease apart the direction of the relationship. I assume that participants have some preexisting policy views but that the counterfactual task is relatively novel. Nevertheless, because counterfactual thinking can be useful for planning and decision making, I was interested in whether certain counterfactual thoughts might prompt participants to favor certain policies. If counterfactual thinking helps people to plan for the future, it seems reasonable that thinking about a certain policy as a potential solution for a negative event might increase support for such a policy. In Chapter 3, I will present two studies in which I attempted to manipulate the counterfactual content that came to mind for participants.

<center>CHAPTER 3</center>

Political Topics Resistant to Simple Norm Manipulations

3.1   Introduction

Previous work has shown that counterfactual mutations are often about changing whatever piece of the event seems most abnormal (Kahneman & Tversky, 1982; Miller & McFarland, 1986). In other words, the things that come most readily to mind in our counterfactual wishes are those that almost didn't happen in the first place. If a more positive outcome seems just out of reach, it is more emotionally impactful and more cognitively available. In Chapter 3, I present two studies in which I tried to manipulate the cognitive availability of different kinds of counterfactual thoughts, one policy related and one private in nature. By doing this, I hoped to establish a causal relationship between counterfactual thinking and support for related political policies: if simple norm manipulations could impact counterfactual thinking for politicized topics as they do for apolitical topics, and especially if such counterfactual thoughts predicted policy support, this could have profound implications for how negative events are reported to the public.

3.2   Study 4

In Studies 2 and 3, I presented analyses showing both that counterfactual content predicts policy support and that policy support predicts counterfactual thinking. In Studies 4 and 5, I was interested in a potential causal relationship between counterfactual content and support for related policies. In other words, if I manipulated the counterfactual content that comes easily to mind for participants such that policy solutions were more or less salient, would that increase or decrease support for such policies?

        To do this, I created vignettes in which I manipulated which of two possible alternative scenarios was temporally closer to the negative event: a policy that might have prevented the

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negative outcome, or an individual or private group action that might have prevented the negative outcome. In Study 4, I used a school shooting vignette, and in Study 5, I used a healthcare-related vignette, both adapted from my previous studies.

I expected that participants would be more likely to generate counterfactual statements about a public policy if that policy was passed shortly after the negative event, such that the implementation of the policy "almost" prevented the negative event from happening. By contrast, I expected that when a non-policy related intervention – in this case, the shooter being able to see a therapist – happened shortly after the negative event, participants would be more likely to generate counterfactuals about the shooter seeing a therapist.

I expected that manipulating which counterfactual was cognitively available to participants would also influence policy opinions, such that participants who viewed the vignette in which the policy almost prevented the shooting would be more likely to generate policy-related counterfactuals and subsequently exhibit more support for the related policy compared to participants who saw the vignette depicting the therapy session as closer to the negative event.

3.2.1 Method

Data for Study 4 were collected in July of 2020.

3.2.1.1 Participants

Demographics I recruited 100 Republicans, 100 Democrats, and 100 Independents using Prolific Academic. In terms of gender, 47.7% of participants were female and 51.6% were male. Participants ranged in age from 18 to 71 ($M = 30.93$, $SD = 10.72$) with more Republican participants slightly older (r = .14). In terms of ethnicity, 64.5% were White, 12.4% were Asian, 9.3% were Black, 6.2% were Hispanic or Latino, and 7.6% reported other or multiple ethnicities.

Political Identity As before, I asked participants to identify their identification with the two major parties on a seven-point bipolar scale ranging from "Strong Democrat" to "Strong Republican" and use this continuous measure as my measure of political affiliation ($M = 3.76$, $SD = 1.64$). As expected based on our recruitment method, 32.1% of participants identified as Independents (as well as 34.1% as Democrats and 31.4% as Republicans) on a discrete partisan identity measure with the options "Democrat", "Republican", "Independent", "Libertarian", "Green Party", and "Constitution Party". However, on the continuous bipolar scale ranging from Strong Democrat to Strong Republican, 24.5% of participants identified as Independents by choosing the scale's midpoint. Of the participants who identified as Independents on the discrete measure, 61.3% identified as independents on the continuous measure; 22.6% leaned Democrat, 6.45% leaned Republican, 5.4%

identified as Democrats, 3.2% as Strong Democrats, and 1.1% as Strong Republicans. The bipolar affiliation measure correlated with a bipolar Liberal-Conservative measure at $r = 80.49$.

3.2.1.2 Vignettes

I created two versions of a vignette describing a school shooting, this time on a college campus where the shooter opened fire with an assault rifle. In both versions of the scenario, some time after the shooting, the shooter had an appointment scheduled with a therapist, and a law was passed banning assault weapons in his state. We manipulated which potential preventative action "almost" happened by presenting one as happening only one day after the shooting occurred and the other as happening three months after the shooting occurred. The vignette read:

> In 2019, a student at a private university opened fire with an assault rifle on his campus, killing several other students. A later investigation revealed that the weapon used in the shooting was purchased legally by the shooter. The investigation also revealed that the shooter had been cited several times for discipline issues and had been recommended to see a professional therapist to discuss his violent thoughts.
>
> In fact, the shooter had an appointment scheduled to speak to a therapist [only one day/three months] after the shooting occurred. [Only one day/three months] after the shooting occurred, a law went into effect that banned assault weapons in the shooter's state.
>
> When we hear about such stories in the news, we often think "if only". How would you continue that thought?

Participants responded with one counterfactual statement.

3.2.1.3 Policies

After reading one of the two vignettes (randomly assigned), participants answered two questions about their support for gun policies. Specifically, they responded to the following two items:

> To what extent do you favor preventing the mentally ill from purchasing guns? To what extent do you favor banning assault-style weapons?

Participants responded on a five-point scale ranging from Strongly oppose to Strongly favor. We expected the version of the scenario participants saw to predict the counterfactuals they generated, and, subsequently, their support for an assault weapons ban. We did not make any predictions about policy preventing the mentally ill from purchasing guns but included it as an exploratory variable.

3.2.1.4   Coding Scheme

Two research assistants who were unaware of the participants' condition or political affiliation coded for the presence of a counterfactual, structure, and direction as in previous studies. Because we were interested in specific policies in this study, we devised a new coding scheme to allow us to determine whether our manipulation led participants to think "if only the shooter had been able to see the therapist" or "if only the assault weapons ban had been in place" before the shooting.

We therefore coded dichotomously for (1) whether participants mentioned an assault weapons ban, (2) the shooter's ability to see a therapist, (3) other gun policies, (4) other public group attributions (not related to gun policy), (5) other private group attributions (such as actions that the school could have taken), (6) target attributions (those about the shooter himself), (7) attributions about other individuals (besides the shooter or therapist), and (8) temporality (that is, whether the participant focused primarily on the timing of an action or solution.

For the ten statements shared by both coders, interrater reliability was 100% for identifying counterfactuals, structure, direction, whether a weapon ban was mentioned, whether the statement was temporal, and whether the statement mentioned an individual other than the shooter. Agreement was 90% for whether the statement mentioned the target or a public group implication other than a gun policy, and 80% for whether the statement mentioned visiting the therapist, a gun policy other than an assault weapon ban, and whether the statement mentioned a private group.

3.2.2   Results

I sought first to determine whether the manipulation in our vignettes was successful at eliciting different types of counterfactual statements, using logistic regressions to examine the relationship between the condition participants were in and the likelihood of mentioning the two key features of the vignette: the assault weapons ban and the therapy appointment. Contrary to my expectations, participants did not differ by condition in their likelihood of mentioning an assault weapons ban in their counterfactual statements, $\beta = 0.13$, 95% CI [-0.47, 0.72]. Also contrary to my expectations, participants were more likely to mention the therapy appointment when it was scheduled three months after the shooting than when it was scheduled one day after the shooting, $\beta = -0.48$, 95% CI [-0.97, -0.004]. I also created a more general variable indicating whether or not participants had mentioned any policy versus any other type of intervention, and found again that participants in the condition in which therapy was more proximal were more likely to mention public solutions, $\beta = 0.55$, 95% CI [0.08, 1.04].

To examine policy support, I fitted a linear model regressing support for an assault weapons ban on condition, having mentioned such a ban in the counterfactual statement, political affiliation, and all two- and three-way interactions. As seen in Table 3.1, there was no effect of condition on

support for an assault weapons ban, and only a marginal effect of whether participants mentioned a weapon ban in their counterfactuals.

Table 3.1: Support for an Assault Weapon Ban, Study 4

Predictors	β	t value	95% CI
Intercept	5.43 ***	20.24	[4.91, 5.96]
Condition (Weapon Proximal = 0, Therapy Proximal = 1)	0.09	0.57	[-0.22, 0.41]
Weapon (No = 0, Yes = 1)	1.15	4.60	[0.66, 1.64]
Political Affiliation	-0.49 ***	-7.59	[-0.62, -0.36]
Condition x Weapon	-0.31	-0.75	[-1.11, 0.50]
Condition x Political Affiliation	0.09	0.92	[-0.10, 0.28]
Weapon x Political Affiliation	0.55 ***	3.96	[0.28, 0.82]
Condition x Weapon x Political Affiliation	-0.40	-1.61	[-0.89, 0.09]
Observations	289		
R^2/R^2 adjusted	-0.316/0.299		

*$p < .05$, **$p < .01$, ***$p < .001$

The more Republican-leaning a participant was, the less they supported an assault weapons ban. There was also an interaction between mentioning a weapon ban in a counterfactual and political affiliation, such that those who mentioned assault weapon bans in their counterfactual statements uniformly endorsed such bans as public policy. Among those who did not mention a ban in their statement, political affiliation strongly predicted policy support, with those identifying as Democrats more supporting bans to a greater extent than those identifying as Republicans (see Figure 3.1).

3.2.3 Discussion

Contrary to my expectations, depicting a possible solution as having come just barely too late did not result in more people mentioning that solution in their counterfactual statement. Participants were no more likely to suggest that things would have been better if an assault weapons ban had been in place if they learned that a ban was enacted one day after a deadly shooting than if they
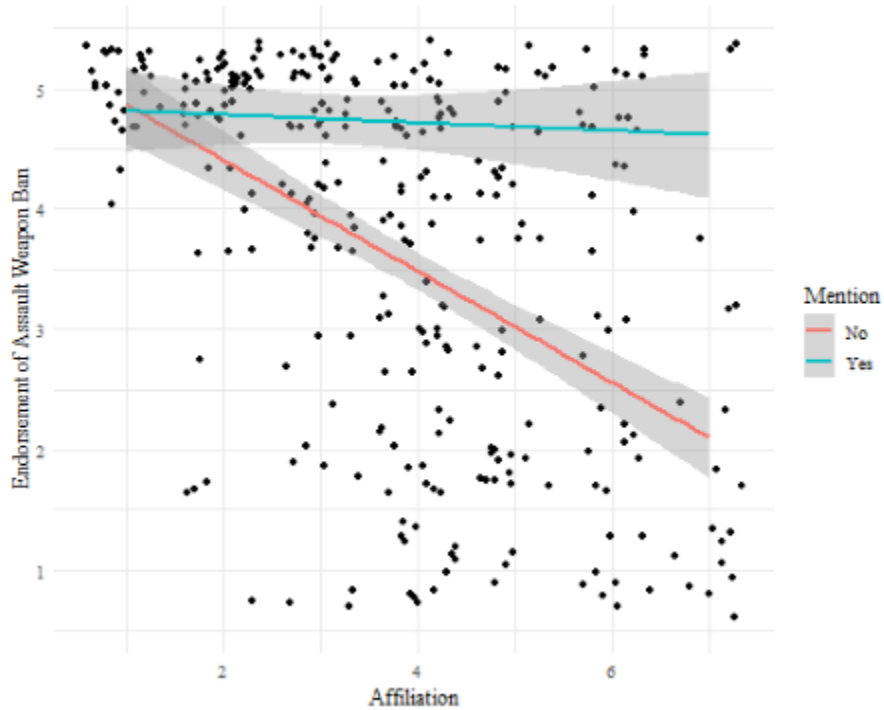
Figure 3.1: The interaction between political affiliation and having mentioned a weapon ban in a counterfactual statement with regards to endorsement of policy banning assault weapons. Political affiliation refers to the seven-point continuous scale, with higher numbers indicating a Republican affiliation.

learned that the ban was enacted several months later. Moreover, participants were slightly more likely to suggest that things would have been better if the shooter could have seen a therapist when they learned that his appointment was still three months away than when they learned that his appointment was the very next day.

It is possible that, unintentionally, the therapy appointment being depicted as being three months away seemed like too long a waiting period for participants, and thus they were more likely to wish, in their counterfactual statements, that getting an appointment would not take so long. Alternatively, it could be the case that it is difficult to manipulate what counterfactual statements come to people's minds because they reflect relatively inflexible preexisting theories about how the world works. Some counterfactual statements might be perpetually accessible, as participants access their existing beliefs about why bad things happen and what needs to be done. At the same time, some counterfactuals are perpetually inaccessible, as counterfactuals that do not fit into one's working view of the world or that contradict one's existing beliefs are rejected out-of-hand as implausible or unacceptable (Dunning, 2007; Tetlock et al., 2000).

We did find that counterfactual content mattered insofar as those people for whom a certain policy was accessible – that is, those who mentioned an assault weapons ban in their statements –

were likely to support the policy regardless of their political affiliation. Put another way, support for a weapons ban seemed to be a prerequisite for mentioning one in response to the prompt. This supports the ideas, discussed above, that a plausible counterfactual must include a change in antecedent that is plausible and acceptable. For those who oppose assault weapon bans, such bans might be viewed as either ineffective or as so undesirable that passing such laws would be out of the question.

3.3 Study 5

In order to determine the generalizability of these results, I ran Study 5, also in July of 2020, using a similar procedure but a different topic. In Study 5, I used a healthcare-related scenario and policies.

3.3.1 Method

3.3.1.1 Participants

Demographics   I recruited 100 Democrats, 100 Republicans, and 100 Independents from Prolific Academic. In terms of gender, 57.2% were male and 42.8% were female, with partisan affiliation similar across genders ($M_F = 3.71$, $M_M = 3.88$). They ranged in age from 18 to 73 ($M = 31.63$, $SD = 12.00$) with age correlated with Republican affiliation ($r = .22$). Participants were 64.5% White, 12.4% Asian, 9.3% Black, 6.2% Hispanic or Latinx, and 7.6% reported mixed or other ethnicities.

Political Identity   As in previous studies, I used the seven-point bipolar scale ranging from Strong Democrat to Strong Republican as an indicator of political affiliation ($M = 3.81$, $SD = 1.76$). On a discrete scale asking them to choose the party with which they most closely identify, 33.4% identified as Independents, 32.8% as Democrats, and 30.3% as Republicans. On the continuous bipolar measure, 26.2% identified as Independents by choosing the scale's midpoint. Of participants who identified as Independents on the discrete scale, 68.0% also identified as Independents on the continuous scale, with 13.4% leaning Democrat, 11.3% leaning Republican, 4.1% Strong Democrat, 2.1% Democrat, and 1.0% Republican. The bipolar affiliation measure correlated with a bipolar Liberal-Conservative measure at $r = 87.65$.

3.3.1.2 Vignettes

As in Study 4, I produced two versions of the same vignette, varying which of two possible solutions occurred in closer proximity to the negative event. In this vignette, the negative event was a man passing away due to the inaccessibility of a needed medication. The target policy was a price cap

for medications, and the target non-policy event was another company producing a cheaper version of the medication the patient needed. The vignette read:

> Mr. Hill was a 30-year-old man who contracted a serious infection. Under normal circumstances, the hospital would have treated him using a drug called Daraprim. However, in 2015, the rights to distribute Daraprim were purchased by a company called Turing Pharmaceuticals, and the price immediately increased from $13.50 per pill to $750 per pill. Because of the cost, Mr. Hill had to be treated using a different drug, but this drug was ineffective, and he died.

> Only a week after Mr. Hill's death, [his state passed legislation that limits the amount drug companies are allowed to charge for drugs like Daraprim/ a cheaper, generic version of the drug was also made available by a different company].

> Several years later, [a cheaper, generic version of the drug was also made available by a different company/ his state passed legislation that limits the amount drug companies are allowed to charge for drugs like Daraprim].

> When we hear about such stories in the news, we often think "if only . . . " How would you continue this thought?

3.3.1.3 Policies

I asked participants to indicate their support for price caps and patent bans on medications. Specifically, they responded to the following two items:

> To what extent do you favor limiting the amount pharmaceutical companies can charge for medications? To what extent do you favor banning patents on medications so that no one person or company can own the exclusive rights to manufacture and distribute them?

Participants responded on a five-point scale ranging from Strongly oppose to Strongly favor.

3.3.1.4 Coding Scheme

Similar to Study 4, two research assistants who were unaware of the study's hypotheses or participants' condition or political affiliation coded participants' counterfactual statements for the presence of a counterfactual, structure, and direction, and we also devised a coding scheme to determine whether participants mentioned the solutions we mentioned in the vignette. They also coded each statement dichotomously for a focus on the following: (1) a price cap on medications, (2) the alternative drug, (3) other public policies besides price caps, (4) other private groups besides the company

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that developed the alternative drug (for example, the company that raised the price on the first drug), (5) the target of the story (Mr. Hill), (6) an individual besides the target, and (7) temporality (the timing of events). Interrater reliability was 100% for the presence of a counterfactual, direction, price cap, alternative drug, target, other individual, and temporality. Reliability was 90% for all other categories.

3.3.2 Results

Participants were no more likely to mention price caps in their counterfactual statements when the price cap in the vignette was passed one week after Mr. Hill's death than when it was passed several years later, β = -0.29, 95% CI [-0.78, 0.20]. Participants were marginally more likely to mention the alternative drug when it was made available one week after Mr. Hill's death than when it became available years later, β = 0.84, 95% CI [-0.01, 1.77]. As in Study 2, we fitted a model regressing support for the key policy (price caps on medications) on mention of the policy in the participants' counterfactual statements, condition, political affiliation, and all two- and three-way interactions. Participants who mentioned a price cap in their statements reported more support for price caps as a policy. Political affiliation also predicted support for a price cap, with participants less supportive as their affiliation leaned more Republican (see Table 3.2).

3.3.3 Discussion

In both Study 4 and Study 5, manipulating which part of the counterfactual statement occurred in closer temporal proximity to the target negative event failed to produce differences in counterfactual content. Contrary to my expectations, participants were not more likely to mention public policies or events in the private sector when they seemed to "almost" have happened than when these solutions were a long way away.

3.4 Chapter 3 Discussion

In Studies 4 and 5, I attempted to determine whether counterfactual content could have a causal impact on policy support by manipulating the ease with which policy-related counterfactuals came to mind. However, I found that the temporal proximity of possible solutions did not have an impact on the counterfactuals that participants generated. In Studies 2 and 3, I found that participants in the Policy First condition were more likely to mention policies, which suggests that the salience of policies can influence how often they appear in participants' thoughts about what could have happened differently in the scenarios we presented. However, in Study 4, I found an interaction between political affiliation and endorsement of assault weapons ban such that for participants who

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Table 3.2: Support for Price Caps on Medications, Study 5

Predictors	β	t value	95% CI
Intercept	4.39 ***	46.48	[4.20, 4.57]
Condition (Price Cap Proximal = 0, Alternative Proximal = 1)	0.07	0.56	[-0.18, 0.33]
Mentioned a Price Cap (No = 0, Yes = 1)	0.33*	2.15	[0.03, 0.63]
Political Affiliation	-0.18 ***	-3.47	[-0.28, -0.08]
Condition x Price Cap	-0.18	-0.79	[-0.62, 0.26]
Condition x Political Affiliation	0.10	1.34	[-0.05, 0.24]
Price Cap x Political Affiliation	0.03	0.37	[-0.14, 0.20]
Condition x Price Cap x Political Affiliation	-0.10	-0.75	[-0.36, 0.16]
Observations	284		
R^2/R^2 adjusted	0.088/0.065		

*$p < .05$, **$p < .01$, ***$p < .001$

didn't mention a policy in their statements, affiliation and support for a ban were strongly associated. However, for participants who mentioned a weapons ban in their "if only" statements in response to a shooting, endorsement of a weapons ban was universally high, regardless of affiliation. Taken together, these findings suggest that reminding participants of the different policy initiatives that exist that might improve upon national problems can increase the ease with which such policies come to mind as counterfactuals, with one important caveat: participants must already support such policies if they are to look to them as potential solutions.

Another way to think about whether different solutions appeal to any given person is with respect to "counterfactual potency" – the idea that a counterfactual is more "potent" if it seems both likely to happen and likely to lead to the desired outcome (Petrocelli et al., 2011). That is, in order to generate an assault weapons ban as a counterfactual solution, one would first need to believe that an assault weapons ban is likely to happen, and that if an assault weapons ban were enacted, it would reduce the frequency or deadliness of school shootings. These two forms of likelihood assessments are known as "if likelihood" (the perceived likelihood that a given antecedent could happen) and "then likelihood" (the perceived likelihood of an outcome given the antecedent). Although a student dreading a test might think "if only someone pulled the fire alarm, I wouldn't have to take the test",

the student would be much less likely to think "if only aliens would invade, I wouldn't have to take the test". Even if she did think such a thing, it would be unlikely to generate the same amount of longing as the fire alarm scenario unless the student truly believed that an alien invasion was not only possible but likely – that is, for the student's counterfactual to be potent, it would need to be high in "if" likelihood.

It would also need to be high in "then" likelihood. Although a false fire alarm might postpone a test, it would rarely cancel one altogether, so our unfortunate student might believe that, while someone pulling a fire alarm is not unbelievable, it would not necessarily lead to the desired outcome, whereas an alien invasion would almost certainly disrupt test administration for at least a long while. One way that people express doubt that an antecedent will lead to a consequent is through "even if" statements, such as "even if there was a fire alarm, I would probably have to take the test tomorrow".

If a person doesn't believe an antecedent is possible at all, it is unlikely to influence their reasoning about possible solutions to problems, or their emotional response to such problems. For example, if a policy seems like it could never pass in Congress, it would have a low "if likelihood" because it would be viewed as unlikely to happen in the first place. In the case of our scenarios, if a gun law passed many months after the shooter committed a school shooting or if a price cap on medications passed several years after Mr. Hill's death, it is difficult to imagine scenarios in which the individuals in the story benefitted from these policies. In the versions of these vignettes where the policies were in close proximity to the events, it was presumably easier to imagine the individuals benefitting – if the shooter had been delayed in buying a gun for only a day, or if Mr. Hill could have held on for just one more week, perhaps the policies in question could have been passed in time.

In this way, it is possible that our vignettes manipulated "if likelihood" but not "then likelihood". The next step toward seeing a counterfactual thought as a potential solution is to believe that the antecedent would lead to the desired outcome. If a participant believes that even if an assault weapons ban were passed, people would still illegally obtain assault weapons with ease, she is unlikely to generate the "if only" thoughts and accompanying regret that comes with thinking of what might have been. In a sense, without both pieces of the likelihood puzzle, participants do not generate a full simulation of how a different outcome could have been achieved but only other things that could have happened surrounding the original outcome (Kahneman & Tversky, 1982).

CHAPTER 4

Partisan Differences in Normative Beliefs

4.1 Introduction

Although norms are an important predictor of counterfactual content in the sense that events that "almost didn't happen" are often targeted in counterfactual thoughts, manipulating which possible solution almost came in time to prevent a negative outcome had no impact on counterfactual statements when the negative events had to do with healthcare and gun violence. Instead, participants continued to generate counterfactual statements in line with their partisan patterns.

In Chapter 4, I explore one reason why politically-relevant counterfactuals might be so resistant to manipulation. Although I tried to manipulate norms in Chapter 3 and although normative beliefs should predict counterfactuals, it is possible that I did not manipulate norms at all. Although I manipulated which potential solution almost happened in time to prevent each negative event, it is possible that participants still did not shift their views of which potential solution is most normative in the context of American political life. That is, partisans might already hold such different beliefs about what is descriptively normal in the country and the world that it is not possible to override their existing normative beliefs with norm manipulations that effect apolitical counterfactual thinking.

Take, for example, the gun control manipulation. If a participant already sees the United States' lack of an assault weapons ban as counternormative in the context of the politics of other countries, they may target this policy in their counterfactual statements regardless of how closely another potential solution (a therapy appointmnet) followed the shooting described in the vignette. For participants who see the perpetrator's mental health as the most abnormal part of the scenario (rather than his gun ownership), mutating his mental health status might seem like the most sensible change to make regardless of whether a gun policy (that participants might or might not see as effective) follows closely on the heels of the shooting. The fact that participants in the gun policy proximal condition were more likely to mention therapy than those in the therapy proximal condition suggests, in fact, that for some participants, the long waiting period to see a therapist was itself the most abnormal part of the scenario. For these participants, the waiting period was surprising or unusual

and elicited more counterfactual statements despite not having "almost" come in time to prevent the shooting.

In this chapter, I examine whether partisans have different beliefs about what is descriptively common in the United States and the world, whether these norms predict the content of their counterfactual thoughts in response to politicized negative events, whether such general norms can be shifted, and whether manipulating descriptive norms about the commonness of events in the world might influence participants' counterfactual thinking.

4.2   Study 6

In Study 6, I was interested in two major questions: first, whether partisans differ in their normative beliefs, and second, whether normative beliefs predict counterfactual content. By normative beliefs, I am referring to descriptive norms: beliefs about what is statistically common. For example, I asked participants how common homelessness is, how common it is for gun owners to commit acts of violence, and how common it is for countries around the world to have universal healthcare. Based on previous research, I expected that antecedents perceived as *least* normal would be *most* likely to be mutated in counterfactual statements.

That is, if a participant believes that it is unusual that the United States does not have single-payer healthcare (that is, that many other countries do), then they are likely to "undo" this lack of single-payer care in their counterfactual statements. Because U.S. policy is seen as abnormal, alternative scenarios in which U.S. healthcare policy is more globally normative should be highly available and likely to appear in mutations. Similarly, if a participant believes that it is common for people to own guns but not to use them to commit acts of violence, then the most abnormal part of a shooting scenario is not the perpetrator's gun ownership but his decision to commit mass violence. Such participants should then consider this individual decision to be the most abnormal part of the scenario and should be able to imagine many scenarios in which the perpetrator did not commit the shooting, even without more restrictive gun policies. For participants who think that such violence is common among legal gun owners might find it more difficult to imagine the perpetrator making a different choice individually and might therefore be more likely to wish a policy had prevented him from obtaining a gun, especially a high-capacity weapon.

In this study, I examine two types of descriptive normative beliefs: local norms and global norms. Local norms refer to how common participants perceive different behaviors and events to be within the United States. Global norms refer to how common participants believe different policies to be worldwide. For example, the perceived commonness of gun ownership or gun violence within the United States represents a local norm, and the perceived commonness of single-payer healthcare worldwide represents a global norm.

Theoretically, perceiving policies as more normative worldwide should be associated with a higher likelihood of mentioning policies in counterfactual statements. In other words, the more unusual it seems for the United States to have or not have a policy, the more likely it is that that policy (or lack thereof) will appear in mutations. Conversely, the more unusual (uncommon) the individual actions or circumstances of the people in the vignettes seem, the more likely it is that those people's actions or situations will be mutated. For example, if the circumstances leading up to Mr. Smith's homelessness seem highly unusual, they are likely to be changed in counterfactual statements about how Mr. Smith as an individual could have acted differently or how his luck might have shifted slightly to allow a better outcome to occur.

4.2.1 Method

4.2.1.1 Participants

Demographics   I recruited 100 Democrats, 100 Republicans, and 100 Independents from Prolific Academic. In terms of gender, 44.5% were men, 52.5% were women, and 2.99% were nonbinary. In terms of ethnicity, 75.6% were White or European American, 9.28% were multiracial, 5.67% were Asian, 4.6% were Black or African American, 3.78% were Hispanic or Latino/a, 0.34% were American Indian or Alaska Native, and 0.69% were other ethnicities. Participants ranged in age from 18 to 75 ($M = 38.99$, $SD = 13.32$).

Political Identity   As in previous studies, I used the seven-point bipolar scale ranging from Strong Democrat to Strong Republican as an indicator of political affiliation ($M = 3.72$, $SD = 1.92$). On a discrete party membership scale, 27.7% identified as Independents, 35.3% as Democrats, and 32.7% as Republicans. On the continuous bipolar measure, 21.6.2% identified as Independents by choosing the scale's midpoint. Of participants who identified as Independents on the discrete scale, 69.9% also identified as Independents on the continuous scale, with 16.9% leaning Democrat, 8.4% leaning Republican, and 1.2% each Strong Democrat, Democrat, Republican and Strong Republican. The bipolar affiliation measure correlated with a bipolar Liberal-Conservative measure at $r = .86$.

4.2.1.2 Procedure

I asked participants to rate, on ten-point bipolar scales, the perceived normalcy of events in four categories: events happening in the United States, policies in place around the world, the perceived similarity of such countries to the United States, and a one-item measure of the extent to which the government of the United States intervenes on each issue compared to other countries. Next, I asked participants to read vignettes about healthcare, poverty, and gun control, and to generate

counterfactual thoughts in response to each vignette. All of the vignettes are included in Appendix D.3. The different categories used to measure perceived norms are described in detail below.

Local Norms   I asked participants to consider "how common [they] think different events are for American people." I emphasized that I was interested in what the participants thought and encouraged them to give their best guess based on their experiences and knowledge about life in the United States. The events I asked about were based on the antecedents in each vignette. For example, in the health vignette, a man with HIV contracted an infection and could not afford his medication, which had been bought by a private company which raised the medication's price. Thus, the local norm items for the Health topic were about how common a disease HIV is, how common it is for HIV-positive people to contract infections, how common it is for medications to be patented so that companies can own their exclusive distribution rights, how common it is for companies to raise the prices of the medications they own, and how common it is for people to go without lifesaving medications due to their cost. All local norm items for each topic are included in Appendix E.3.

Global Norms   After participants answered the local norm items, I asked them to consider "how common different policies are worldwide." Participants reported on the perceived normalcy of policies, such as single-payer healthcare, assault weapon bans, and federal housing assistance, which might be mentioned in response to the negative events described in the vignettes.

Similarity   I also asked participants to rate the perceived similarity of countries that hold each policy to the United States. For example, I asked them to "think about countries that do place price caps on lifesaving medications (limiting the amount that pharmaceutical companies can charge). What countries come to mind? How similar do you think those countries are to the United States, in terms of their culture and values?"

Comparison   At the end of each topic section, I asked participants to give a global evaluation of the extent to which the United States intervenes on each topic issue, compared to other countries. Specifically, I asked: "compared to other countries around the world, how strict is gun control in the United States?" and "compared to other countries around the world, how much does the United States intervene to" reduce poverty among its citizens and ensure access to healthcare. Participants rated U.S. intervention on a ten-point bipolar scale with the endpoints "the U.S. does the least" and "the U.S. does the most" for the Health and Poverty items and "the U.S. is the least strict" and "the U.S. is the most strict" for the Gun Control item. See Appendix F.3.3 for all of the Global Norm items, including the similarity and comparison items.

Table 4.1: Perceived Local Health Norms Predicted by Partisanship, Study 6

Item	β	t	95% CI	$R^2/R^2 adjusted$
HIV	-0.10*	-2.37	-0.19, -0.02	0.010/0.008
Infections	0.07	1.53	-0.02, 0.15	0.004/0.002
Price Gouging	-0.09	-2.26	-0.18, -0.01	0.009/0.007
Going Without	-0.21***	-4.64	-0.29, -0.12	0.036/0.034
Patents	-0.06	-1.48	-0.14, 0.02	0.004/0.002

$*p < .05$ $**p< .01$ $*** p < .001$

4.2.2   Results

4.2.2.1   Partisan Differences in Normative Beliefs

In order to assess partisan differences in normative beliefs, I first ran linear regressions predicting each norm item from political affiliation (centered).

Health

Local Norms   Republicans saw HIV as less common of a disease than Democrats, and they saw it as less common for people to go without lifesaving medications because of the expense. There were no partisan differences on any other local items. See Table 4.1 for regression results.

Global Norms   When it came to perceptions of how common healthcare policies are worldwide, Democrats saw price caps and single payer healthcare as more common. However, there was no relationship between affiliation and the perceived similarity of countries that have price cap policies and single payer healthcare to the United States. Compared to other countries around the world, Republicans reported that the United States intervened more to ensure healthcare access. See Table 4.2 for regression results.

Guns

Local Norms   Partisans differed in the perceived normalcy of almost every gun-related item. Specifically, Democrats saw it as more common for legal gun owners to use guns to commit acts of

Table 4.2: Perceived Global Health Norms Predicted by Partisanship, Study 6

Item	β	t	95% CI	$R^2/R^2 adjusted$
Price Caps	-0.19**	-3.46	[-0.30, -0.08]	0.020/0.019
Price Cap Similarity	-0.05	-1.07	[-0.14, 0.04]	0.002/0.000
Single Payer	-0.37***	-7.47	[-0.46, -0.27]	0.088/0.086
Single Payer Similarity	-0.00	-0.01	[-0.09, 0.09]	0.000/-0.0022
Comparison	0.33***	7.44	[0.24, 0.42]	0.087/0.085

$*p < .05$ $**p < .01$ $*** p < .001$

violence, for mentally ill individuals to pass background checks, and for mass shooters to have (a) obtained their guns legally and (b) passed background checks to do so. They also saw gun violence as more common as a cause of death compared to Republicans. In contrast, Republicans saw it as more common for gun owners to practice adequate gun safety. See 4.3.

Global Norms   In terms of gun policy around the world, Republicans saw it as more common for countries to allow civilians to own guns and to allow people under the age of 21 to purchase guns. Democrats saw it as more common for countries to ban assault weapons, and to prohibit people who had committed violent crimes from owning guns. Democrats also saw countries that prohibit gun sales to people under 21 from buying guns as more similar to the United States, compared to Republicans. Finally, Republicans saw the United States as having stricter gun control policies, relative to other countries, than Democrats. See 4.4.

Poverty

Local Norms   There were only small marginal partisan differences in the perceived normalcy of people over 65 being unable to work and of saving enough to retired by the age of 65. Democrats saw eviction and homelessness as more common, and also saw it as more common for a person to pay so much in rent and utilities that they can't save money. See 4.5.

Global Norms   When it came to policies around the world, there were only marginal partisan differences in perceptions of the normalcy of housing vouchers as a policy. However, Republicans

Table 4.3: Perceived Local Gun Norms Predicted by Partisanship, Study 6

Item	β	t	95% CI	$R^2/R^2 adjusted$
Acts of Violence	-0.33***	-7.02	[-0.43, -0.24]	0.078/0.077
Gun Safety	0.46***	10.07	[0.37, 0.55]	0.149/0.147
Pass BG Checks	-0.30***	-5.91	[-0.40, -0.20]	0.057/0.055
Mass Shooter Legal	-0.34***	-6.32	[-0.45, -0.24]	0.064/0.063
Mass Shooter BG	-0.28***	-5.26	[-0.38, -0.17]	0.046/0.044
Cause of Death	-0.50***	-9.26	[-0.61, -0.40]	0.129/0.127
Gun Ownership	-0.02	-0.57	[-0.11, 0.06]	0.001/-0.001

$*p < .05$ $**p < .01$ $*** p < .001$

said that the United States does more to alleviate poverty, relative to other countries, than Democrats. See 4.6.

4.2.2.2 Counterfactuals by Affliation

To examine the relationship between partisan affiliation and participants' counterfactual thoughts, I ran binomial generalized linear models with Participant as a random variable. There was no partisan difference in compliance with the research task in the sense that Republicans and Democrats were equally likely to generate counterfactual statements, $\beta = -0.02$, $z = -0.12$, $p = .901$. After establishing this, I removed non-counterfactual statements from the dataset. There were no party differences in counterfactual structure, $\beta = 0.02$, $z = 0.501$, $p = .617$.

As in previous studies, statements were more likely to mention groups when generated by Democrats than Republicans, $\beta = -0.28$, $z = -6.13$, $p < .001$, and more likely to mention individuals when generated by Republicans than Democrats, $\beta = 0.35$, $z = 6.60$, $p < .001$. Among statements that mentioned groups, those generated by Democrats were more likely to mention a public group or public policy (as opposed to a private group such as a family or company) than those generated by Republicans, $\beta = -0.17$, $z = -4.56$, $p < .001$. Among statements that mentioned individuals, there was no party difference in the likelihood of mentioning the target or "main character" in the story as opposed to some other individual, $\beta = -0.02$, $z = -0.134$, $p = .893$.

Table 4.4: Perceived Global Gun Norms Predicted by Partisanship, Study 6

Item	β	t	95% CI	$R^2/R^2 adjusted$
Civilian Gun Ownership	0.20***	4.14	[0.10, 0.29]	0.029/0.027
Illegal CGO Similarity	-0.08.	-1.73	[-0.17, 0.01]	0.005/0.003
Assault Ban	-0.26***	-5.56	[-0.35, -0.17]	0.051/0.049
Assault Ban Similarity	-0.08	-1.59	[-0.18, -0.02]	0.004/0.003
Yes Under 21	0.24***	4.73	[0.14, 0.34]	0.037/0.035
No < 21 Similarity	-0.09*	-1.98	[-0.18, -0.00]	0.007/0.005
Violent Crime Prohibition	-0.11*	-2.28	[-0.20, -0.01]	0.009/0.007
VCP Similarity	0.03	0.59	[-0.07, 0.12]	0.001/-0.001
Mental Illness Prohibition	-0.09	-1.83	[-0.18, 0.01]	0.006/0.004
MIP Similarity	0.06	1.31	[-0.03, 0.16]	0.003/0.001
Comparison	0.40	9.58	[0.32***, 0.49]	0.137/0.135

*p < .05 **p< .01 *** p < .001

Table 4.5: Perceived Local Poverty Norms Predicted by Partisanship, Study 6

Item	β	t	95% CI	$R^2/R^2 adjusted$
Over 65 Unable to Work	-0.07.	-1.79	[-0.15, 0.01]	0.005/0.004
Enough to Retire	0.08.	1.87	[-0.00, 0.16]	0.006/0.004
Can't Save	-0.19***	-4.92	[-0.26, -0.11]	0.040/0.038
Eviction	-0.19***	-3.59	[-0.30, -0.09]	0.022/0.020
Homelessness	-0.34***	-6.02	[-0.45, -0.23]	0.059/0.057

*p < .05 **p< .01 *** p < .001

Table 4.6: Perceived Global Poverty Norms Predicted by Partisanship, Study 6

Item	β	t	95% CI	$R^2/R^2 adjusted$
Vouchers	0.09.	1.89	[-0.00, 0.01]	0.006/0.004
Vouchers Similarity	0.03.	0.62	[-0.06, 0.11]	0.001/-0.001
Rent Control	0.03	0.60	[-0.07, 0.12]	0.001/-0.001
Rent Control Similarity	0.04	0.89	[-0.05, 0.13]	0.001/-0.000
Retirement Assistance	-0.04	-0.87	[-0.14, -0.05]	0.001/-0.000
RA Similarity	-0.01	-0.27	[-0.10, 0.07]	0.000/-0.002
Comparison	0.39***	8.53	[0.30, 0.47]	0.111/0.110

*$p < .05$ **$p < .01$ *** $p < .001$

4.2.2.3 Norms Predict Counterfactual Content

Next, I was interested in whether participants' beliefs about what is normal predicted the content of their counterfactual statements, particularly whether they mentioned a public policy in their statements. I conducted a binomial generalized linear model predicting normative beliefs from counterfactual content, political affiliation (centered), and their interaction. I treated Participant as a random variable and ran the models using the blme package in R, (Dorie & Dorie, 2015).

I created composite scales for local normative beliefs and global normative beliefs. In this section, I also report the results of the single-item comparison measure asking participants to compare how much the United States does to address each issue compared to other countries.

Health

Local Norms   I combined the local norm items related to health based on my theoretical predictions regarding the likelihood of mentioning a policy. In the case of local health norms, I predicted that perceiving each of the events or circumstances as common would positively predict policy mentions. The more participants saw HIV as a common disease, saw infections as common for HIV patients, saw it as common to go without important medications, and saw it as common for companies to own the patents of lifesaving medications, the more likely I predicted that they would be to see policy as necessary to address issues like the ones faced by Mr. Hill in the vignette. Local

norms did not, by themselves, predict counterfactual content, however, $\beta = 0.01$, $z = 0.08$, $p = .941$, 95% CI [0.87, 1.16]. Political affiliation predicted policy mentions, $\beta = -0.95$, $z = -3.63$, 95% CI [0.23, 0.65], and there was an interaction such that perceiving poor health outcomes and barriers to healthcare was associated with a decreased likelihood of mentioning policies for Democrats but an increased likelihood of mentioning policies for Republicans, $\beta = 0.11$, $z = 2.83$, $p = .005$, 95% CI [1.03, 1.20]

Global Norms　I combined the two global norm items so that higher scores indicate greater perceived normalcy of government intervention in healthcare (that is, perceiving price caps and single-payer healthcare as more common worldwide). When thinking about healthcare, global norms did predict participants' counterfactual thoughts, $\beta = 0.09$, $z = 1.99$, $p = .047$, 95% CI [1.00, 1.19]. Political affiliation only marginally predicted counterfactual content in this model, $\beta = -0.25$, $z = -1.74$, $p = .082$, 95% CI [0.59, 1.03], and there was no interaction, $\beta = 0.01$, $z = 0.25$, $p = .804$, 95% CI [0.96, 1.05]. See Figure 4.1.
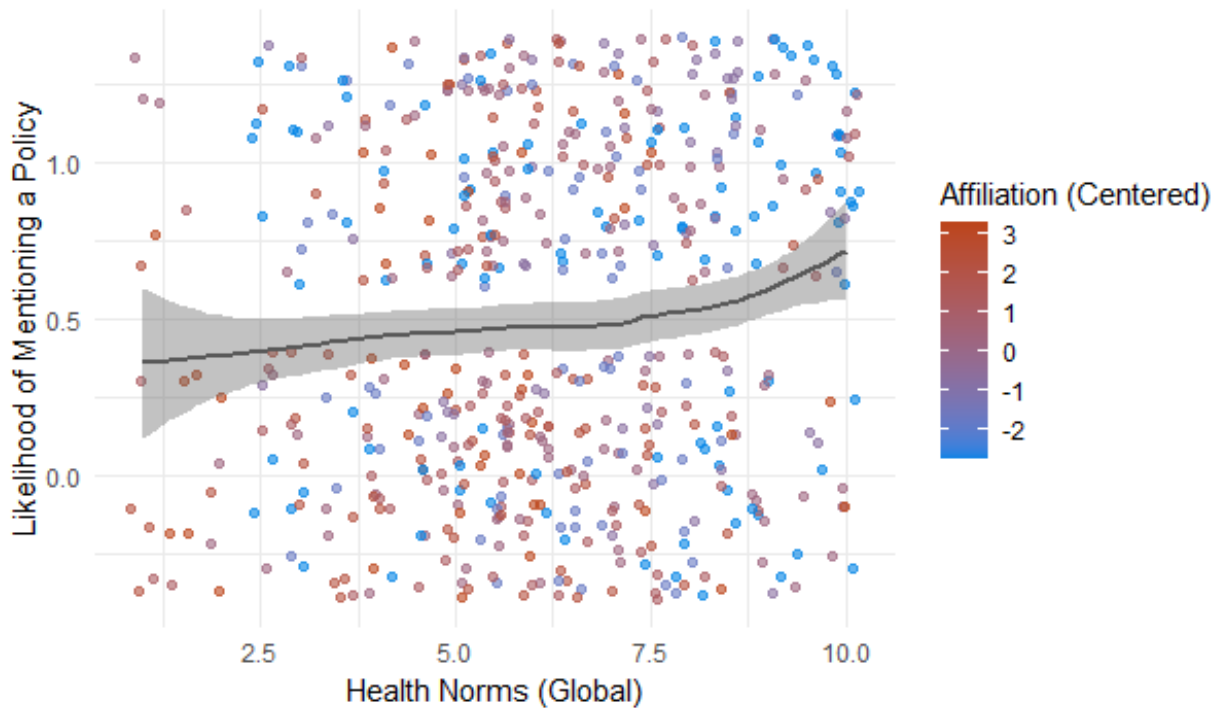

Figure 4.1: Likelihood of mentioning a policy in response to the HIV vignette by global healthcare norms, Study 6.

Comparison　The more participants saw the United States as doing more than other countries to ensure access to healthcare, the less likely they were to mention a policy in either of their

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statements, β = -0.12, z = -2.72, p = .007. Political affiliation was also significant in this model, with Democrats more likely to mention policies, β = -0.42, z = -4.00, p <.001, and there was an interaction between affiliation and the comparison measure such that seeing the United States as doing less than other countries to ensure healthcare access was associated with mentioning a policy for Democrats but not for Republicans, β = 0.05, z = 2.43, p = .015, 95% CI [0.01, 0.10].

Guns

Local Norms I combined the local norm items related to guns based on my theoretical predictions regarding the likelihood of mentioning a policy. I predicted that the more participants saw it as common for legal gun owners to commit acts of violence, for people with known mental health issues to pass background checks, for mass shooters to purchase their guns legally and pass background checks to do so, and the more common they saw gun violence as a cause of death, the more likely they would be to mention policies. However, I predicted that the more participants saw it as common for people to own guns and to keep them safely, the less likely they would be to mention policies, so I reversed these items.

Local norms predicted counterfactual content such that the more participants saw it as common for people to legally buy guns and use them for nefarious purposes, the more likely they were to mention policies, β = 0.24, z = 2.93, p = .003, 95% CI [0.08, 0.41]. Political affiliation marginally predicted policy mentions in this model, β = -0.41 z = -1.86, p = .062, 95% CI [-0.86, 0.02], with no interaction between affiliation and norms β = 0.05 z = 1.26, p = .208, 95% CI [-0.03, 0.13]. See Figure 4.2.

Global Norms I combined the five global norm items so that higher scores indicate more perceived gun control worldwide. That is, I predicted that participants would be more likely to mention policies when they perceived other countries as banning assault weapons and prohibiting gun sales to people with a history of mental illness or committing violent crimes. I predicted that participants would be less likely to mention policies when they perceived other countries as allowing civilians to own guns and allowing people under 21 to purchase guns, so I reversed these items. The composite global norms scale marginally predicted participants' counterfactual thoughts such that the more common participants thought gun control policies were worldwide, the more likely they were to mention policies, β = 0.13, z = 1.94, p = .052, 95% CI [-0.00, 0.26]. Political affiliation did not predict counterfactual content in this model, β = -0.02, z = 0.08, p = .937, 95% CI [-0.50, 0.54], and there was no interaction, β = 0.02, z = -0.85, p = .395, 95% CI [-0.10, 0.04].
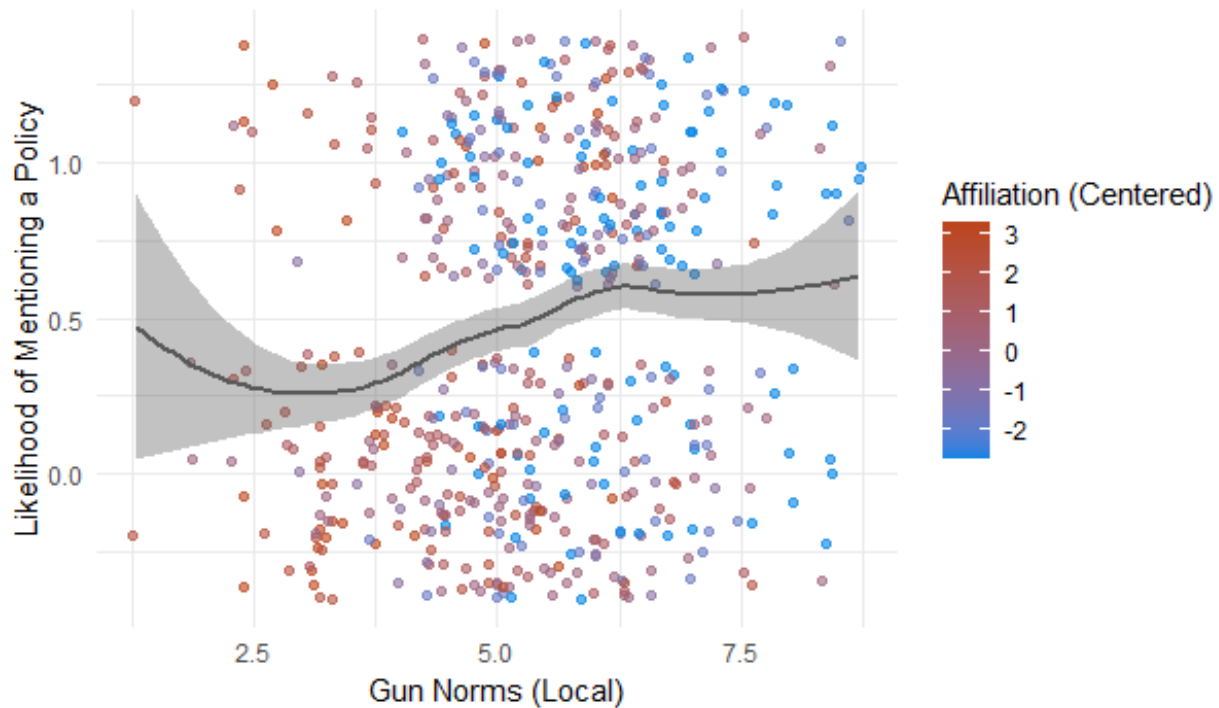
Figure 4.2: Likelihood of mentioning a policy in response to the mass shooting vignette by local gun norms, Study 6.

Comparison   The stricter participants thought gun control was in the United States compared to other countries, the less likely they were to mention a policy in either of their statements, $\beta = -0.14$, $z = -2.81$, $p = .005$, 95% CI [-0.24, -0.04]. Political affiliation was not significant in this model, $\beta = -0.17$, $z = -1.70$, $p = .089$, and there was no interaction, $\beta = 0.002$, $z = 0.071$, $p = .943$, 95% CI [-0.05, 0.05].

Poverty

Local Norms   I combined the local norm items related to guns based on my theoretical predictions regarding the likelihood of mentioning a policy. I predicted that the more common participants thought it was for people to be unable to work, be unable to save money, be evicted, or be homeless, the more likely they would be to mention a policy in response to the Veteran vignette about Mr. Smith. However, I predicted that the more participants saw it as common for people to have enough money saved for retirement by age 65, the less likely they would be to mention policies, so I reversed this item.

Local norms predicted counterfactual content such that the more common participants thought poverty was, the more likely they were to mention policies, $\beta = 0.31$, $z = 3.60$, $p < .001$, 95% CI

[0.14, 0.48]. Political affiliation did not predict policy mentions in this model, $\beta = 0.002$, $z = 0.01$, $p = .995$, 95% CI [-0.59, 0.59], with no interaction between affiliation and norms $\beta = -0.04$ $z = -0.94$, $p = .350$, 95% CI [-0.12, 0.04]. See Figure 4.3.

Figure 4.3: Likelihood of mentioning a policy in response to the homeless veteran vignette by local poverty norms, Study 6.

Global Norms I combined the five global norm items so that higher scores indicate more perceived poverty intervention worldwide. That is, I predicted that participants would be more likely to mention policies when they perceived federal housing assistance, rent control, and retirement assistance as common worldwide. The composite global norms scale did not predict participants' counterfactual thoughts, $\beta = 0.02$, $z = 0.34$, $p = .737$, 95% CI [-0.12, 0.16]. Political affiliation predicted counterfactual content, $\beta = -0.63$, $z = -2.73$, $p = .006$, 95% CI [-1.09, -0.18], and there was no interaction, $\beta = 0.05$, $z = 1.43$, $p = .153$, 95% CI [-0.02, 0.12].

Comparison The more participants thought the United States did to alleviate poverty compared to other countries, the less likely they were to mention a policy in either of their statements, $\beta = -0.13$, $z = -2.25$, $p = .024$, 95% CI [-0.25, -0.02]. Political affiliation also predicted counterfactual content in this model, $\beta = -0.67$, $z = -4.289$, $p = <.001$, and there was an interaction such that seeing the United States as doing more to reduce poverty predicted policy mentions for Democrats but not

Republicans, $\beta = 0.091$, $z = 2.95$, $p = .003$, 95% CI [0.03, 0.15]. Democrats who didn't mention policies viewed the United States as doing almost as much to reduce poverty as Republicans did, but Democrats who did mention policies rated U.S. action to reduce poverty lower.

4.2.3   Study 6 Discussion

Study 6 provides insight into a possible reason why partisans differ in their counterfactual reactions to negative events, and why such reactions are resistant to change using simple norm-based manipulations. In this study, I found that partisans have different beliefs about what is descriptively normal in the United States and in the world at large, and that normative beliefs predict counterfactual thoughts.

In this way, counterfactual thinking about political topics is similar to counterfactual thinking about anything else: the more normal an antecedent to a negative event is, the less likely it is to be targeted as a potential cause of that event (Miller & McFarland, 1986). By contrast, more abnormal-seeming antecedents are likely to be targeted in counterfactual thoughts. For our participants, if it seemed abnormal for a gun owner to use their gun to commit a mass shooting, they were likely to 'undo' the gun owner deciding to commit the shooting. That is, if plenty of Americans manage to keep their guns safely, participants needed to explain why the perpetrator in the vignette couldn't do the same, and they used a variety of non-policy-related counterfactual thoughts to reason through what made this particular gun owner commit the shooting. Similarly, if it seemed particularly abnormal for a person to be unable to pay rent and to become homeless, participants needed to explain why Mr. Smith, in particular, was so unlucky, and they generated counterfactual explanations that were specific to him as an individual and to his situation. Conversely, if the misfortune that befell the characters in the vignettes seemed all too common, participants often looked to policies as potential solutions. For participants who saw gun violence and poverty as common, it was not individuals who should change their behaviors to easily available alternatives but aspects of the environment or social group that seemed abnormal and in need of revision. If poverty, for example, is widespread in the United States, Mr. Smith being luckier or making different financial decisions might prevent him from becoming homeless, but it would not address the wider societal issue of homelessness. Thus, if homelessness is a widespread issue, then the solution would need to come at the group (in this case, national) level.

Not only did local norms within the context of the United States matter, but participants also drew upon their beliefs about the world at large when thinking counterfactually about politicized negative events. The more participants saw policies as common worldwide, the more likely they were to suggest that negative events in the United States could have been prevented through such policies. Another way to think about this is that the more *abnormal* participants thought it was, on a

global scale, that the United States does not have single-payer healthcare or stricter gun control, the more likely such policies were to come up in their counterfactual statements. When they saw the United States as a policy outlier, it was easy to come up with counterfactual alternatives in which the United States, like many comparable countries, has such policies.

4.3   Study 7

In Study 7, I was interested in whether manipulating normative beliefs might influence participants' counterfactual thoughts. I focused specifically on whether manipulating beliefs about gun sales, ownership, and use would influence the likelihood of mentioning gun policies in response to a mass shooting. I pilot tested two manipulations designed to shift the perceived normalcy of gun owners practicing adequate gun safety, two manipulations designed to shift the perceived normalcy of passing background checks, and two manipulations designed to shift the perceived normalcy of acts of violence being committed with legally-purchased guns.

Of these interventions, two were successful at shifting normative beliefs in the pilot study, so I used these two manipulations in the main study. One manipulation was based on the anchoring and adjustment heuristic. When asked to estimate whether a value Y is above or below a certain value X, X often "anchors" participants - it serves as a reference point from which participants then adjust (Tversky & Kahneman, 1974). Thus, estimates of value Y are often higher when X is higher, and lower when X is lower. In our norm manipulation, we asked participants to judge how many gun applications are rejected each year due to background checks by a federal agency, with the idea that giving them a high anchor would increase the perception that it is highly normative for background checks to be rejected, and thus it is difficult to obtain a gun. Theoretically, the more background checks participants think are rejected, the less common they should believe it is for people (including people with known mental health issues) to pass the background checks required to purchase guns.

In the other manipulation, I asked participants whether they agreed or disagreed that "all" gun owners or "no" gun owners practice various gun safety recommendations. Theoretically, disagreeing with each of these claims should influence the perceived normalcy of adequate gun safety in opposite ways. Admitting that not all gun owners practice each safety measure should make gun owners seem less safe, but admitting that at least some gun owners practice each safety measure should make gun owners seem safer. This works by drawing attention to safe or unsafe gun owners, whether through gist information or through exemplars. If participants are prompted to think of gun owners who do *not* follow safety recommendations (by saying that not all gun owners practice the recommendation), they should have an overall view of gun owners as less safe. Conversely, if they are prompted to think of gun owners who *do* follow the safey recommendations (by saying that at least some gun

owners practice the recommendation), they should have an overall view of gun owners as safer, (Salancik & Conway, 1975).

4.3.1 Method

4.3.1.1 Participants

Demographics As in previous studies, I recruited 100 Democrats, 100 Republicans, and 100 Independents using Prolific Academic. Of these, 45.2% were men, 50.8% were women, and 3.3% were non-binary. In terms of ethnicity, 85.1% were White or European American, 7.95% were Latino or Hispanic, 7.62% were Asian, 4.97% were Black or African American, 2.32% were American Indian or Alaska Native, and 0.66% were Native Hawaiian or Pacific Islander.

Political Identity I used the seven-point bipolar scale ranging from Strong Democrat to Strong Republican as an indicator of political affiliation ($M = 3.78$, $SD = 1.81$). On a discrete party membership scale, 24.9% identified as Independents, 31.9% as Democrats, and 29.6% as Republicans. On the continuous bipolar measure, 23.5% identified as Independents by choosing the scale's midpoint. Of participants who identified as Independents on the discrete scale, 62.7% also identified as Independents on the continuous scale, with 21.3% leaning Democrat, 10.7% leaning Republican, 2.7% Democrat, 1.3% Republican, and 1.3% Strong Democrat. The bipolar affiliation measure correlated with a bipolar Liberal-Conservative measure at $r = .88$.

4.3.1.2 Procedure

Participants were randomly assigned to one of two conditions. In one condition, the "Policy +" Condition, participants received two manipulations designed to make adequate gun safety seem less common and passing background checks seem more common, thus (theoretically) increasing the likelihood that they would mention policies in their counterfactual statements. In the "Policy -" Condition, participants received two manipulations designed to make adequate gun safety seem *more* common and passing background checks seem *less* common, thus theoretically decreasing the likelihood that they would mention policies in their statements.

Gun Safety Manipulation The Gun Safety Manipulation resembled manipulations developed by Salancik and Conway salancik1975attitude where participants were asked whether they agreed or disagreed with a statement that was either easy or difficult to agree to. Participants' attitudes differed by condition such that the easier it was to agree to items about, say, religious behaviors, the more religious participants reported being. In the gun safety manipulation, I asked participants questions that should be very difficult to agree with: whether ALL gun owners (in one condition) or

NO gun owners (in the other) practiced a variety of gun safety measures. In the Gun Safety section of the survey, participants saw the following instructions:

> The U.S. Department of Justice provides several recommendations for firearm safety that gun owners can use to keep themselves and their families safe.

> In the next set of questions, we will show you some of these recommendations, and ask you how well gun owners follow them.

> Please indicate whether you agree or disagree with each statement.

I then showed participants six recommendations: store all firearms in a locked safe, store ammunition separately from guns, treat every firearm as if it were loaded, always point the muzzle of a firearm in a safe direction, always keep your finger off of the trigger unless you intend to fire the weapon, and keep the keys to your guns and ammunition separate and out of children's reach. After each recommendation, participants saw either the statement "All gun owners do this" ("Policy +" Condition) or "No gun owners do this" ("Policy -" Condition) and asked them whether they agreed or disagreed with the statement (binary choice).

Background Check Manipulation In the Background Check section of the survey, I told participants that:

> The National Instant Criminal Background Check System (NICS) conducts background checks for people who want to purchase a gun. Since launching in 1998, the NICS has performed 300 million checks.

I next asked participants: "Of the 300 million checks performed by the NICS, how many applications were denied? Was it more or less than [1000/100 million]?" Participants in the "Policy +" condition saw the low anchor and participants in the "Policy -" condition saw the high anchor. Participants then chose whether they thought the true value was more or less than the anchor they saw.

Finally, I asked participants: "if you had to guess, of the 300 million checks, how many applications were denied? Please enter a whole number."

Norms and Counterfactuals I asked participants to answer three local norm items from Study 6: "1. Among people who legally purchase firearms, how common is it for them to use the firearms to commit acts of violence?", "How common is it for gun owners to practice adequate gun safety?" and "Think about people with known mental health issues that may be related to violent behavior. How common is it for them to pass the background checks required to purchase guns?".

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Next, I asked participants to generate up to two counterfactual statements in response to the Mass Shooting vignette from Study 6. Last, participants answered demographic questions and one measure about their attitudes toward gun control. Specifically, I asked: "How would you describe your position on gun control? Considering the process of buying a gun, including background checks, training, and restrictions on the types of firearms civilians are allowed to privately own, would you prefer buying guns in the United States to be: Extremely difficult, much more difficult, a little more difficult, as easy or difficult as it is now, a little easier, much easier, or extremely easy". Participants indicated their preference on this seven-point scale.

Coding Scheme Two research assistants who were unaware of the study's hypothesis or participants' condition or demographics coded participants' counterfactual statements. In previous studies, when participants mentioned a group that was public, they were almost always referring to a policy suggestion. However, occasionally, participants would mention a public group without mentioning a policy - for example, wishing that police had been more effective. In Study 7, the coders first coded for whether a statement was a counterfactual and the statement's structure, and then coded whether participants mentioned a policy (Yes or No). Next, they coded for individual vs. group mentions, public group vs. private group mentions, and target vs. other individual mentions. The two research assistants coded 30 of the same items. Inter-rater reliability was 100% for whether statements were counterfactuals, 90% for structure, 90% for policy mentions, 96.7% for group vs. individual mentions, 80% for public vs. private groups, and 93.3% for target vs. other individuals.

4.3.2 Results

4.3.2.1 Manipulation Check

Because I was interested in a potential causal relationship between normative beliefs and counterfactual thoughts, I first checked to see whether I had successfully manipulated normative beliefs. I ran three linear regressions predicting participants' perceptions about gun safety, background checks, and the strictness of gun control in the United States relative to other countries from experimental condition, political affiliation, and their interaction. Recall that participants in the "Policy +" condition had received two manipulations, one designed to decrease perceived compliance with gun safety recommendations and the other designed to decrease the perceived difficulty of passing background checks. Conversely, participants in the "Policy -" condition received manipulations designed to *increase* perceived compliance with gun safety recommendations and the perceived difficulty of passing background checks.

However, there were no differences in perceptions of gun safety compliance by condition, β = 0.14, $t(298)$ = 0.65, p = .518, 95% CI [-0.28, 0.56]. As in Study 6, Republicans saw it as more

common for gun owners to practice adequate safety measures, $\beta = 0.46$, $t(298) = 5.48$, $p <.001$, 95% CI [0.29, 0.62]. There was no interaction between affiliation and condition, $\beta = -0.09$, $t(298) = -0.74$, $p = .459$, 95% CI [-0.32, 0.62].

The same was true for perceptions of how common it is for people with mental illnesses to pass background checks. Condition was not a significant predictor, $\beta = -0.10$, $t(298) = -0.40$, $p = .690$, 95% CI [-0.59, 0.39]. Democrats saw it as more common for mentally ill individuals to pass background checks, $\beta = -0.37$, $t(298) = -3.802$, $p <.001$, 95% CI [-0.56, -0.18] and there was no interaction $\beta = -0.07$, $t(298)$ -0.49, $p < .626$, 95% CI [-0.34, 0.20].

Responses to the Safety Manipulation   In order to investigate why this manipulation failure occurred, I decided to see how many people answer the manipulation questions themselves in an unexpected way.

The safety manipulation was meant to work by bringing participants' attention to the fact that not all gun owners practice each safety measure (in the "Policy +" condition), but that some do (in the "Policy -") condition. In other words, disagreeing with the extreme items in the safety manipulation was meant to put participants in the position of arguing that gun owners either do or do not practice gun safety. However, some participants agreed with the items. In the "Policy +" condition, participants agreed with 1.74 items on average ($SD = 2.21$). In the "Policy -" condition, they agreed with 0.46 items on average ($SD = 0.99$). This suggests that participants were more willing to agree that all gun owners practiced the safety measures than to say that no gun owner did, a relationship which was significant in a linear regression, $\beta = -1.28$, $t = -6.45$, $p <.001$.

In fact, 10.81% of participants in the "Policy +" condition (17 people) agreed with all six gun safety items, whereas only one participant (0.67%) in the "Policy -" condition did so. Because Republican participants considered adequate gun safety to be more normative, I checked to see whether these "Serial Agree-ers" were mostly Republicans who resented the questions. The "Serial Agree" sample were more right-leaning than the sample as a whole ($M = 4.71$, $SD = 1.57$) but the modal political affiliation was Independent, with seven participants selecting a four on the seven-point scale. One participant who agreed with all the safety items was a Strong Democrat, one leaned Democrat, three leaned Republican, two were Republicans, and three were Strong Republicans. The one participant who agreed with all of the items in the "Policy -" condition was an Independent.

Another way of thinking of agreeing with the gun safety items is in terms of compliance with the task, assuming that it is not possible for the true percentage of gun owners who practice each safety recommendation to be either 0% or 100%. Thinking in these terms, 61.7% of participants were perfectly compliant, disagreeing with all of the gun safety manipulation items, and 5.6% were fully noncompliant, agreeing with all of the items.

In order to better understand the relationship between agreement with the safety items and the manipulation's effectiveness, I ran a linear regression predicting the Gun Safety Norm from Condition (Policy +, Policy -), political affiliation (1-7, mean centered), the number of times participants agreed with a gun safety item (1-6), and all two-way interactions. See Table 4.7 for full regression results.

Table 4.7: Model Predicting Gun Safety Norms by Condition, Affiliation, and Task Compliance, Study 7

	Estimate	$t(290)$	95% CI	p
(Intercept)	6.00***	31.04	[5.62, 6.38]	<.001
"Policy -" Condition	0.74**	2.93	[0.24, 1.24]	.004
Political Affiliation	0.36**	3.41	[0.15, 0.57]	.001
Number of Agreements	0.25**	3.32	[0.1, 0.4]	.001
Condition:Political Affiliation	0.01	0.05	[-0.25, 0.26]	.957
Condition:Number of Agreements	-0.69***	-4.08	[-1.02, -0.36]	<.001
Political Affiliation:Number of Agreements	-0.01	-0.22	[-0.08, 0.06]	.825

*$p < .05$, **$p < .01$, ***$p < .001$

In this model, condition did predict perceived gun safety norms, with participants in the "Policy -" condition viewing adequate gun safety as more common, $\beta = 0.74$, $p = .003$. Number of Agreements also predicted normative beliefs about gun safety, with participants who produced more agreements viewing adequate gun safety as more common, $\beta = 0.25$, $p < .001$. There was an interaction between Condition and Number of Agreements such that participants only viewed gun safety as more normative in the "Policy -" condition if they complied with the manipulation task (see Figure 4.4. Participants who agreed with several items in the "Policy +" condition, who agreed that all gun owners practice the safety recommendations, rated it as very common for gun owners to practice adequate gun safety, and those in the "Policy -" condition who agreed that no gun owners practice the safety recommendations rated it as very uncommon for gun owners to practice adequate safety. Note that the modal number of agreements is 0, meaning that most participants fully complied with the task.
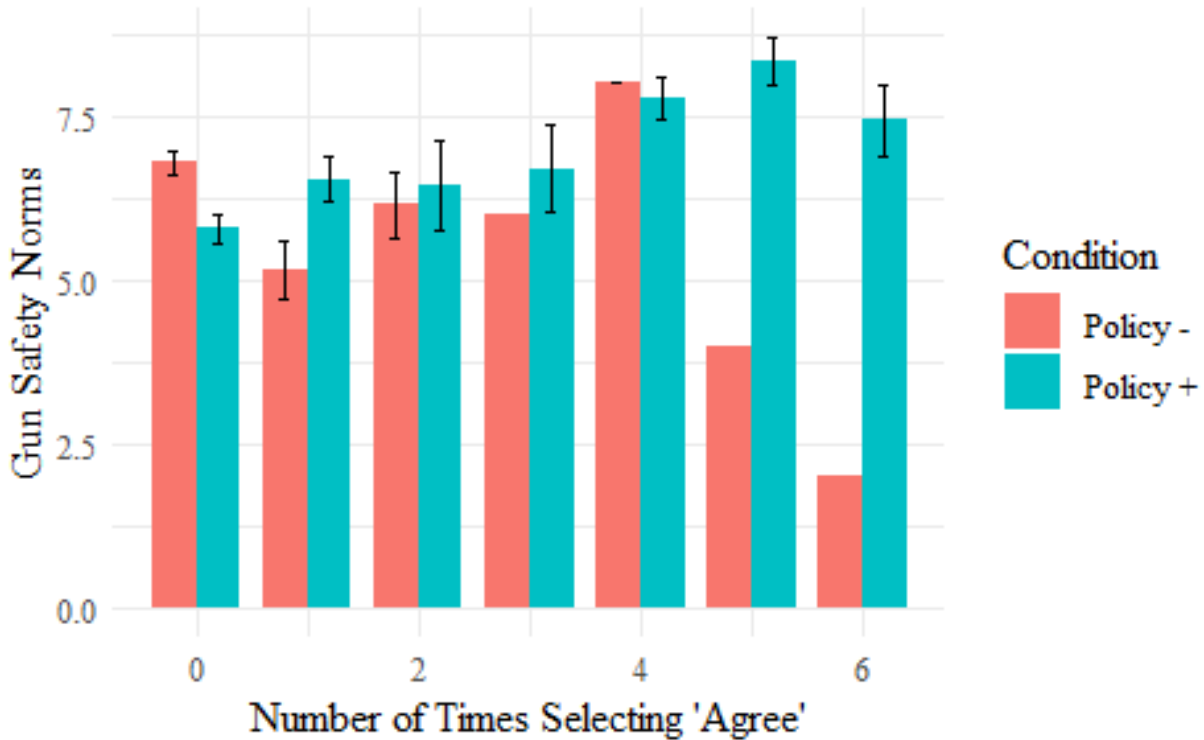
Figure 4.4: Interaction between Condition and Noncompliance in Predicting Perceived Gun Safety Norms, Study 7.

Responses to the Background Checks Manipulation   To determine whether participants were similarly noncompliant with the background checks manipulation, I checked participants' answers to the questions asking them whether the true number of background checks declined by the NICS was over or under 1000 (in the "Policy +" condition) or 100 million (in the "Policy -" condition). Neither of these numbers is impossible, but both are far from the true number of background checks that the NICS has turned down, which is (presumably slightly) "more than 1.5 million" (of Investigation, n.d.).

A second potential sign of noncompliance is participants' open-ended responses estimating the true number of background checks declined. Values over 300 million are impossible, since the number of applications declined cannot exceed the total number of applications reviewed. Overall, participants' average guess for how many applications the NCIS turned down was 79,036,921 ($SD =$ 1,152,494,245), but the median was only 500,000. The minimum guess was one and the maximum was $2e + 10$. Participants' estimates did differ by condition, with the mean guess in the high anchor condition being 149,652,715 ($SD = 1,626,489,220$, $median = 1,000,000$) compared to 7,950,355 ($SD = 30854507$, $median = 100,000$) in the low anchor condition (although, note that the mean in the low anchor condition is still more than five times the true value).

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Only one participant gave an impossible answer - that is, an answer over 300 million. When this participant was excluded from the dataset, the mean estimate for the number of applications denied was 12,633,711 (SD = 31,954,699, *median* = 450,000) and the mean estimate in the high anchor ("Policy -") condition was 17,317,066, (SD = *32,448,359*, *median* = 1,000,000).

As with the safety-related responses, I ran a regression model including noncompliance in the model. I excluded the one participant with an impossible guess, and I created a noncompliance dummy code so that participants who correctly answered that the true amount of rejected applications was over 1000 (in the "Policy +" condition) or under 100 million (in the "Policy -") condition had a value of 0, and those who answered that the true amount of rejected applications was under 1000 in the "Policy +" condition or over 100 million in the "Policy -" condition had a value of 1. See Table 4.8 for full regression results.

Table 4.8: Model Predicting Background Check Norms by Condition, Affiliation, and Task Compliance, Study 7

	Estimate	t(290)	95% CI	p
(Intercept)	6.05***	30.44	[5.66 , 6.44]	<.001
"Policy -" Condition	0.39	1.42	[-0.15 , 0.92]	.158
Political Affiliation	-0.44***	-4.05	[-0.65 , -0.23]	<.001
Noncompliance	1.23	3.07	[0.44 , 2.01]	.002
"Policy-" Condition:Affiliation	0.00	-0.01	[-0.27 , 0.27]	.993
"Policy-" Condition:Noncompliance	-2.76***	-4.31	[-4.01 , -1.5]	<.001
Affiliation:Noncompliance	0.30.	1.77	[-0.03 , 0.62]	.078

*p < .05, **p < .01, ***p < .001

Even taking noncompliance into account, the manipulation was, overall, unsuccessful as condition did not predict how common participants thought it was for people with mental illnesses potentially related to violent behavior to pass background checks required to buy guns. Democrats saw passing background checks as more common, β = -0.45, p <.001. Participants who were labeled as noncompliant - that is, who answered that the true number was under the low anchor or over the high anchor - saw it as more common for mentally ill people to pass background checks, β = 1.23, p = .002. There was an interaction between Condition and Noncompliance such that participants who adjusted in the correct direction from the anchor, selecting that the true value was

between the high and low anchors, those in the high anchor (Policy -) condition perceived it as more common for mentally ill people to pass background checks to purchase guns. Among participants who guessed that the true value was under the low or over the high anchor, those in the low anchor (Policy +) condition perceived it as more common to pass background checks, $\beta = -2.76$, $p < .001$. See Figure 4.5.
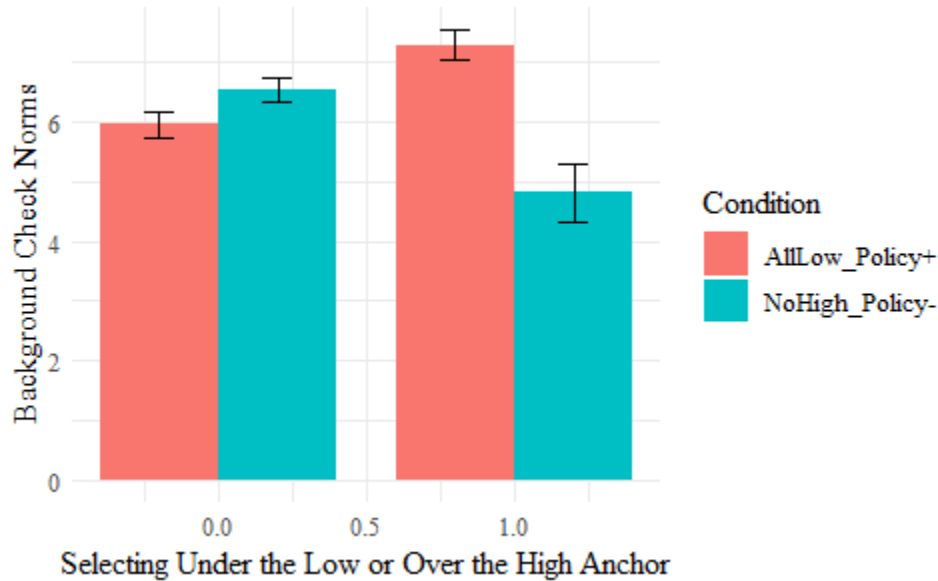
Figure 4.5: Interaction between Condition and Noncompliance in Predicting Perceived Background Check Norms, Study 7.

Because of this interaction, it does not seem that "noncompliance" in this case is only non-compliance, and even taking only participants whose responses were closer to what I expected, the manipulation did not have an impact on background check norms. Thus, in the next section, I will focus on safety norms, although I return to background check norms in the discussion for Study 7.

4.3.2.2 No Evidence for a Causal Relationship between Counterfactuals and Norms

Of the counterfactual statements participants generated in response to the mass shooting vignette, 58.33% were coded as mentioning a policy. I was interested in whether changing normative beliefs would change participants' likelihood of mentioning policies. Because this question requires a successful norm manipulation, I created a subset of participants who did not answer "agree" in response to any of the gun safety items, since the manipulation yielded the desired effect in this group. This gave me a sample of 187 participants and 364 statements. I ran a multiple logistic regression predicting the binary policy variable (0 = did not mention a policy, 1 = mentioned a policy) from Condition, Political Affiliation, and their interaction, treating participant as a random

variable. Contrary to my expectations, condition had no effect on policy mentions, $\beta = 0.37$, $z = 1.38$, $p = .168$. Only political affiliation was a significant predictor of counterfactual content, with Democrats, as in every study, more likely to mention policies in their counterfactual statements, $\beta = -0.49$, $z = -3.88$, $p < .001$.

4.3.3 Study 7 Discussion

I expected that normative beliefs would drive counterfactual content such that shifting participants beliefs about how common it is for gun owners to practice adequate gun safety would shift the likelihood that they would think of policies as a potential solution to gun violence. However, in Study 7, I found that even when normative beliefs were shifted, the manipulation did not influence policy mentions.

It is worth noting that the norm manipulations I used in this study did not shift all participants' normative beliefs. When it came to gun safety, a not insignificant number of participants reported that all gun owners engage in at least one of the gun safety recommendations, even though it is unlikely that any safety recommendation actually has a compliance rate of 100%. Whether these agreement responses are noncompliant reactions to the questions or whether they reflect sincere beliefs (for example, that the true compliance rate is "close enough" or that the answer is closer to all than to none), it is possible that the manipulation not only failed to move these participants but solidified their beliefs. Rather than playing the "devil's advocate" and disagreeing with each item, these participants agreed with items that were likely even more extreme than their initial estimates. This data cannot provide evidence as to whether participants began the study believing, for instance, that so many gun owners practiced each gun safety measure that the number might as well be considered 100%, or whether they resented being manipulated into disagreeing with the items because of the extreme wordings. However, they do suggest that manipulations like this one can be effective for shifting normative beliefs when participants are compliant, but might not be the best choice for shifting beliefs for contentious topics such as politics and might even have backfire effects for some participants. This may be more common with manipulations like this one that attempt to make the "correct" answer very clear by using superlative language such as "all" or "none". Somewhat ironically, a softer manipulation like Salancik and Conway's Salancik and Conway (1975) might have been more effective. However, it is worth noting that when I piloted the potential norm manipulations, the superlative measure outperformed a softer manipulation asking participants to estimate the percentage of gun owners that practiced "all" or "at least some" of a list of safety recommendations.

Noncompliance seems to have worked differently for the anchoring manipulation. I expected that participants would report that the true number of background checks rejected by the NCIS was

somewhere between the low and the high anchors, as most participants did, but that those in the low anchor condition would guess that the actual number was lower compared to those in the high condition. This, I expected, would lead participants to believe that it was more difficult to pass background checks in the high anchor (Policy -) condition and easier in the low anchor (Policy +) condition. However, only participants who went as far as to say that the actual value was *even lower* than the low anchor or *even higher* than the high anchor showed this pattern. This suggests that (a) similar manipulations may be insufficient to shift norms about background checks, and that (b) reporting that a target value is lower than a low anchor or higher than a high anchor is a different type of noncompliance, if it can be called noncompliance at all. It is possible that participants who answered in this way truly believed their answers, or that, in spite of their reactance, reporting a belief that the value was very low or very high nevertheless influenced their normative beliefs accordingly. It is also possible that the only participants who reported that under 1000 applications have been rejected simply believe that passing background checks is very easy in the first place. Similarly, participants who reported that over a third of applications are rejected may already believe that passing background checks is very difficult.

Although the norm manipulations in this study did not change participants' likelihood of mentioning policies, this is not to say that no norm manipulation can. However, such manipulations may be subject to reactance from participants and might only work for certain topics. In particular, they may be more effective in influencing thoughts about negative events that are less politicized than gun violence.

It is also possible that normative beliefs do not causally influence counterfactual thoughts at all in the political sphere, and that both normative beliefs and counterfactual thoughts follow partisan scripts instead. I return to this idea in the general discussion.

CHAPTER 5

Implications and Future Directions

In seven studies, I showed that American political partisans differ in systematic ways when they think counterfactually about politicized negative events. Specifically, Democrats tend to focus more on political policies as potential solutions to such problems, whereas Republicans tend to focus more on private solutions such as the actions of individuals or private groups such as families or companies. In Studies 2 and 3, I also found that the content of participants' counterfactual thoughts predicts their policy preferences, sometimes over and above partisanship (Study 3). That is, mentioning the government's actions or inactions as potential causes of and solutions to negative events was related to support for political policies aimed at preventing similar negative events.

In addition, in Studies 1-3, I found that participants' cultural orientation toward individualism or communitarianism predicted counterfactual thoughts. Individualists were more likely to mention individuals as the actors responsible for their own (or related others') fates in their counterfactual statements. Communitarians, however, were more likely to mention groups, especially public ones. Cultural orientation often overshadowed partisanship as a predictor of counterfactual content.

In Studies 4 and 5, I found that a simple norm manipulation where I attempted to manipulate the cognitive availability of different counterfactual mutations was generally not sufficient to change the content of participants' counterfactual statements. In these studies, participants did not seem to construct their counterfactual statements in an ad hoc way, wishing for the solution that seemed to almost have come in time. Rather, partisan affiliation continued to strongly predict counterfactual content, suggesting a more top-down approach to reasoning about politicized negative events.

In Study 6, I found that partisans differ in their descriptive normative beliefs: Democrats tend to see poverty, healthcare inaccessibility, and irresponsible gun sales and ownership as more common in the United States than do Republicans, and they also tend to think of policies such as universal healthcare and price caps on medications as more common policies for countries to have. These norms predict counterfactual content: people want policies to address nationally relevant problems when the problems seem common and when it seems normative for other countries to have such policies. However, manipulating strongly held and divisive descriptive norms is not easy,

and, as I found in Study 7, even shifting these norms is not guaranteed to influence counterfactual thinking.

Calling to mind the theoretical model depicted in Figure 1.1, I found support for the central relationships, with partisanship predicting counterfactual content and counterfactual content predicting policy preferences, although partisanship also directly predicted policy preferences, and in Study 2 counterfactual content did not add predictive value over partisanship.

As for cultural orientation, I found support for the idea that it predicts counterfactual content, but it is still unclear whether partisan identification leads to different cultural orientations, different cultural orientations lead to different political affiliations, or whether both sets of beliefs and preferences emerge more or less simultaneously. It may be the case that both partisanship and cultural orientation are embedded within the cultural norms of different regions and social groups, such that ideology and cultural orientation are both culturally transmitted during a person's lifetime.

I was interested in exploring a potential causal link between counterfactual thinking and policy preferences, but all of my attempts to experimentally manipulate counterfactual content failed to shift counterfactual thoughts in a meaningful way. I did learn that partisanship predicts normative beliefs and that normative beliefs predict counterfactual content as shown in the model, but it remains to be seen whether changing normative beliefs can actually change counterfactual thought.

The hypothesized relationship between descriptive normative beliefs, cognitive availability of counterfactual alternatives, and counterfactual content also warrants further exploration. Theoretically, different normative beliefs should make different alternatives come to mind more easily, and more available alternatives should be more likely to be featured in counterfactual thoughts. For example, if a person thinks that it is highly normative for countries like the United States to have universal healthcare, it should be easier to think of universal healthcare as a potential solution to healthcare access problems. After all, the more normal a person thinks such a healthcare system is, the more exemplars from the world they have to draw upon. When universal healthcare is easy to bring to mind, it should be more likely to be mentioned in "if only" statements.

5.1   Partisanship and Motivated Reasoning

Some additional insights may be drawn from the negative findings of this work. In spite of efforts to shift norms, manipulate counterfactual thoughts, and experimentally influence policy preferences, participants were, to some degree, set in their preferred explanations for and solutions to politicized problems. This suggests that reasoning about political topics might be less flexible or less determined by the details of the event than reasoning about similar, apolitical events.

Moreover, this work suggests that ideology (or at least partisan identity) does play a role in how ordinary citizens think about problems in everyday life. This finding is contrary to some lines

of thinking that argue that ideology, as a structured, predictable configuration of beliefs, is only impactful for political elites and not for average Americans (Kinder & Kalmoe, 2017)[1]. However, in the research I have presented here, partisans responded in consistently different ways, and their responses were in line with their overarching preferences for individualist or communitarian social values, (Kahan & Braman, 2003). Far from being arbitrary and on the spot, participants' counterfactual thoughts in response to negative events appeared to be more top-down in nature. As I showed in Study 4, where participants universally supported an assault weapon ban if they had mentioned one in their statements, support for a policy can sometimes be a prerequisite to considering it as a solution.

This work joins a growing body of work in political science demonstrating that partisans often engage in belief-bolstering cognition – that is, they engage in cognitive processes that strengthen and rationalize existing beliefs (Bisgaard, 2019; Tetlock, 1999). It also suggests that counterfactual thinking about politicized events, like counterfactual thinking about apolitical topics (McCrea, 2007), is subject to motivated reasoning. That is, when it comes to reasoning about why negative events happened and what should be done to address them, beliefs about the likelihood of different solutions (a) being implemented and (b) working are tangled up with the solutions participants *want* to be implemented and the solutions they *want* to work (Amemiya et al., 2024; Epstude et al., 2022).

5.2   Legitimizing Beliefs

This work and its findings also complement a rich literature on legitimizing beliefs - those are, beliefs that intellectually or morally justify hierarchical societal systems (Sidanius & Pratto, 2001). Legitimizing beliefs represent a wide category of system-justifying beliefs ranging from the divine right of kings to racial and gender stereotypes. The common denominator of these beliefs is that they work to maintain (or, in the case of egalitarian or universalist beliefs, undermine) the hierarchical status quo. In the context of this research, normative beliefs and counterfactual explanations for negative events can be thought of as legitimizing beliefs that serve to justify existing policy preferences, partisan affiliations, and social hierarchies in the United States.

Take, for example, socioeconomic status or class as a hierarchy that exists within the United States. Stereotypes about poor people being lazy or uneducated, or rich people as motivated or smart, can serve as legitimizing beliefs that maintain the hierarchy by further limiting opportunities for the poor and enhancing opportunities for the rich (Durante & Fiske, 2017). Counterfactual thoughts can also serve as legitimizing beliefs (McCrea, 2007). If a given individual could have

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[1]Note that the data on which this claim is based were collected some fifty years before the data presented here. It is possible that ideology has become more impactful for American laypeople over time as party sorting (Fiorina & Abrams, 2008) and affective polarization (Iyengar et al., 2019) have increased.

avoided becoming poor or homeless by getting a different job or getting a better education, then it is not the system that needs to change, but rather a given individual or their immediate social groups.

Even descriptive normative beliefs can serve to justify systems of inequality (Jost et al., 2015). Insofar as an outcome seems uncommon, it is easier to consider the outcome as having been brought about by idiosyncratic personal choices or situations rather than a systemic issue. In the case of poverty, if the norm is to be able to pay for housing and save for retirement, anyone who does not do this is acting outside the norm. However, viewing financial struggles as descriptively normal suggests that a widespread, systemic issue may be responsible.

It is worth noting that many of the individuals depicted in the vignettes used in this work had potentially stigmatized identities: a man with HIV, a refugee, and a homeless person[2] were the most commonly featured. Thus, judgments of these individuals may have been influenced not only by motivations to endorse specific policies but also by motivations to justify larger hierarchies in the United States that disadvantage gay people, drug users[3], immigrants and refugees, and the poor and homeless.

5.3   Internal and External Attributions

One way that legitimizing beliefs function is through the attributions people make about the causes of misfortune (Kelley & Michela, 1980). Attributing negative events to internal features of individuals, such as the targets of the vignettes in these studies, is associated with more blame (and less pity) for the individuals. Conversely, attributing events to external factors is associated with less blame. In this case, attributing negative events to individual actors is associated with individual solutions for how they personally could have avoided the negative situations. However, attributing the negative events I described to features external to the individuals was associated with group-based, sometimes policy, solutions. Controllability is also an important feature of attribution judgments - outcomes that are seen as uncontrollable elicit more pity and desire to help.

Previous research has already demonstrated that when it comes to causal ascriptions about poverty conservatism is correlated with internal attributions and blame, and negatively correlated with a desire to help. These attributions which place the responsibility for poverty on the poor are directly related to judgments about social welfare programs (Zucker & Weiner, 1993).

Although I did not code counterfactual statements directly for whether participants made internal or external attributions, I did find in several studies that Republicans were more likely to mention the target person in the scenario (the person experiencing the misfortune, with the exception

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[2]Although, recall that Mr. Smith was also described as a veteran.

[3]Although Mr. Hill was not described as gay or a drug user, participants sometimes spontaneously assigned these identities to him.

of the target person in the shooting scenarios in studies 2-7). This is consistent with previous findings that conservatism is associated with internal attributions, and with the idea that attributing misfortune to features of the unfortunate justifies the status quo and demotivates intervention.

5.4 Plausibility

Although motivated reasoning is almost certainly influencing participants' counterfactual statements, processes that are not necessarily motivated may also play a role. Normative perceptions about the probability of various outcomes occurring may be motivated or derived simply from a person's immediate experience and information environment. In order for a potential solution to be compelling, it must seem possible and likely to lead to the desired outcome.

Take, for example, an assault weapons ban as a potential solution to mass shootings. Research on counterfactual potency suggests that in order to generate an assault weapons ban as a counterfactual solution, one would first need to believe two things: that an assault weapons ban is likely to happen (high "if" likelihood), and that if an assault weapons ban were enacted, it would reduce the deadliness of school shootings (high "then" likelihood). Although a person reading about a mass shooting might think "if only the shooter didn't buy a gun", they would be much less likely to think "if only the shooter had been abducted by aliens" because the latter is low in "if" likelihood. As a less ridiculous example, participants are less likely to say "if only guns had not been invented", because it requires a greater leap in time and more mental "undoing" than more proximal mutations (Tetlock, 1999).

However, "if" likelihood can sometimes be at odds with "then" likelihood. For example, a shooter being unable to buy a gun might be easier to imagine than guns never having been invented, but one could imagine the shooter being able to commit a shooting even without buying a gun (for example by stealing a gun). By contrast, it is difficult to imagine a world where guns had not been invented, even though guns never having been invented would certainly eliminate mass shootings. Both types of likelihood are necessary for a counterfactual to meaningfully influence judgments about negative events and preferred solutions. In a sense, without both pieces of the likelihood puzzle, participants do not generate a full simulation of how a different outcome could have been achieved but only other ways that the original outcome could have occurred (Kahneman & Tversky, 1982).

Moreover, some counterfactual thoughts are viewed as "taboo", such that participants are unwilling to entertain them. For example, counterfactuals that undo important events in religious canon are often rejected outright by religious participants (Tetlock et al., 2000). In a similar way, some counterfactual thoughts toward which we tried to steer participants might have been rejected on the grounds that changing them is too dissonant with participants' worldview, either because

they seem impossible, because they seem unlikely to produce the desired outcome, or because participants view them as too big of a tradeoff, even if they do produce the desired outcome. For example, vaccine resistance associated with the Covid-19 pandemic had to do with "then" likelihood insofar as some people did not think the vaccines would be effective. However, even among people who did believe in the efficacy of vaccines, many objected to vaccine mandates on the grounds that even if they reduced disease, mandating health-related decisions was too big an infringement upon individual rights.

5.5   Future Directions

Future research should continue to explore the relationship between normative beliefs, counterfactual thinking, and political preferences and behaviors. Although I did not find evidence of a causal relationship between norms and counterfactual content, it is likely that normative beliefs and counterfactual processes still play an important role in political reasoning. In future work, I would like to examine the extent to which normative beliefs might be shifted, either by focusing participants' attention or by providing new information. For example, can normative beliefs corrected by offering accurate statistical estimates that represent the country as a whole? If so, would doing so influence the perceived necessity of policies? For example, if a misconception that most violent criminals obtain their guns through illegal means is corrected to reflect the fact that most gun-related crimes are committed with legally purchased weapons, would this increase the perceived need for better background checks or prohibitions on high-capacity weapons?

Another potentially fruitful avenue for future research has to do with partisans' perceptions of their own and other political groups. Are partisans aware of the ways in which they differ in terms of how they think about negative events? Future work should examine how accurate partisans can be when they generate counterfactual thoughts on behalf of members of the other party. If they are accurate, it suggests that partisans are not only equipped with their own party's scripts for responding to issues of national importance, but that they are also aware of the scripts used by their political outgroup members. If they are inaccurate, this would provide insight into how political arguments can be especially unproductive: that is, if people set up a "strawman" of their opponents' beliefs, this may be one reason for affective polarization and political misunderstandings.

In addition to views of the partisan outgroup, future work should examineviews of the ingroup. On the gun attitudes measure in Study 7, I found that the majority of participants, including 54% of Republicans, think it should be more difficult to obtain a gun in the United States (only 20.5% think it should be easier). Specific policies, such as barring people with mental illnesses from buying guns, have even stronger bipartisan support, with 92% of Republicans favoring such a policy (Schaeffer, 2019). Future work should examine whether sharing such normative information, especially when

that information is counterintuitive, can (a) sway partisans' own policy preferences or (b) make partisans more comfortable with voicing those preferences(Miller et al., 1999).

Just as pluralistic ignorance can lead to students overestimating the amount their peers favor drinking (Prentice & Miller, 1993) and mistakenly shifting their attitudes toward the perceived norms, partisan stereotypes can lead to partisans taking harder stances on polarized issues than the average party member, shifting attitudes within a party toward the extremes. Correcting such misbeliefs might be an important step toward reducing polarization and partisan gridlock when it comes to policies with widespread bipartisan support.

APPENDIX A

Vignettes used in Study 1

A.1 Healthcare

A.1.1 Insulin

Mr. James was a 52 year old man with diabetes. A few years ago, the price of his insulin increased and he wasn't able to afford to take it regularly anymore. He thought of asking his family for help, but he knew they were also struggling financially and he didn't want to burden them. He also tried applying for prescription assistance from private and public organizations, but he was put on a long waiting list and wasn't able to get the assistance he needed. Unfortunately, without his insulin, Mr. James' health condition worsened, and he passed away.

A.1.2 HIV

Mr. Hill was a 30 year old man with HIV. In 2015, he contracted a serious infection and was using the medication Daraprim to treat it. However, in the summer of that year, the rights to distribute this medication were bought by a new company called Turing Pharmaceuticals, and the price immediately increased from $13.50 to $750 per pill. As a result, Mr. Hill could no longer afford to take Daraprim and he had to begin taking a less well-researched drug. Unfortunately, it was not effective in treating his infection, and he passed away.

A.2 Poverty

A.2.1 Veteran

3. Mr. Smith is a 65 year old veteran of the Vietnam war. After the end of the war, he worked as a mechanic for many years, but recently he has been unable to work because of his declining health. Unfortunately, he didn't make enough money over the years to save much for retirement,

and what he did have saved has quickly dwindled because of high rent and utility prices, along with his medical expenses. For several months, he had to live without hot water or electricity, and eventually his financial situation became so bad that he was evicted from his apartment. Now, Mr. Smith is homeless and is not sure how he will get back on his feet.

A.2.2 Single Mom

Ms. Johnson is a single mom with three children who are 5, 8, and 10 years old. She works full-time as a waitress and makes minimum wage. She picks up extra hours whenever she can, but it isn't easy because in her off time she is always busy taking care of her kids, cooking for them, and making sure they have done their homework. She struggles to pay the bills and often finds it so difficult to afford school supplies for the children that she has to send them to school unprepared. Recently, she is also having trouble affording healthy food for herself and her children.

A.3 Public Acts of Violence

A.3.1 Terror

Mrs. Jones was a loan officer at a bank in New York City. She was married and had two college-aged children. One day, while she was at work, a 33-year-old man came into the bank and discreetly planted a bomb near Ms. Jones' office. Unfortunately, the bomb detonated, and many people were injured. Three people, including Ms. Jones, were killed. Later, the police arrested the man and when they questioned him, he claimed to have ties to ISIS.

A.3.2 School Shooting

Noah was a fifteen-year-old freshman in high school. He played the oboe in his school orchestra and had just made the school's soccer team. One day, a senior student, who Noah didn't know, brought a gun to school. The senior had been in trouble several times for discipline issues, and eventually had been suspended. On the day of his suspension, the senior came to the school cafeteria during lunch and began shooting at random. Several students, including Noah, were killed.

A.4 Abortion

A.4.1 Teen Pregnancy

Emma is a sixteen-year-old sophomore in high school. She lives in a mobile home with her dad, who is very strict and doesn't let her date. However, Emma had a boyfriend at school who she liked very much. One day, Emma found out that she was pregnant. When she told her boyfriend, he became angry, claimed that the baby wasn't his, and broke up with her. Emma didn't know what to do; she knew that if she told her dad, he would be livid, and she was afraid that he would kick her out of the house. She knew that she couldn't support herself financially and she was worried that she wouldn't be able to finish high school without her family's support. She didn't want to have an abortion, but she was afraid that if she had the baby, she would end up homeless. After thinking long and hard about the options, she decided to have an abortion.

A.4.2 Risky Pregnancy

Mrs. Harris was a 36-year-old woman who lived with her husband and two children. When her children were 10 and 7, she found out that she was pregnant again. At first, she and her husband were very happy about the prospect of having another child. However, while she was in her first trimester, she found out that she had an aggressive cancer. Because the chemotherapy she needed was not safe for her growing fetus, her doctor advised her to terminate the pregnancy. However, Mrs. Harris did not wish to have an abortion and she hoped that if she carried her baby to term, she could have the treatments after giving birth and both she and her baby could survive. Unfortunately, her cancer progressed rapidly and a few months after she gave birth, Mrs. Harris passed away.

A.5 Racism

Mr. Jefferson is a 50-year-old employee of the federal government. Recently, he was up for a promotion for his dream job, which he had been working toward since he became a government employee right after college. In the days leading up to the interview process, Mr. Jefferson's coworkers all told him that they were sure he would get the job, since he was clearly the most qualified person. However, in the end, someone else got the job instead of him. Mr. Jefferson was upset because he had been the other person's supervisor in the past and he couldn't imagine why they were selected instead of him. When he told his wife, she said that she suspected it was because Mr. Jefferson is black, while the other candidate is white.

A.6 Immigration

Mrs. Lopez is a 34-year-old mother from El Salvador. Her husband, a security officer, was killed last year by gang members in retaliation for increased security measures in the prison where he worked. After her husband's death, Ms. Lopez was afraid that the gang would try to target her and her four-year-old son. Although she was aware of the dangers of the long trip and of being rejected at the border, she decided to try to go to the United States to seek asylum there. When she arrived, she was detained and separated from her son. Eventually, she was sent to another state but was not given any information about where her son is or how she might contact him. She is becoming increasingly worried that she might never see her son again.

APPENDIX B

Communitarian/Individualist Cultural Orientation Scale

1. The government interferes far too much in our everyday lives. (I)

2. Sometimes government needs to make laws that keep people from hurting themselves. (C)

3. It's not the government's business to try to protect people from themselves. (I)

4. The government should stop telling people how to live their lives. (I)

5. The government should do more to advance society's goals, even if that means limiting the freedom and choices of individuals. (C)

6. Government should put limits on the choices individuals can make so they don't get in the way of what's good for society. (C)

7. It's society's responsibility to make sure everyone's basic needs are met. (C)

8. It's a mistake to ask society to help every person in need. (I)

9. People should be able to rely on the government for help when they need it. (C)

10. Society works best when it lets individuals take responsibility for their own lives without telling them what to do. (I)

11. Our government tries to do too many things for too many people. We should just let people take care of themselves. (I)

12. If the government spent less time trying to fix everyone's problems, we'd all be a lot better off. (I)

13. People who are successful in business have a right to enjoy their wealth as they see fit. (I)

14. Free markets - not government programs - are the best way to supply people with the things they need. (I)

15. Private profit is the main motive for hard work. (I)

16. Government regulations are almost always a waste of everyone's time and money. (I)

APPENDIX C

Public Policy Questions used in Studies 2 and 3

Participants answered these questions on a five-point Likert scale ranging from Strongly Oppose to Strongly Favor. Items followed by "(R)" were reversed in the analyses.

C.1 Gun Policy

For the next set of questions, please let us know what you think about the following policies about guns.

1. To what extent do you favor preventing the mentally ill from purchasing guns?
2. To what extent do you favor barring gun purchases by people on no-fly or watch lists?
3. To what extent do you favor background checks for private sales and at gun shows?
4. To what extent do you favor creating a federal database to track gun sales?
5. To what extent do you favor banning assault-style weapons?
6. To what extent do you favor banning high-capacity magazines?
7. To what extent do you favor allowing concealed carry in more places? (R)
8. To what extent do you favor allowing teachers and officials to carry guns in K-12 schools? (R)
9. To what extent do you favor shortening waiting periods for buying guns legally? (R)
10. To what extent do you favor allowing concealed carry without a permit? (R)

C.2 Economic Policy

For the next set of questions, please let us know what you think about the following economic policies.

1. To what extent do you favor raising the federal minimum wage to $15 per hour?
2. To what extent do you favor a universal basic income, meaning that every citizen would receive a weekly benefit, regardless of their income?

3. To what extent do you favor an income tax that is proportional to wages (i.e. the percent a person pays in taxes increases with their salary)?

4. The Section 8 housing voucher is a federal government program that provides a subsidy for very low income families to pay rent. Families who earn less than 50% of the median income for their area are eligible, but due to high demand, not every family who falls into this category is able to receive the voucher. To what extent do you favor expanding section 8 to all eligible families by increasing its funding?

5. To what extent do you favor increasing annual funding for the national Housing Trust Fund, which goes toward building and rehabilitating rental housing for extremely low-income people, from $267 million in 2018 to $3.5 billion in 2020?

6. To what extent do you favor creating a National Housing Stabilization Fund, which would provide emergency assistance to families vulnerable to losing their housing after a financial shock?

C.3   Immigration Policy

For the next set of questions, please let us know what you think about the situation at the U.S. border with Mexico.

1. To what extent do you favor increasing the number of judges handling asylum cases?

2. To what extent do you favor increasing efforts to provide safe and sanitary conditions for asylum seekers?

3. To what extent do you favor increasing U.S. foreign aid to countries in places like Central America, where many asylum seekers are coming from?

4. To what extent do you favor making it easier for asylum seekers to be granted legal status in the U.S.?

5. To what extent to you favor making it harder for asylum seekers to be granted legal status in the U.S.? (R)

6. To what extent do you favor increasing efforts to reduce the number of people coming to the U.S. to seek asylum? (R)

C.4   Healthcare Policy

For the next set of questions, please let us know what you think about the following policies about healthcare.

1. To what extent do you favor a national health plan in which all Americans would get their insurance from a single government plan?

2. To what extent do you favor a national health plan in which Americans who want to could get their insurance from a single government plan?

3. To what extent do you favor allowing people between the ages of 50 and 64 to buy insurance through the Medicare program?

4. To what extent do you favor allowing people who don't get health insurance at work to buy health insurance through their state Medicaid program?

5. To what extent do you favor limiting the amount pharmaceutical companies can charge for medications?

6. To what extent do you favor banning patents on medications so that no one person or company can own the exclusive rights to manufacture and distribute them?

APPENDIX D

Vignettes, Study 6

D.1 Mass Shooting

Last year, an 18 year-old opened fire with a semi-automatic rifle at a shopping center, killing several people. A later investigation revealed that the shooter purchased the gun legally, passing a background check to do so. A year prior to the shooting, the shooter was investigated after he told a teacher he wished to commit murder. He received mental health counseling, but the threat was deemed too non-specific for legal action and he was not prohibited from buying guns under federal law.

   When we hear such stories in the news, we often think "if only . . ." How would you continue this thought? Please write one or two likely completions.

D.2 HIV

Mr. Hill was a 30-year-old man with HIV who contracted a serious infection in 2015. Under normal circumstances, he would have used a drug called Daraprim. However, earlier that year, the rights to distribute Daraprim were purchased by a company called Turing Pharmaceuticals, and the price immediately increased from $13.50 per pill to 750 per pill. Because Mr. Hill could not afford Daraprim, he had to be treated using a different drug, but this drug was ineffective, and he died.

   When we hear about such stories in the news, we often think "if only . . . " How would you continue this thought? Please write one or two likely completions.

D.3 Veteran

Mr. Smith is a 65 year-old man who worked as a mechanic for many years, but recently he has been unable to work because of his health. Unfortunately, he didn't make enough money over the years to save much for retirement, and what he did have saved quickly dwindled due to the price

of rent and utilities. Eventually, his financial situation became so bad that he was evicted from his apartment. Now, Mr. Smith is homeless and is not sure how he will get back on his feet.

When we hear about such stories in the news, we often think "if only . . . " How would you continue this thought? Please write one or two likely completions.

APPENDIX E

Local Norm Items, Study 6

All items were measured on a 10-point bipolar scale ranging from "Extremely rare" to "Extremely common".

E.1 Healthcare

1. How common or rare of a disease is HIV?

2. For people with HIV, how likely is it that they will contract a life-threatening infection each year?

3. When pharmaceutical companies buy new medications, how rare or common is it for them to increase the price of the medications so much that they are difficult for people to afford?

4. How rare or common is it for people to go without lifesaving medications because they are too expensive?

5. How rare or common is it for lifesaving medications to be patented so that companies can own the exclusive rights to distribute them?

E.2 Guns

1. Among people who legally purchase firearms, how rare or common is it for them to use the firearms to commit acts of violence?

2. How rare or common is it for gun owners to practice adequate gun safety?

3. Think about people with known mental health issues that may be related to violent behavior. How rare or common is it for them to pass the background checks required to purchase guns?

4. Think about mass shootings. How rare or common is it for the perpetrators to purchase their guns legally?

5. Think about mass shootings. How rare or common is it for the perpetrator to have passed background checks that allowed them to purchase guns?

6. How rare or common is gun violence as a cause of death?

7. How rare or common is owning a gun?

E.3   Poverty

1. How rare or common is it for people over the age of 65 to be unable to work due to their age?

2. How rare or common is it for people to have enough money saved for retirement by the time they reach age 65?

3. How rare or common is it for people to pay so much in rent and utilities that saving money each month is not possible?

4. How rare or common is it for people to get evicted from their places of residence due to their inability to pay rent?

5. How rare or common is homelessness?

APPENDIX F

Global Norm Items, Study 6

Policy items were measured on a ten-point bipolar scale with endpoints "Extremely rare" and "Extremely common". Similarity items were measured on a ten-point bipolar scale with endpoints "No similarities" and "Identical".

F.1   Healthcare

F.1.1   Policies

1. How rare or common is it for governments to limit the amount pharmaceutical companies can charge for lifesaving medications?

   2. How rare or common is it for countries to have universal healthcare or single payer healthcare (where the government pays for medical costs)?

F.1.2   Similarities

1. Think about countries that do place price caps on lifesaving medications (limiting the amount that pharmaceutical companies can charge). What countries come to mind? How similar do you think those countries are to the United States, in terms of their culture and values?

   2. Think about countries that do have universal or single-payer healthcare. What countries come to mind? How similar do you think those countries are to the United States, in terms of their culture and values?

F.1.3   Comparison

This item was measured on a ten-point bipolar scale with endpoints "The U.S. does the least" and "The U.S. does the most".

1. Compared to other countries around the world, how much does the United States intervene to ensure that its citizens have access to healthcare?

F.2   Guns

F.2.1   Policies

1. How rare common is it for countries to allow civilians to own guns of any kind?

2. How rare or common is it for countries to ban the sale and ownership of assault-style weapons?

3. How rare or common is it for countries to allow people under the age of 21 to purchase guns?

4. How rare or common is it for countries to prohibit the sale of guns to people who have committed violent crimes?

5. How rare or common is it for countries to prohibit the sale of guns to people with mental illnesses?

F.2.2   Similarities

1. Think about countries that do not allow civilians to own guns of any kind. What countries come to mind? How similar do you think those countries are to the United States, in terms of their culture and values?

2. Think about countries that have banned assault-style weapons. What countries come to mind? How similar do you think those countries are to the United States, in terms of their culture and values?

3. Think about countries that do not allow people under the age of 21 to purchase guns. What countries come to mind? How similar do you think those countries are to the United States, in terms of their culture and values?

4. Think about countries that prohibit the sale of guns to people who have committed violent crimes. What countries come to mind? How similar do you think those countries are to the United States, in terms of their culture and values?

5. Think about countries that prohibit the sale of guns to people with mental illnesses. What countries come to mind? How similar do you think those countries are to the United States, in terms of their culture and values?

F.2.3 Comparison

1. Compared to other countries around the world, how strict is gun control in the United States?

    This item was measured on a ten-point bipolar scale with endpoints "The U.S. is the least strict" and "The U.S. is the most strict"

F.3 Poverty

F.3.1 Policies

1. How rare or common is federal affordable housing assistance, where governments provide vouchers to help people with low incomes pay rent?

    2. How rare or common are rent control laws that limit the amount that landlords can increase rents for existing tenants?

    3. How rare or common is it for retired people to receive financial assistance from their governments?

F.3.2 Similarities

1. Think about countries where it is very common for retired people to receive financial assistance from their governments. What countries come to mind? How similar are these countries to the United States, in terms of their culture and values?

    2. Think about countries where it is very common for citizens to receive federal housing assistance. What countries come to mind? How similar are these countries to the United States, in terms of their culture and values?

    3. Think about countries where rent control laws are common. What countries come to mind? How similar are these countries to the United States, in terms of their culture and values?

F.3.3 Comparison

1. Compared to other countries around the world, how much does the United States intervene to reduce poverty and homelessness among its citizens?

    This item was measured on a ten-point bipolar scale with endpoints "The U.S. does the least" and "The U.S. does the most".

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