Feeling within reason

How appraisals shape emotional responses to politics

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3 Using Message Appraisals to Elicit Anger and Anxiety Responses to Political Issues: Two Preregistered Experiments

Abstract

Emotions are powerful tools to influence voters. Politicians thus appeal to emotions strategically. However, our understanding of what constitutes an emotional appeal is still largely limited to the use of specific emotion words and emotionally charged stimuli. Following appraisal theories, we extend the notion of emotional appeals and use different message appraisals of existing political issues. We vary the certainty of the problem, the control we have over it, and the clarity of responsibility. Theoretically, these *message appraisals* should elicit different levels of anger or anxiety. We test this in two well-powered preregistered survey experiments. Our results confirm that participants report more anger when responsibility is clear and, in one study, when certainty is high. Anxiety is not elicited by distinct message appraisals. Rather, it seems to be a response to appraisals of political issues in which responsibility is ambiguous. The theoretical framework we introduce in this chapter is extendable to various other discrete emotions, such as hope, sadness and guilt.

Emotions influence political attitudes and behavior. Anger and anxiety mobilize (Brady, Wills, Jost, Tucker, & Van Bavel, 2017; Valentino et al., 2011; C. Weber, 2013) and persuade (Arceneaux, 2012; Coan, Merolla, Zechmeister, & Zizumbo-Colunga, 2019; Gadarian & Albertson, 2014; Lecheler, Schuck, & de Vreese, 2013; Valentino et al., 2008; Weeks, 2015) and relate to distinct political attitudes (Huddy et al., 2007; Petersen, 2010; Vasilopoulou & Wagner, 2020). Politicians therefore strategically appeal to citizens' emotions through what are termed emotional (or emotion) appeals (Brader, 2006; Crabtree, Golder, Gschwend, & Indriđason, 2020; Lipsitz, 2018; Ridout & Searles, 2011). Past work has largely conceptualized emotional appeals, as appeals containing emotion words, such as "exciting", "thrilling", "offensive", and "unacceptable" (Brady, Wills, Burkart, Jost, & Van Bavel, 2019; Jones, Hoffman, & Young, 2013; Lecheler et al., 2013; Stapleton & Dawkins, 2021; Widmann, 2021), or emotionally charged concepts, such as disease or food contamination, (Clifford & Jerit, 2018), or drug use and gun violence (C. Weber, 2013).

But the conceptual definition of what an emotional appeal can be is much broader: Brader (2006) defines such an appeal as "any communication that is intended to elicit an emotional response from some or all who receive it" (p. 69).

Thus, in this chapter, we take a different approach. Informed by appraisal theories of emotion, we argue that not only emotion words elicit emotions but that elite rhetoric can elicit emotions in more subtle ways, by offering to voters distinct evaluations of a political topic.

The roots of this claim lie in psychology, particularly appraisal theories (Lerner & Keltner, 2000; C. A. Smith & Ellsworth, 1985). They suggest that emotions are a result of distinct appraisals of our environment and serve to respond to it (Lerner & Keltner, 2000; C. A. Smith & Ellsworth, 1985). Messages about political issues contain similar appraisals of the environment. We call these *message appraisals*. These message appraisals can be seen as part of the larger container concept of emotional appeals. Following appraisal theories, we hypothesize that specific message appraisals elicit specific discrete emotions.

We focus on message appraisals that predict anger or anxiety, respectively. These two emotions are prevalent in political discourse, as the media generally focus more on negative than positive news (Lengauer, Esser, & Berganza, 2012)

and more specifically are biased towards expressions of fear and anger in their reporting (Soroka, Young, & Balmas, 2015). Moreover, people pay more attention to and respond more strongly to negative than positive news (Soroka, Fournier, & Nir, 2019). It is thus reasonable to assume that people's experience of politics is heavily influenced by fear and anger eliciting information.

In the next section, we will argue that distinct message appraisals are linked to distinct emotions. The theoretical framework and the findings presented in this chapter are important for our understanding of what constitutes an emotional appeal beyond emotionally charged words and of how people form emotions in response to complex political issues.

3.1 Using Appraisal Theories as Message Appraisals in Emotional Appeals

There are several theoretical approaches that link appraisals to emotions. (Lerner & Keltner, 2000; Moors et al., 2013; Scherer, 2022; C. A. Smith & Ellsworth, 1985). They are linked by the notion that emotions are related to distinct appraisals of one's environment and differ primarily in terms of the exact appraisal dimensions they focus on (for an overview, see Moors et al., 2013).

Which appraisal dimensions are central is debated and differs by appraisal theory (Moors et al., 2013). However, several core dimensions appear in most theories and have become widely accepted: certainty, control or coping potential, and responsibility or agency (Moors et al., 2013, p.121).

People appraise situations quickly and sequentially update these appraisals as situations unfold and more information becomes available. Each emotion is characterized by a unique combination of appraisals on all or a subset of these five cognitive dimensions. The appraisals along these defining dimensions make up an emotion's core appraisal theme. If the appraisal of a situation changes, the experienced emotion changes. The more appraisals are made the more nuanced an emotion episode becomes (Scherer & Moors, 2019).

Anger is evoked if a situation is appraised as certain, under human control and somebody (other than oneself) can be identified as responsible. Thus, anger's core

appraisal theme is constituted by appraisals of high certainty, high control and responsibility attribution. Anxiety's core appraisal theme consists of an appraisal of low certainty and low control. *Certainty* describes the degree to which future events are unpredictable and incomprehensible (Lerner & Keltner, 2000, 479) versus predictable and comprehensible. *Individual control* describes the degree to which a situation is considered to be brought about by situational agency versus individual agency. Certainty and control are the dimensions by which anger differs from anxiety. If we find future events unpredictable and incomprehensible and/or a situation is beyond our individual control, we are likely to experience anxiety. Finally, *responsibility* describes the extent to which someone or something is perceived as responsible for an unpleasant situation. Considering somebody else responsible for a negative event fosters anger. Responsibility is not part of the core appraisal theme of anxiety, as one can be anxious both in the absence and presence of a responsible actor.

Once elicited, emotions direct cognition by activating cognitive predispositions to appraise future events in line with the appraisals that elicited the emotion. Someone in a state of anger – a high certainty, control and responsibility emotion – is more likely to appraise a future event as certain (Lerner & Keltner, 2000), tends to rely more on heuristics (Parker & Isbell, 2010), and is less likely to seek out more information about an issue (Valentino et al., 2008). Angry people are more likely to take risks (Lerner & Keltner, 2001), associated with the appraisal of high control over a situation, and are more likely to support punishing actions (Petersen, 2010) and military intervention (Huddy et al., 2007). People in a state of anxiety are more open to persuasion (Albertson & Gadarian, 2015; Nai, Schemeil, & Marie, 2017) and counteract the uncertainty that comes with anxiety by seeking out more information (Albertson & Gadarian, 2015; Valentino et al., 2008). Thus the relationship between subjective appraisals and self-reported emotions is bidirectional, as the sequential evaluation of events again constantly influences our emotional states and vice versa.

Most of the existing work has focused on the consequences of distinct emotions, manipulating them through music, visual or specific verbal stimuli (for an overview see Albertson & Gadarian, 2016), or has studied how specific forms of communi-

cation, such as populist communication, elicits specific emotions (see for instance Hameleers et al., 2017; Widmann, 2021; Wirz et al., 2018). Here, we are trying to conceive a framework for emotional appeals that can be applied to any political issue and any discrete emotions with a unique appraisal profile (see Figure 10 for a conceptual overview of our approach).

Figure 10. Theoretical model of the relationship between message appraisals, and self-reported emotions and appraisals of certainty, control and responsibility.

emotional appeals can be understood as any communication that elicits an emotion (Brader, 2006), or "as attempts to elicit, or make salient, object-related emotions" (Rosselli, Skelly, & Mackie, 1995, p.165). Past work on emotional appeals has mostly focused on outwardly emotional stimuli, such as proportions of emotionally charged words in political texts (see for instance Brady et al., 2017; Crabtree et al., 2020; Lipsitz, 2018; Ridout & Searles, 2011; Widmann, 2021), with some exceptions.

Initial evidence suggests that certainty (Chadwick, 2015), efficacy, i.e. control (Feldman & Hart, 2016), goal obstruction and norm compatibility (Kang & Cappella, 2008) appraisals in messages affect fear and anger responses to politics. Moreover, there is some evidence that political actors use appraisals in their social media communication and that these appraisals are related, as theoretically expected, to emotional reactions (Zerback & Wirz, 2021). In line with cognitive appraisal theory, which predicts that emotions are not just the result of individual appraisals but of an interplay of multiple appraisals, or a so-called appraisal theme, we will test the effects of all three appraisals at the same time. In the following section, we briefly lay out our theoretical model and expectations.

Our innovation lies in formulating a framework that takes into account several appraisal dimensions at once to test whether message appraisals indeed play a causal role in the emergence of emotional responses to politics, as appraisal theories of emotions have long argued (Scherer & Moors, 2019; Scherer et al., 2001).

Expectations

Following cognitive appraisal theory, we hypothesize that message appraisals that express high certainty about the causes and consequences of a problem increase levels of anger compared to messages that express low certainty (H1a). Moreover, message appraisals of high human control elicit higher levels of anger than message appraisals of low human control (H1b). Finally, message appraisals expressing high responsibility generate higher levels of anger than low responsibility message appraisals (H1c).

According to appraisal theories, specific combinations, also referred to as core appraisal themes, elicit an emotion, rather than individual appraisals (Scherer & Moors, 2019; C. A. Smith & Ellsworth, 1985). Thus, we can formulate the more specific hypothesis that messages cause the highest levels of anger when they describe high certainty, high human control and clear responsibility appraisals (H2). With our setup we can test the joint effect of the different appraisals, but also identify which one is most important in the political context.

Message appraisals that express low certainty are expected to produce higher levels of anxiety than high certainty appraisals (H3a). Message appraisals of high situational, i.e., low human control, will elicit higher levels of anxiety than message appraisals of high human control (H3b). Again, we add the hypothesis that messages will cause the highest levels of anxiety if they express appraisals of both low human control and low certainty (H4).

The hypotheses above focus on *message appraisals*, i.e. the appraisals expressed in an emotional appeal. However, the same information can be appraised differently by different people. Thus, in Study 2, we also measured people's own appraisals of political issues. This allows us to test whether the effects of individual appraisals are similar to the effects of message appraisals. Individual appraisals are measured after self-reported emotions. Here, we diverge from the experimental logic, which means that we cannot make causal claims about the sequential ordering of appraisals and emotions. The fact that the two influence each other simultaneously is a central feature of appraisal theories (Lerner & Keltner, 2000; Scherer, 2009). While in the first part of this chapter, we study how exogenous message appraisals influence discrete emotions, here we are interested in which appraisals

co-occur with distinct emotions, an approach commonly used in emotion research to study emotions' distinct appraisal profiles (Scherer & Moors, 2019; C. A. Smith & Ellsworth, 1985).

We hypothesize that anger is related to subjective appraisals of high certainty, high control and high responsibility (H5) and that anxiety is related to subjective appraisals of low certainty and low control (H6).

We test our hypotheses in two preregistered and well-powered online survey experiments conducted in June 2020 (Study 1, preregistration: `https://www.osf.io/q8kgc/?view_only=95b294727fca4ec68c4ac0b9305f5c91`) and May 2021 (Study 2, preregistration: `https://osf.io/d7rjq/?view_only=2a9c593229964049932ce007ae8fdd60`). Both studies use a 2*2*2 factorial design with five experimental rounds. In each round, participants were exposed to an information sheet that randomly manipulates certainty (low vs. high), control (low vs. high) and responsibility (present or not) after which we measured their self-reported emotions.

3.2 Study 1

Study 1 tests H1 - H4 and was conducted in the Netherlands in June 2020. The study was preregistered at the Open Science Framework and approved by the Ethical Review Board of the University of Amsterdam.

Participants completed a survey of several background variables (political interest and preferences, political knowledge and fear of COVID-19).[8] We included two attention checks at the start of the study (Berinsky, Margolis, & Sances, 2014). Only participants who passed were redirected to the experiment, which consisted of five experimental rounds, each round addressing a different political issue, in fully randomized order: "COVID-19", "painkillers" (rising painkiller addiction in the Netherlands), "pesticides" (contamination of Dutch rivers with pesticides), "refugees" (risk of a next refugee crisis as violence in the Middle East is re-surging)

[8]The full survey – in Dutch and English – and stimulus material can be found here: `https://www.osf.io/q9e2z/?view_only=549a14ed0c424f55bb5d5f7ffc75be43`.
The full url to the pre-registration is https://osf.io/q9e2z/?view$_only$ = 1d80ae3ed3af4b95a298b9a73aa67195.

and "vaccinations" (risk of spread of measles and polio due to decreasing vaccination rates). Finally, participants reported their emotional response(s) and were debriefed.

First, to avoid pre-treatment effects (Slothuus, 2016), i.e., that participants having stable emotional responses that are merely re-activated by being presented the issue but not a result of our manipulations, we selected largely low-salience issues. Second, whether emotional appeals are accepted and elicit the respective emotion might depend on whether the position in the message is congruent with a person's prior attitudes (see also Suhay & Erisen, 2018). We therefore selected issues that are neither clearly ideologically left nor right, and have not been politicized: the early Dutch response to COVID-19, painkiller addiction in the Netherlands, pesticide pollution of Dutch rivers and declining vaccination rates. At the time of data collection, Dutch political parties had not taken clear stances on these issues. The exception is the refugees issue (i.e. EU asylum policy) which has been on the political agenda for several years. We included this issue to have some variation in the extent to which our topics in the experiments have been on the political agenda (Druckman, Peterson, & Slothuus, 2013).

The stimuli were presented as information sheets, in which we manipulated the appraisal dimensions certainty, control and responsibility, starting with a title and a base sentence which was held constant across conditions. The vaccination title and base sentence, for instance, read: "Vaccination rates are decreasing further [Title]. Recent health reports show a drastic reduction in the number of vaccinations [Base sentence]." This was followed by the three manipulations, which were each introduced by a question: "What are the consequences?" [certainty] "Is this preventable?" [control], and "Who is responsible?"[responsibility]. High certainty statements emphasized the causal link between cause and consequence while a low certainty statement emphasized that the consequences were unclear. In the vaccination issue, for instance, the high certainty statement reads: "According to experts, this has led to a doubling of measles and polio cases in the past year." The low certainty statement reads: "According to experts, it is still unclear whether this is related to the increased number of measles and polio cases in the past year." Control statements concerned the preventability of the problem to evoke appraisals of hu-

man or situational control over the issue. The high control statement for the vaccination issue reads: “An epidemic is easy to prevent as long as people are vaccinated, this is important when people travel. Diseases from abroad can be imported.” while the low control statement reads: “Preventing an epidemic is becoming increasingly difficult because people travel a lot and contract diseases abroad.” Responsibility statements either provided a responsible actor, or a general statement without a specific actor, for instance: “Responsible are the reckless parents who do not vaccinate their children.”, or: “The worldwide decline in vaccinations is a problem for everyone. Everyone depends on each other.”

We pretested all statements twice in the fall of 2019 and in early 2020 using convenience student samples ($N_1 = 48$, each statement rated around 10 times; $N_2 = 31$, each statement rated around 15 times), and adapted statements if necessary to ensure that they discriminated along the relevant appraisal dimensions. We included questions that clearly mark the appraisal dimension after the first round of pre-testing (i.e. ”What are the consequences?”, ”Was this preventable?”, ”Who is responsible?”, see Appendix Tables A15 - A18) When the coronavirus (COVID-19) and government response to it became the predominant social and political issue in spring 2020, just before our planned data collection, we added a COVID-19 treatment as an experimental round. Hence, the COVID-19 statements were written after the pretests were conducted.

Measures

Dependent Variables: As anger and anxiety are often elicited simultaneously, we use the PANAS-M measure introduced and validated by Rhodes-Purdy et al. (2020). It is particularly useful to distinguish between discrete emotions. We included two items for anger (angry, hostile), two items for anxiety (afraid, anxious), and three items for general negative affect (distressed, upset and ashamed). Respondents select these emotions from a list of negative emotions (anger items, anxiety items and items for general negative affect). For each emotion participants select, they are asked to report the intensity with which they felt this emotion using sliders (from 0 – Barely – to 100 – Extremely) that were presented horizontally with the slider at the midpoint as the starting position. A respondent’s anger score is the mean of

their reported scores on the "angry" and "hostile" emotion sliders. A respondent's anxiety score is the mean of their reported scores on the "afraid" and "worried" emotion sliders. Anger and anxiety scales were standardized across respondents within issues. Thus, a one-point increase on the anger scale means an increase by one standard deviation of the anger scores within that issue.

Table 7: Mean and standard error (in parentheses) of anger and anxiety per issue.

Study	N	Issue	Anger	Anxiety
Study 1	1,842	COVID-19	9.97 (0.66)	37.88 (1.01)
		Pesticide Contamination	13.36 (0.71)	27.49 (0.83)
		Painkiller Addiction	7.94 (0.56)	21.44 (0.71)
		Refugees	14.12 (0.75)	22.28 (0.79)
		Vaccination Rates	20.69 (0.85)	25.63 (0.81)
	9,210	Pooled	13.21 (0.32)	26.94 (0.38)
Study 2	1,325	Antibiotics	4.41 (0.34)	11.59 (0.45)
		COVID-19	4.75 (0.37)	14.72 (0.53)
		Pesticide Contamination	6.06 (0.39)	12.12 (0.46)
		Painkiller Addiction	3.79 (0.31)	9.78 (0.41)
		Refugees	6.7 (0.43)	10.32 (0.43)
	13,115	Pooled	5.27 (0.12)	12.06 (0.15)

As control variables, we measured political ideology (11-point scale), and level of education (highest successfully completed level of education, in five categories with lower secondary school as the reference category). We operationalized political engagement as the mean of political interest (measured on a 4-point scale) and knowledge (sum of correct answers on five knowledge questions), which were both scaled to range from 0 to 1. As the experiment was conducted in spring 2020, we controlled for fear of COVID-19 using the validated 7-item Fear of COVID-19 scale (Ahorsu et al., 2022).

Sample

Based on an a priori power analysis, assuming a small treatment effect of b=0.2, we aimed for a sample of N=1800 to reach a power of 0.88 in a one-tailed test

Table 8: Demographics Study 1 - 2

Study	Variable	Percent	Mean	SD
Study 1	Age		47.47	16.78
	Political Engagement		0.59	0.19
	Men	49.84		
	Women	50.16		
	HAVO, VWO, or HBS	14.17		
	HBO	30.56		
	MBO	26.22		
	No degree	0.33		
	University	16.67		
	VMBO, LBO, MULO, ULO, or MAVO	12.05		
Study 2	Age		52.36	14.26
	Political Engagement		0.52	0.18
	Men	41.06		
	Women	58.94		
	HAVO, VWO, or HBS	12.83		
	HBO	30.94		
	MBO	28		
	No degree	0.30		
	University	12.91		
	VMBO, LBO, MULO, ULO, or MAVO	15.02		

(the power analysis is presented and described in the pre-registration). In total, a sample of 4,127 participants was recruited by Dynata from their online panel. After excluding respondents who failed the attention check, we arrived at a sample size of 1,842. The final incidence rate of the survey was 45% after the exclusion of "screeners", and the implementation of quotas on age and gender. The sample is largely representative of the Dutch population in terms of age and gender, and it is diverse in respect to educational background (see Table 8).

Estimation Technique

To test H1a-H1c, we include certainty, control and responsibility as separate independent variables and anger as the dependent variable, adding the controls described above plus issue and order fixed effects. Certainty, control, and responsibility are coded 1 if high, and 0 if low (present or not present in the case of responsibility). To test H2 we created a dummy variable for a complete anger appeal that is coded 1 if all three experimental conditions are set to 1 (high certainty, control and responsibility), and 0 in all other conditions.

To test H3a-H3c we follow the same procedure with anxiety as the dependent variable. For H4 we create a dummy variable for a complete anxiety appeal which takes on a value of 1 if the participants received the low control and low responsibility treatment, and 0 if not.

3.3 Results I: Do Message Appraisals Elicit Anger and Anxiety?

Figure 11 shows OLS coefficients of the effect of each appraisal dimension, and of the anger appeal as a whole, on anger responses. The results are presented per issue and for the pooled sample. Certainty has a positive effect in 4 issues and the pooled sample, but it is not statistically significant. Control has no effect on anger in the pooled sample, and per issue the direction of the effect varies. Responsibility has a positive and statistically significant effect in all cases (b=0.20, p<.001 in the pooled sample), except for the refugees issues b=0.043, p=.19). Again with the exception of the refugees issue, the anger appeal has a positive and statistically significant effect (b=0.17, p <.001 in the pooled sample).

In sum, we find evidence for Hypotheses 1c (responsibility) and 2 (anger appeal), while we can reject Hypothesis 1b (control). There is some indication for a positive effect of certainty on anger (H1a) but if it were detectable in a larger sample, the effect size would be very small. It is not the case that anger is highest when the full appraisal theme is present (H2). Rather, the effect seems to be driven largely by the manipulation of responsibility appraisals.

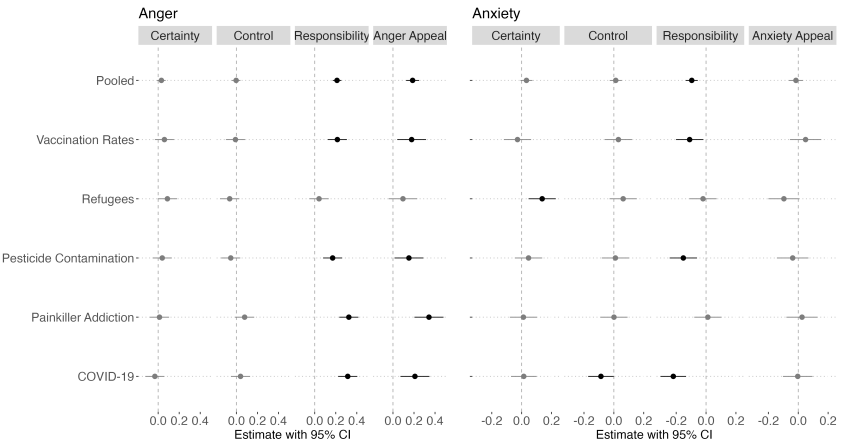

Figure 11. Standardized regression coefficients of certainty, control, and responsibility message appraisals on reported levels of anger and anxiety. The full regression output can be found in the Appendix, Tables A4 to A7.

Contrary to our preregistered expectations, we find no evidence that certainty or control negatively affect anxiety responses. Only for the COVID-19 issue is anxiety, as hypothesized, higher in the low control condition (b=0.1, p <.001). For the refugees issue, certainty even has a positive effect on anxiety (b=0.13, p=.03). The anxiety appeal does not have the hypothesized positive effect (b=-0.03, p=.14). In sum, we reject all our hypotheses (3a-3c and 4) regarding anxiety.

We preregistered to control for responsibility in the analyses of anxiety. Theoretically, responsibility attributions should not influence anxiety. We find, however, a fairly consistent negative effect of responsibility on anxiety (the coefficient is negative and statistically significant in three experimental rounds, as well as in

the pooled analysis). In our pooled model, we find that anxiety is on average 0.10 standard deviations lower in the high responsibility condition than in the low responsibility conditions (right panel of Figure 11).

3.4 Study 2

In our second study, we replicated Study 1 using the same measures and estimation technique. We re-conceptualize control as prospective control (future agency), rather than retrospective control (preventability). Moreover, we measured individual appraisals to test whether self-reported anger and anxiety are related to individuals' self reported appraisals of certainty, control, and responsibility.

Methods and Materials

We initially conceived of control as the degree of preventability (retrospective control). However, control can also be conceptualized as prospective power over an event (Scherer & Moors, 2019; P. K. Smith & Bargh, 2008). To test whether our null findings in regards to control are due to our specific conceptualization of it, our manipulations of human control in the second study emphasize prospective rather than retrospective control. Specifically, texts on low control stress resemblances to natural disasters, arguably some of the least controllable events, while manipulations of high control explicitly emphasize human impact. Moreover, manipulations will stress the (lack of) collective power of groups.

Additionally, as the COVID-19 pandemic progressed, public vaccination rates became one of the most salient issues globally. Thus, we added a statement on vaccinations to our adapted COVID-19 stimulus and replaced the vaccination issue with an issue on antibiotics in groundwater. The full stimulus material can be found in Appendix, Tables A20-A24.

Sample

Based on a power analysis for the independent effects of the three appraisals, expecting a small effect size (b=0.2), we collected a sample of 1,200 participants to reach a power of .95. 1,325 respondents were recruited by Dynata from their online

panel and successfully passed the attention check (for sample demographics see Table 8).

3.5 Results II: Do Message Appraisals Elicit Anger and Anxiety?

The left panel of Figure 12 present the effects of the three appraisals on anger in the second study. For certainty, we report an overall positive effect in the pooled sample, which is – contrary to Study 1 – also statistically significant (b=0.07, p=0.001). Additionally, we find a positive (b=0.14) and statistically significant effect of certainty for the issue of antibiotics (p <.001) and the painkillers (p=.02) issues.

The replication results for the effect of control even tilt towards the negative (pooled sample b=-0.05, p=.01), particularly in the refugees and pesticides issues (b=-0.13, p=.02, and b=0.1, p=.05). We can safely reject the hypothesized positive effect of control on anger (H1b).

The effect of responsibility is somewhat weaker than in Study 1, but still positive and statistically significant (pooled sample, b= 0.08, p <.001). This strengthens the evidence of a positive effect of responsibility on anger (H1c). Our conclusion regarding the effect of the anger appeal is similar. It is weaker, but still positive and statistically significant (b=0.07, p=.04).

The right side of Figure 12 presents the anxiety results of Study 2. The positive effect of certainty on anxiety found in Study 1 for the refugees issue could not be replicated but now a positive effect emerges for the painkillers issue. Only for the COVID-19 issue, do we find the hypothesized negative effect of certainty, i.e., when low certainty is emphasized in an emotional appeal, anxiety increases. However, overall, there is no clear pattern regarding the relationship between certainty appeals and anxiety. Based on both studies, we can firmly reject the hypothesized negative effects of control and certainty on anxiety, and the positive effect of the anxiety appeal on anxiety. Again, we find a negative effect of responsibility on anxiety. We will reflect on this finding in the discussion section.

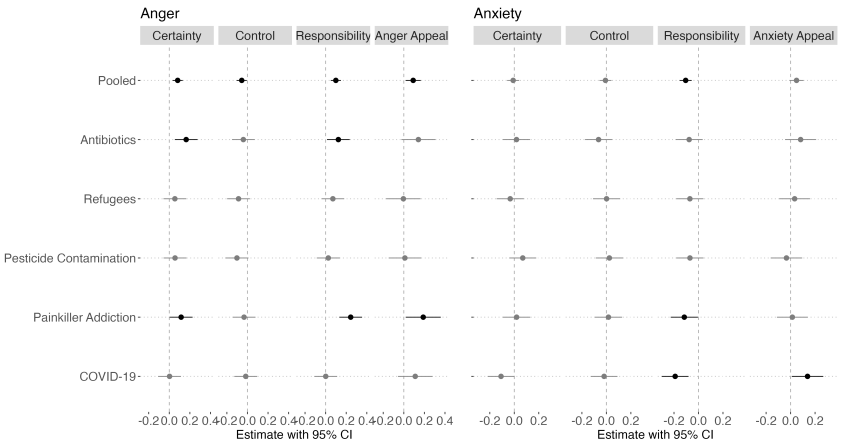

Figure 12. Standardized regression coefficients of certainty, control, and responsibility message appraisals on reported levels of anger and anxiety. The full regression output can be found in the Appendix, Tables A8 to A11.

3.6 Results III: Are Emotions Related to Self-reported Appraisals?

To test whether anger and anxiety also elicit the corresponding post-stimulus appraisals people make, we included individual-level appraisals of certainty, control and responsibility after our emotion measures in the last round. Depending on which issue was shown last, we asked participants to report their appraisals. We expect that self-reported appraisals of certainty, control and responsibility are higher when people report higher levels of anger (H5). Moreover, we expect that low certainty and low control appraisals are related to higher levels of self-reported anxiety (H6). For all three measures, we adapted the appraisal items by C. A. Smith and Ellsworth (1985). We asked participants to indicate the extent to which they agreed or disagreed (5-point scale) with the following statements: *I have a good understanding of the consequences of the issue* (Certainty); *Circumstances beyond anyone's control are influencing the issue* (Control); *I or people like me have no control to influence this issue* (Control); *It is clear who is responsible for this issue* (Responsibility). For control, we reversed the items and calculated the mean.

In the first model in Figure 13, we show the relationships between the two emo-

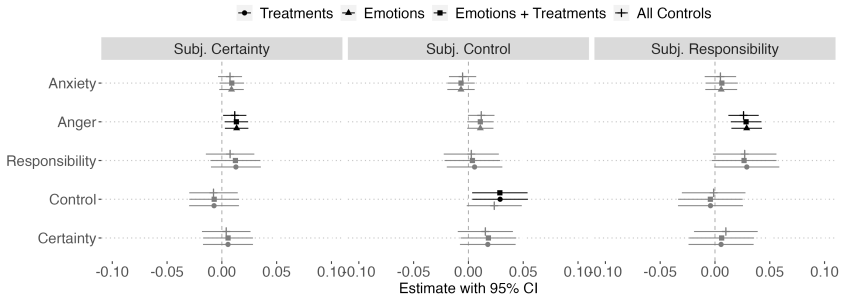

Figure 13. Relationship between self-reported appraisals of certainty (left), control (middle) and responsibility (right) and anger and anxiety, respectively controlling for trait anger, trait anxiety, age, gender, education, ideology, political sophistication, issue and experimental manipulations.

tions, anger and anxiety and the subjective appraisals. In the second model, we show the effects of manipulated message appraisals on subjective appraisals. The third model combines both and the fourth model additionally includes controls for gender, age, level of education, ideology, political sophistication and issue-level fixed effects. Moreover, to rule out that appraisals and emotions are both driven by general tendencies to appraise situations in a specific way, thus experiencing specific emotions, we control for participants' trait anger and trait anxiety. The full models can be found in the Appendix, Tables A12-A14).

As expected, anger is related to higher levels of self-reported certainty (b=0.011, p <0.05 in the full model with controls), control (b=0.011, p<0.1) and responsibility appraisals (b=0.026, p<0.001). Anxiety is not related to any of the three dimensions, substantiating our earlier findings that anxiety cannot be predicted by a particular appraisal profile.

The certainty manipulation does not affect participants' own appraisals of certainty. However, although it did not affect levels of anger earlier, the control manipulation increases subjective appraisals of control (b=0.029, p<0.0.5). Once we control for demographics, this effect shrinks and is only significant at the 0.1 level (b=0.023, p<0.1).

Finally, high responsibility message appraisals increase subjective appraisals of

responsibility (b=0.027), although only at a significance level of p<0.1 .

3.7 Discussion and Conclusion

The goal of this chapter was to test a claim that has been made by emotion theorists for decades: that appraisals affect discrete emotions. Specifically, we tested how characteristics of emotional appeals, i.e. message appraisals cause anger and anxiety. We developed a framework that applies appraisal theories of emotions to emotional appeals set in the context of political issues. We tested this claim in two preregistered and well-powered studies, each with 5 individual rounds. In line with our preregistered hypotheses, we find that high responsibility (H1c) and to a lesser extent high certainty (H1a) cause anger. Contrary to our expectations, control has no effect on anger (H1b). Regarding anxiety, we reject all our preregistered hypotheses: people do report high levels of anxiety, but our experimental treatments do not explain variation in anxiety.

Some of these null findings might be the result of our research design. Independently manipulating three dimensions in one study is difficult. In multiple instances, one appraisal manipulation was also perceived by our pre-test participants to manipulate another dimension. However, there are several reasons why it is unlikely that our null-findings are due to this shortcoming. First, we included five issues and tested our hypotheses on two representative samples. Across issues and studies, together with the pooled results in 12 tests, we find consistent results. Second, if more than one appraisal dimension is affected by a manipulation, the directions are always uniform. For instance, in the painkiller issue in Study 1, the high certainty statement seems to also express high control and responsibility. Moreover, the high control statement appears to also express higher certainty than the low control statement. However, if certainty and control had an effect on anger, if anything, we would see reinforcing effects of these message appraisals. This is not what we found, as the effect of the anger appeal (all dimensions are high, b=.342) is not substantially larger than the effect of responsibility alone (b=.325). Finally, we can look at instances where the message appraisals only affected one dimension. As an example, we direct readers to the vaccination issue in Study 1. None of

the manipulations affected any other appraisal dimension, according to our pre-test. Nonetheless, the results are perfectly in line with our conclusion.

The effect sizes in the two studies might not appear to be very large. However, three things are important to consider. First, our data is positively skewed with many responses at 0 (no anger/anxiety selected). Fitting a linear model is therefore a conservative test. Moreover, our experiments only expose participants to the respective treatments once and the stimuli are short, just a few brief statements. With single exposure to appeals and minimal manipulations, we can only expect very small effect sizes (Lecheler, Keer, Schuck, & Hänggli, 2015). A recent meta-analysis of framing effects in politics, (Amsalem & Zoizner, 2022) has shown that media frames have an average effect of d=0.1 on negative emotions. [9] Our effect for responsibility is twice that size (and statistically significant). In light of a minimal manipulation of appraisals and the single exposure design, the effects found in Study 1 and 2 are in fact quite substantial. We would expect repeated exposure to have quite significant effects on people's emotions over time.

Following recent calls in the social sciences (Lewis Jr, 2020), our hypotheses, design, and analysis strategy were preregistered. We confirmed some of our hypotheses but some of our findings were contrary to what we preregistered. Knowing when our framework does not work is as important as knowing when it does (Franco, Malhotra, & Simonovits, 2014). In the following paragraphs, we discuss the expected and unexpected findings.

The findings presented in this chapter suggest that responsibility attribution, and on a smaller scale certainty, play a role in eliciting anger. However, we found no effect of human control on anger (H1b). Appraisals of control may be more difficult to manipulate. There could be two reasons for this. First, theoretically, control can be conceptualized as retrospective (Study 1) or prospective (Study 2). Particularly in the former case, there is conceptual overlap with responsibility attribution, which also signals a degree of control (Scherer & Moors, 2019). As argued above, we do not think that our null findings regarding control are due to this this conceptual overlap. If they were, we would see reinforcing effects of control and responsibility.

[9] This effect has been adjusted for publication bias. The average effect size unadjusted for publication bias is quite a bit larger at d=0.4.

Perhaps appraisals of control are more contingent on stable feelings of (political) efficacy and therefore less easily manipulated. This would be in line with work by Valentino et al. (2009) who have shown that stable levels of internal efficacy prior to a campaign, which they argue capture appraisals of individual control, predict anger and participation in the elections that follow.

Concerning subjective appraisals, we found that the appraisals people make about issues are related to the emotions they experience. How well we think we understand an issue (certainty), the agency we feel to change something about it (control) and whether we know who is responsible (responsibility) is related to how we feel about this issue. However, it appears to be difficult to experimentally manipulate these subjective appraisals. We found indications, albeit not clear evidence, that control and responsibility message appraisals influence people's subjective appraisals of political issues. The limited predictive power of the appraisal manipulations and subjective appraisals might simply be due to the fact that people have limited conscious access to their subjective appraisals.

In this chapter, we have applied appraisal theory to study of emotional appeals in the political realm. It has allowed us to theorize about how emotional appeals, even when they do not contain emotional stimuli themselves can influence emotional responses to political issues. We have been able to show that appraisals matter for emotions in response to politics. As a consequence, we argue that we should design emotional appeals beyond emotion words or emotionally charged stimuli and consider more subtle ways in which citizens encounter emotion-eliciting messages. We argue that emotions are reflected in and a result of nuanced characteristics in political information.

The framework we have developed in this chapter can easily be extended to other discrete emotions, such as hope (Chadwick, 2015), and enthusiasm, which are equally as powerful emotions for politics and social movements, as anger and anxiety are (Collins & Block, 2020; Jasper, 2018; Kosmidis & Theocharis, 2020).