Hot populism? Affective responses to antiestablishment rhetoric

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Hot Populism? Affective Responses to Antiestablishment Rhetoric

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Populist rhetoric is often portrayed as deeply emotional, aimed at provoking gut-level, affective responses. It clearly enthuses some voters, while other voters clearly resent it. Yet we know very little about the affective responses that populist rhetoric actually evokes. For whom is populist rhetoric, particularly its antiestablishment component, arousing, and who has positive or negative affective responses? To analyze this, we study affective responses to antiestablishment and proestablishment rhetoric. We follow the circumplex model and conceptualize affective responses as arousal (measured with skin-conductance levels) and valence (measured with facial electromyography [fEMG]). We use data (N = 343) collected at different sites (a music festival, the university lab, a religious gathering, a biker festival, a museum, and a fair) and our analyses are based on a preregistered analysis plan. We find no overall differences in affective responses to antiestablishment versus proestablishment rhetoric. We do find, however, that affective responses are conditional on vote choice and education level. Specifically, the lower educated respond with more arousal, and those who vote for the populist radical right also respond with more negative valence. These effects only manifest themselves vis-à-vis proestablishment rhetoric and, hence, suggest an incongruency effect. This raises the question of what constitutes the populist counterframe.

KEY WORDS: populism, affect, physiology, emotions

The core message of populists is that Western democracies are confronted with a fundamental political crisis: Corrupt and condescending politicians are neglecting, betraying, and exploiting the hardworking and ordinary people. Provoking indignation about such betrayal and corruption, populist rhetoric is often portrayed as deeply emotional, aimed at provoking gut-level, affective responses. While a few papers analyze self-reports of anger or anxiety after exposure to populist communication (e.g., Wirz, 2018; Wirz et al., 2018), there is no work that analyzes the deeper, more implicit, affective responses that populist rhetoric might evoke. It clearly enthuses some voters, while others clearly resent it. But for whom is populist antiestablishment rhetoric arousing, and who has positive or negative affective responses?

Highlights

- People have physiological (bodily) responses to political rhetoric that centres on politicians.
- Surprisingly, anti-establishment rhetoric does not lead to stronger physiological responses compared to pro-establishment rhetoric.
- We find suggestive evidence that populist radical right voters and those with lower education levels are triggered when exposed to a message that contradicts their existing worldview.
- Our study is exploratory and we need more research on the role of physiological responses to anti-establishment and pro-establishment messages.

The essence of populism—and, hence, populist rhetoric—is the idea that the good, virtuous people are neglected, betrayed, or exploited by an evil, corrupt elite (Canovan, 2004; Mudde, 2004; Taggart, 2000). As such, populism always proclaims the existence of a political crisis (Moffitt, 2015; Rooduijn, 2014; Stavrakakis et al., 2018) of an existential political threat to ordinary citizens. This essentially negative outlook of populism implies that the core ingredient of populist rhetoric is an antiestablishment message. Yet what makes this antiestablishment message uniquely populist is its people-centric flavor. In other words: Populists vilify the establishment, but they always add the claim that the establishment thereby acts against the interests of the people. Because we are interested in the affective implications of an essentially negative phenomenon, in this article we focus on the antiestablishment component of populism and contrast it with what we label a proestablishment message.

We define affective responses as immediate, uncontrollable physiological responses to stimuli that occur prior to cognitive evaluations (Bakker et al., 2021a; Lodge & Taber, 2013). Affective responses can be mapped with the circumplex model of affect (Russell, 1980), which distinguishes between intensity (arousal) and direction (positive or negative valence). This study is unique as it is the first in this field to examine these affective responses to populist rhetoric. Is populism really as "hot" as many scholars assume it to be? Only by examining affective responses will we achieve a better understanding of the populism-emotions link. This will bring the literature on the psychology of the populist upsurge an important step forward. Moreover, we contribute to the literature on the consequences of populist rhetoric (see Blassnig et al., 2019; Hameleers et al., 2018), and, in particular, to the emerging scholarship examining how populist rhetoric can activate certain existing traits or attitudes, making citizens more or less susceptible to such rhetoric (Bakker et al., 2021b; Bos et al., 2013; Hameleers & Fawzi, 2020; Hawkins et al., 2020). Examining affective responses will help us better understand the activation potential of populist antiestablishment (and possibly also nonpopulist proestablishment) messages.

We conducted lab-in-the-field experiments ($N = 343$) in the period 2016–17 at different sites—specifically our university lab, a music festival, a religious gathering, a biker festival, a museum, and a fair. To examine affective responses, we measured arousal with skin-conductance levels and valence with facial electromyography (fEMG). Regarding valence, we specifically measured activity of the corrugator (negative) and zygomaticus (positive) muscles. Our sample is large and diverse. As such it allows us to study the responses to populist rhetoric among different groups. In particular, we compare affective responses for the lower versus higher educated, left-wing versus right-wing people; politically cynical individuals versus noncynical individuals; agreeable people versus disagreeable people; and politically sophisticated participants versus unsophisticated ones. Moreover, we explore which specific parts of the antiestablishment message evoke affective responses. Our study is part of a larger project (Bakker et al., 2021a). The analyses reported in this article are based

on a preregistered analysis plan that was written after data collection but prior to data analysis. We are sufficiently powered to detect the small effects of interest.

Our findings show that there are no overall differences in affective responses to proestablishment and antiestablishment rhetoric. We do, however, report several noteworthy differences across groups. Although ideology, political cynicism, agreeableness, and political sophistication do not turn out to moderate the effects of our treatment, responses *do* differ along the lines of voter behavior and education. When it comes to arousal, both the lower educated and those who vote for populist radical-right (PRR) parties stand out. Both groups are more strongly than others aroused by proestablishment rhetoric. PRR voters also distinguish themselves by responding with more negative valence to a proestablishment message. We explore in which segments of the proestablishment and antiestablishment messages these group differences manifest themselves. That these particular groups show affective responses to proestablishment rhetoric—and not antiestablishment rhetoric—suggests that we are witnessing an incongruency effect: not messages *congruent* with someone's priors result in (negative) affective responses, but rhetoric that is *in conflict* with someone's existing attitudes. In the concluding section of this article we pay attention to the question of what this means for the populist counterframe.

Emotional Populist Rhetoric

Nowadays, most scholars of populism employ a so-called "ideational" definition of the term (Hawkins et al., 2018). This means that they conceive of populism as a substantive message about the antagonistic relationship between the virtuous people and the corrupt elite (Albertazzi & McDonnell, 2007). According to this approach, populism can be understood as a set of ideas. Hawkins (2010), for example, emphasizes that populism is a "discourse" "that perceives history as a Manichaean struggle between Good and Evil, one in which the side of the Good is 'the will of the people,' or the natural, common interest of the citizens once they are allowed to form their own opinions, while the side of Evil is a conspiring elite that has subverted this will" (p. 5). Mudde (2004) argues that populism is "an ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, 'the pure people' versus 'the corrupt elite', and which argues that politics should be an expression of the *volonté générale* (general will) of the people" (p. 543).

Populism thus concerns the antagonistic relationship between two constructs: the good people versus the evil elite (Panizza, 2005). As a result of this antagonistic or Manichean point of departure, everything is seen as part of a cosmic struggle between good and evil (Hawkins, 2010). Indeed, populists always proclaim that we are witnessing a severe sociopolitical crisis (Canovan, 2004; Moffitt, 2015; Rooduijn, 2014). And as part of this crisis message, populists always define the "purity" or "authenticity" of the homogeneous people and the "corruptness" of the elite in *moral* terms (Mudde, 2017). Others have argued that political dualism is at the core of the populist outlook and that the populist message is strongly polarizing, confrontational, and aggressive (Taggart, 2000). According to Canovan (1999, p. 15), populism is therefore essentially emotional. Indeed, examining all these portrayals of populism as moralizing, antagonistic, Manichean, dualistic, polarizing, and aggressive, it is hard to imagine how the populist "us versus them" message can ever *not* be emotional.

It is important to emphasize that by proclaiming a moral crisis because the establishment betrays or exploits ordinary citizens, populism is also, at least to a large extent, a negative phenomenon. Although populists glorify the people, and, hence, populist rhetoric also contains positively laden ingredients, the core idea is essentially negative: The good people are being suppressed or neglected by an evil elite. Many studies of populist rhetoric have therefore focused on antielite or antiestablishment messages (see Pauwels, 2011). Moreover, it has empirically been demonstrated

that people-centric arguments of political parties most often do *not* coincide with antiestablishment claims. Yet, the other way around, almost all antiestablishment claims by populist parties are accompanied by a people-centric flavor (Rooduijn & Pauwels, 2011). This implies that, indeed, the core ingredient of populist rhetoric is a negatively valenced antiestablishment message. This also suggests that it can be expected that populist rhetoric will evoke negatively valenced responses.

Several empirical studies have indeed found that populists use more emotional appeals than mainstream parties. Relying on an expert survey dataset, including information about 195 politicians in 40 countries, Nai (2021) shows that populists are 15% more negative than mainstream politicians and use 8% more fear messages. Conducting a content analysis of social media and talk-show statements from 31 parties in six countries, Ernst et al. (2019) show that populist messages often contain negative, emotionalized, or dramatized communication styles. And examining more than 700,000 press releases and Twitter messages communicated by political parties in three European countries, Widmann (2021) demonstrates that populists use more negative emotional appeals (anger, fear, disgust, and sadness) and less positive ones (joy, enthusiasm, pride, hope) than mainstream parties. This all indicates that in particular when it comes to negative emotional appeals, populist parties and leaders do stand apart.

The association between populism and self-reported negative emotions has also been found at the citizen level. Rico et al. (2017, 2020) have argued and demonstrated that populist attitudes (measured by means of a battery of items that tap into a combination of people centrism and antielitism) are correlated with negative emotions. Using a panel survey in Spain (2014–16), they show that anger about the economic crisis (and not fear) affects support for populism (Rico et al., 2017). In a survey experiment, Morisi and Wagner (2021) show that "the effect of information on reducing populist attitudes is lower among angry voters" (p. 8) compared to voters who are not angry. And Vasilopoulos et al. (2019) show how anger (and not fear) in response to the terror attacks in Paris (in 2015) stimulated support for the populist radical-right *Front National* (now *Rassemblement National*). Finally, Bakker et al. (2021b) show that the personality trait agreeableness correlates negatively with support for populist parties or candidates (also see Bakker et al., 2016). As anger is a facet of agreeableness (i.e., low levels of the facet compliance, see Costa Jr. et al. (1991)), these results further suggest a link between anger and populism.

The Effects of Emotional Populist Rhetoric

Previous studies have shown that emotional populist appeals affect citizens' attitudes and behaviors. By relying on emotional triggers like fear and anger (Brader, 2006; Valentino et al., 2011), populist messages activate certain beliefs and attitudes and thereby also change political behavior (see Hawkins et al., 2020). But do these emotional populist appeals also actually affect the emotions of citizens? Only very few studies have directly examined such effects. By means of a survey experiment in three German-speaking countries (Germany, Austria, and Switzerland), Wirz et al. (2018) examined the extent to which populist appeals elicit emotions (compared to nonpopulist appeals). She found that conflictive populist communication blaming the elite elicits both anger and fear. Combining a content analysis with a panel survey in four Western European countries, Wirz et al. (2018) similarly found that populist messages can evoke negative emotions—again confirming the association between populism and negative emotions. Performing a manual content analysis of German parties and their leading politicians, Jost et al. (2020) demonstrated that populist messages lead to more angry reactions on Facebook.

From Cognitive to Affective Components of Emotions

All studies on the emotion-eliciting quality of populism so far have focused on cognitive components of emotions (i.e., discrete emotions such as anger, fear, and disgust which are measured by self-reports). We know, however, that emotions also have less cognitive components (Keltner & Gross, 1999). When confronted with (political) stimuli, citizens often experience physiological responses—affective reactions that occur prior to any cognitive evaluations (Lodge & Taber, 2013). The so-called "circumplex model" of emotions (see Russell, 1980) makes a distinction between the *intensity* of such affective responses (which is called arousal) and the *direction* of such reactions (which is called positive or negative valence). As the cognitive and affective components of emotions do not necessarily align (Barrett & Satpute, 2019; LeDoux & Pine, 2016), the emotional landscape of citizens can only be fully understood if also these affective components of emotions are investigated (Bakker et al., 2021a). This might be true in particular when it comes to the effects of populist messages, as populism "appeals to what some people would call 'gut' politics" (Fieschi & Heywood, 2004, p. 291). Does populism indeed evoke affective, physiological responses? Interestingly enough, we know virtually nothing about the extent to which this is the case. In this article, we build on existing work on the populism-emotions linkage, but we extend the focus to the uncharted territory of physiology.

How would populist rhetoric affect someone's physiology? Existing work suggests two possible mechanisms. On the one hand, and in line with most of the above-cited literature that uses self-reports of emotions, it is possible that populist messages evoke arousal and negative valence among those who tend to agree with such messages. By making the people-elite divide salient, the populist message will activate (preexisting) negative feelings towards the elite and thereby evoke arousal and negative valence (see Lodge & Taber, 2005). On the other hand, it could also be the case that arousal and negative valence are triggered among those who tend to *disagree* with the populist message. Studies in neuroscience suggest that disagreement leads to strong brain responses (e.g., Leong et al., 2020; Morris et al., 2003). In any case, both lines of reasoning indicate that it is of essential importance to take into account the extent to which people can be expected to agree or disagree with the populist message.

Conditional Effects of Populist Rhetoric

Indeed, many studies have shown that a political message exerts a stronger effect on the emotions, attitudes, and behaviors of those who can be expected to agree with this message (Sniderman et al., 2004). In this article, we focus on six individual-level characteristics that may condition the emotional responses to populist rhetoric. First, we examine the Big Five personality trait of agreeableness as a moderator of the effect of populism on emotions, as it has been shown that those who score low on agreeableness are more likely to support populists (Bakker et al., 2016, 2021b). Second, we include political cynicism, as many studies have shown that political cynicism and other forms of political discontent are related to populist support (Hooghe & Dassonneville, 2018; Krause & Wagner, 2021; Rooduijn et al., 2016), and that cynicism can moderate the effects of populism (Bos et al., 2013). Third, party affiliation might well play a role. We know, for example, that the effect of populist messages on several types of attitudes are moderated by whether or not someone supports a populist party (Rooduijn et al., 2017). Fourth, as populism has often been linked to education and political sophistication, that is, people with lower levels of education and sophistication being more likely to be populist (Elchardus & Spruyt, 2016; Milner, 2020; Spruyt et al., 2016), we expect that educational attainment and political sophistication are moderators too.

Our study proceeds in three steps. First, we examine the overall effect of the antiestablishment and proestablishment rhetoric on individuals' physiology. Second, we explore which particular elements

of this message lead to which affective reactions. And third, we assess whether the effects are different for different groups. We would like to emphasize that our study is exploratory. This is a new field, and existing studies point to two possible mechanisms, in the exact opposite direction.

Research Design

Preregistration

The data we rely upon in this study have been collected in a larger experiment—other findings from the study have been described in (Bakker et al., 2021a). We have not yet published on the responses to the treatments described here. The planned analyses were preregistered on the Open Science Framework—https://osf.io/x657p/?view_only=0aab6e7b996642cf967e97c430d4be34—after data collection but before we ran our models.

Sample

In the period 2016–17 we collected data at six different sites throughout the Netherlands. We collected our data in our university laboratory (site #1, $n = 97$), but also as a lab-in-the-field experiment at a music festival (Lowlands, site #2, $n = 130$), a media museum (Beeld & Geluid, site #3, $n = 40$), an evangelical gathering (EO Jongerendag, site #4, $n = 32$), a biker event (TT Assen, site #5, $n = 14$), and a large fair (Tilburgse Kermis, site #6, 30).[1] We report here the effective sample size that is used in our analyses. This already excludes participants for whom data was incomplete or physiological signals failed. We did this to get sufficient variation on the different independent variables, such as agreeableness, political cynicism, and educational attainment. Our sample is still an opt-in convenience sample but in Appendix S1 in the online supporting information, we show that we indeed have variation on the independent variables of interest.

Note that we did not conduct an a priori power calculation, but our sample is much larger compared to sample sizes reported in many other similar studies (Arceneaux et al., 2018; Garrett, 2019; Mustafaj et al., 2021; Mutz, 2007; Mutz & Reeves, 2005; Renshon et al., 2015; Soroka & McAdams, 2015). In total we have 343 unique participants. This excludes 10 participants who did not finish the study or where technical errors occurred and some of the data was not collected. Our analyses will typically be based on a lower number of participants because, as preregistered, we also coded each individual response for unusual signals—see the preregistered analysis plan.

Procedure

Participants first signed an informed consent form. Next, they completed a survey on a desktop computer (laboratory, site 1) or iPad 2 (lab-in-the-field, sites 2–6). We asked about their socio-economic background and political attitudes. After this first stage, trained research assistants connected participants to physiological measurement equipment. In particular, we measured arousal using skin conductance and valence using activity of the corrugator and zygomaticus muscles. We also measured heart rate but we did not preregister any expectations about heart-rate responses to populist rhetoric, and therefore this measure is not analyzed in this article. To listen to the treatment, participants were given noise-canceling headphones (Bose). After a baseline of 30 s, participants were exposed to a series of video messages in a random order. One was about the role of politicians in politics—of interest in this study—while others concerned other issues such as immigration, climate change, redistribution, or the European Union—reported in another paper (Bakker et al., 2021a).

Table 1. Overview of Antiestablishment Treatment

Time	Text (Original)	Translation	Description	Category
00:00			Black screen, music starts	1 = music
00:02			Dutch parliament building	1
00:12	De politieke	The political	parliamentary session shown, speaking starts	2 = ignore-1
00:13	elite in den haag	elite in The Hague		2
00:14	doet precies	does exactly		2
00:15	het tegenoverg-estelde	the reverse		2
00:16	van wat de mensen willen	of what people want		2
00:17			speaking pause	2
00:18	Dat gebeurt keer	This happens time		3 = ignore-2
00:19	op keer.	after time.		3
00:20	En het gaat maar door	And it continues.		3
00:21			speaking pause	3
00:22	Als de	If the	visual of red pen and ballot	4 = self-interested
00:23	Tweede Kamer eenmaal is verkozen	Second Chamber is elected		4
00:24	weten politici	politicians know		4
00:25	dat ze vier jaar lang	that for four years		4
00:26	ongecorrigeerd	uncorrected		4
00:27	kunnen doen wat ze willen	they can do what they want		4
00:28			Visual of Senate, picture zooms in, speaking pause	4
00:29	En het volk	And the people		5 = ignore-3
00:30	negeren ze	they ignore		5
00:31	Politici	Politicians	same room but fade to different viewpoint	6 = shame
00:32	zouden zich kapot	should be deeply		6
00:33	moeten schamen	ashamed		6
00:34	Het is tijd voor verandering	It is time for change		7 = change
00:35			Dutch parliament empty, perspective moving	7
00:36	Weg met de Haagse elite	Away with the elite from The Hague	writing fades into picture: "Weg met de Haagse elite!"	8 = remove elite
00:37			Picture still in view	7
00:38			Speaking stops, music becomes loader	8 = music
00:44			Writing starts to fades out	8
00:46			Writing completely fades out	8
00:47			Music fades out	8
00:49			Video ends	

Table 2. Overview of Proestablishment Treatment

Time	Text (Original)	Translation	Description	Category
00:00			Black screen, music starts	1 = music
00:06			Dutch parliament building	1
00:15			Music becomes softer	1
00:16			Dutch parliament picture	1
00:16	Dagelijks worden	On a daily basis	Speaking starts	2 = big issues
00:17	onze volksvertegen-woordigers	our representatives		2
00:18	in Den Haag	in The Hague		2
00:19	geconfronteerd	are confronted		2
00:20	met grote maatschappelijke	with big societal		2
00:21	problemen	issues.		2
00:22			short pause	2
00:23	Natuurlijk verschil-len ze	Of course they have		3 = perspectives
00:24	nu en dan van mening	different opinions		3
00:25	over hoe die problemen	about how these problems		3
00:26	opgelost moeten worden	need to be solved.	music almost disappears	3
00:27	Maar	But	short pause	4 = working hard
00:28	door keihard te werken	by working hard		4
00:29	en altijd	and always		5 = people first
00:30	het belang van de Nederlanders	putting the interest of Dutch people		5
00:31	voorop te stellen	first		5
00:32	zijn ze in staat	they are capable	Senate, picture zooms in	6 = bridge
00:33	deze verschillen	these differences	same room but different viewpoint	6
00:34	te overbruggen	to bridge		6
00:35	We mogen	We can be		7 = proud
00:36	in Nederland trots zijn op	proud in the Netherlands		7
00:37	het goede werk van	of the good work		7
00:38	onze volksvertegen-woordigers	of our representatives	Dutch parliament empty pic-ture, perspective moving	7
00:39			Speaking stops, music be-comes louder	7
00:40			Writing fades in "De politiek lost problemen op!"	8 = solves problems
00:41			Writing becomes fully visible	8
00:47			Music gradually fades out	9 = end
00:49			Writing starts to fade out	9
00:50			Writing completely fades out	9
00:51		13	Video ends, black screen	9

　　　Our interest in this study is the treatment about politics. We created an antiestablishment treatment and a proestablishment treatment about politics. The video clip lasted roughly 50 s and showed footage of the First and Second Chamber of the Dutch Parliament. A professional speech actor recorded a voice-over. The antiestablishment message was loosely based upon the messages of Dutch populist politicians, while the proestablishment message was based on the

messages of politicians of mainstream parties. Importantly, we do not disclose the source of the messages and the footage. Participants were randomly exposed to either the antiestablishment or the proestablishment message. Below the two treatments are provided—note that they were translated from Dutch to English for the purpose of this article. In Appendix S1.1 in the online supporting information, we provide the validation of the stimulus material using a pilot test ($N = 23$). The text (in Dutch and translated to English) and a description of the antiestablishment treatment can be found in Table 1 and the same information is provided for the proestablishment treatment in Table 2. The videos (in Dutch) of the treatments can be found on our OSF page (https://osf.io/x657p/?view_only=0aab6e7b996642cf967e97c430d4be34). Note that our antiestablishment message is a *populist* antiestablishment message as it is accompanied by the claim that the people are the victims of the evil elite. It is, for instance, explicitly mentioned that "[t]he political elite in The Hague does exactly the reverse of what people want" and that they "ignore" the people. It was more complicated to design a proestablishment message. We will discuss this more elaborately in our concluding section.

Survey Measures

At the start of the study, participants completed a survey. Of interest are agreeableness, cynicism, political knowledge, political interest, vote choice, and education. Here we briefly explain how we measured these constructs. Table S1 in the online supporting information provides the descriptive statistics of the continuous variables, Figure S1b displays the frequency of education and voting categories in the data. Note that as preregistered we z-standardized all variables—except for education and voting behavior.

We measured agreeableness with six items—randomly selected out of the 10-item battery that is part of the 60-item NEO Five Factor Model (items: "I respect others"; "I have a sharp tongue"; "I believe that others have good intentions"; "I insult people"; "I accept people as they are"; "I often think people have hidden agendas") (Goldberg, 1999)—for a justification of this approach, see Bakker and Lelkes (2018). Responses to the six questions were scored on a 5-point Likert-type scale ranging from 1 (*completely disagree*) to 5 (*completely agree*). We asked three questions measuring political cynicism (e.g., whether politicians can be trusted, are honest, or are profiteers) on a 9-point Likert-type scale ranging from 1 (*completely disagree*) to 9 (*completely agree*). We took the mean of these three questions. Vote choice was also recorded. Because there are a lot of different parties in the Netherlands, we preregistered to recode vote choice to "left" (SP, PvdA, Groenlinks, PvdD), "center" (D66, Christenunie, 50+, DENK), "right" (VVD, CDA, SGP), "populist radical right" (FvD, PVV) and "other" (blank vote, does not vote, does not want to say). We asked five political knowledge questions (1 = correct, 0 = incorrect) in each survey. We updated these over time to match with the changing reality. We combined these questions into a political-knowledge inventory. We also asked participants to indicate their level of political interest on a 7-point scale from 1 (*not interested at all*) to 7 (*very interested*). Education was measured with one item asking participants to indicate their level of finished education. We identified four levels: secondary vocational, higher vocational, secondary, and university.

Processing of Physiological Responses

We recorded physiological responses at 1000 Hz using the Versatile Stimulus Response Registration Program 1998 (Vsrrp98) software on laptops (lab-in-the-field data collection) or stationary computers running Windows 7 (laboratory data collection). Our lab equipment has in the past been used to reliably and validly capture skin conductance and facial EMG activity in other fields (e.g., Gazendam et al., 2013; Nohlen et al., 2016; Rotteveel et al., 2001; Sevenster et al., 2015).

To measure the experience of negative affect, we measured the activity of the corrugator major. We do this using two 7 mm Ag/AgCl mini-electrodes that we filled with electrolyte gel (Signa, Parker Laboratories). Using double-stick-adhesive color, we placed the two electrodes just above the eyebrow—at the place where the muscle is located (Fridlund & Cacioppo, 1986). A third electrode was placed on the middle of the forehead (just below the hairline) and serves as the ground measure.

We also measured the activity of the zygomaticus major (Larsen et al., 2003) on site 1 and site 2 ($N = 261$). The electrodes that we used to measure zygomaticus activity are similar to the ones we used to measure corrugator activity. But in this case, we placed the electrodes on the cheek, and specifically on the place where the zygomaticus is located (on the line between the corner of the mouth and the middle of the ear, according to Fridlund & Cacioppo, 1986). It is a difficult muscle to measure because it has greater contralateral innervation (Larsen et al., 2003), and there are lots of other muscles close to the zygomaticus (Tassinary et al., 2007). This makes measures of the zygomaticus susceptible to "cross talk" (Larsen et al., 2003, p. 777), but it is a valid and reliable measure of positive affect.

We assess arousal using *Skin Conductance Levels* (SCL). By passing a small current through two electrodes placed on the skin, while keeping the current constant, it is possible to measure the flow of the current. This is what we call skin conductance expressed in micro-Siemens (Dawson et al., 2017). We construct change in skin-conductance response by taking the difference between the raw SCL recorded for each .1 s while participants were exposed to the treatment and the median baseline SCL activity recorded during the baseline.

Before we turn to our analysis plan, it is good to note that we preregistered to check the data quality. Two coders visually inspected all data for anomalies. These coders were blind to the expectations of the study, which guarantees that coding decisions are not driven by the results of the model (Gelman & Loken, 2014). In particular, we excluded physiological responses of which at least one—of the two—coders identified it as problematic.

Preregistered Analysis Plan

We preregistered an analysis plan. We did this on the basis of a series of tests on the data, without using the relevant independent variables, to determine which basic model specification fit the data best. Let us emphasize that we preregistered this study *after* we designed the study, collected the data, and reported another part of the project in another paper (Bakker et al., 2021a), but *before* we ran the models belonging to the research questions we have in this study.

The unit of analysis in our study is the physiological response (corrugator and zygomaticus, SCL) per individual, per treated second (.1 s for SCL). fEMG responses are calculated by dividing treatment activity (by second) by an individual baseline. Baseline activity is measured over 30 s, during which participants see a blank screen with a plus on it. We take the median activity of this baseline.[2] Note that during the Lowlands data collection, there is only one baseline over the whole experiment (at the start of the study), while during the other data collections each treatment was preceded by a baseline. During the Lowlands data collection, participants may have seen other treatments in between the baseline period and the populism treatment. As the assignment of treatments was random, we do not think this affects our results.

We use multilevel analysis to analyze these physiological responses to account for the fact that the seconds of activity are clustered within individuals. We perform two separate analyses for each type of activity: In one we omit statistical outliers (defined as 4 standard deviations above the mean for the entire dataset); in the other, we winsorize the data.

For the analyses of the corrugator data, we specify a multilevel solution with random intercepts for the respondents and random-effects for the time units within the treatment. We additionally control for the moment within the larger experiment the participant received the populism treatment.

Note that we ran several different alternative models (without a multilevel structure, with additional covariates), but an anova model comparison test shows this model is significantly better than the alternatives.

For the analyses of the zygomaticus data, we also specify random intercepts for the respondents, and random effects for the time units within the treatment. But we also add a categorical variable indicating the computer on which the participant watched the treatments to increase model fit. An anova model comparison shows this model to outperform the model without that additional variable.

For the analyses of the skin-conductance data, we also specify random intercepts for the respondent. Yet, time is modeled differently, by adding a linear, quadratic, and a cubic time effect, as well as a variable indicating at which time in the experiment the treatment was shown. An anova model comparison shows that this model outperforms models with additional control variables such as location, computer, and temperature.

The model does not perform better than a model with additional random effects for the time units, but the latter had convergence problems.

To the basic model we described above, we add the following components, resulting in four different analyses.

- *Basic model plus treatment effect*. This evaluates the difference between activity in the antiestablishment treatment versus the proestablishment treatment.
- *Basic model plus interaction between treatment effect and one moderator*. This evaluates whether there are differences between people in responsiveness to the antiestablishment and proestablishment treatments.
- *Basic model subset to one treatment with dummy variables for the events within the treatment*.
- *Basic model subset to one treatment with dummy variables for the events within the treatment plus one moderator variable*. This evaluates whether there are differences between people in how they evaluate the events within each treatment.

Significance Levels and Effect Sizes

We preregistered a large number of tests without specifying direction (two-sided tests). Using a p-value of .05 here has the risk of having a high false-discovery rate. Therefore, we preregistered to use the Benjamini-Hochberg procedure (Benjamini & Hochberg, 1995) to set the p-value. With this procedure, we order the p-values of all the tests we ran from small to large. For each test i, beginning with the test with the largest p-value, we search for a p-value that is equal to or smaller than: i/total number of tests $* \alpha$. We set alpha at .05. The p-value that satisfies this criterion is $p = .0097$. All values below or equal to this level are accepted as statistically significant.

Deviations from Preregistration

We preregistered an estimation technique in which we model both random intercepts for participants and random effects for each .1 s in the experiment. This decision was based on comparisons of models without any independent variables of interest. Once we added these, many models suffered from convergence issues. We therefore omit the random time effects for all analyses and estimate time only as a fixed effect. For the models that did converge, model output was highly similar.
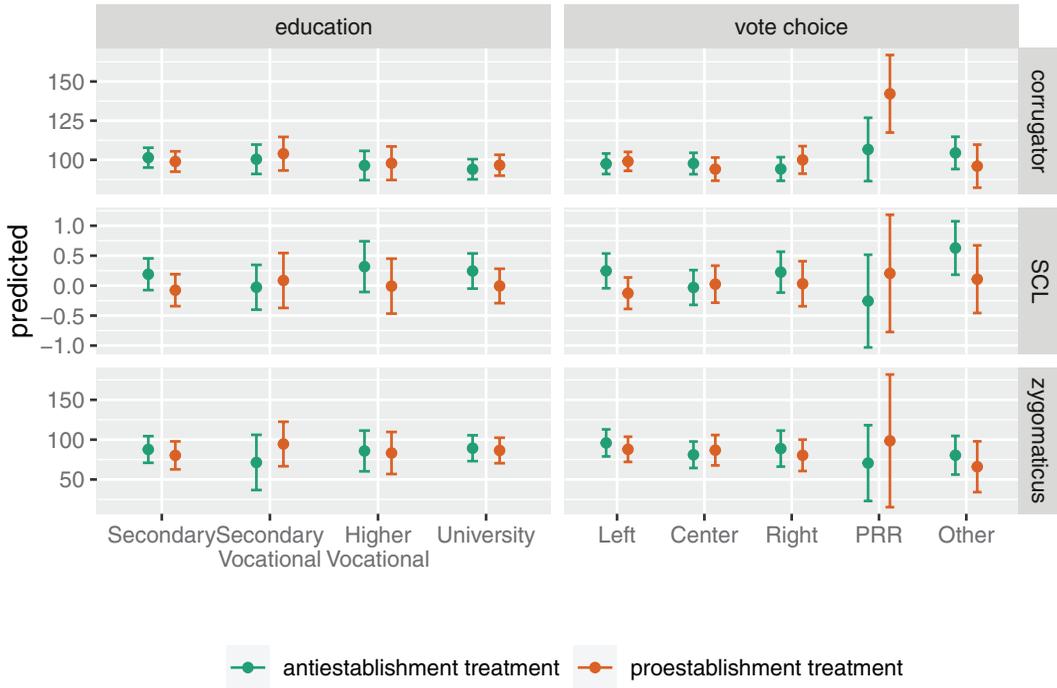
Figure 1. Predictions of interactions between treatment and categorical covariates. Figure displays predictions based on multilevel analysis models with a physiological response (see sidebar) as dependent variable and the treatment dummy as independent variable plus a number of covariates. Each panel displays an individual analysis. The points represent the point prediction; the bar represent the 95% confidence interval. Blue dots are results from the antiestablishment treatment, red ones are from the proestablishment treatment. Full regression results are printed in Tables S8 and S9 in the online supporting information.

Results

We first analyze whether antiestablishment rhetoric evokes stronger affective responses than proestablishment rhetoric. We find no evidence of this. The treatment dummy variable (1 = proestablishment, 0 = antiestablishment) has an insignificant effect for corrugator activity ($b = 1.038$, SE = 2.747, see Table S2 in the online supporting information), zygomaticus activity ($b = -1.880$, SE = 5.825, see Table S3) and skin conductance ($b = -0.207$, SE = 0.118, see Table S3).

While there is no main effect, it is possible that some participants do respond more strongly to the antiestablishment treatment compared to the proestablishment treatment (or vice versa). To evaluate this, we interact the dummy-treatment variable with six different participant characteristics in a series of multilevel analyses (one per characteristic). Figure S2 in the online supporting information shows that participant characteristics such as agreeableness, cynicism, political knowledge, and political interest do not produce statistically significant findings ($p <= .0097$).

Figure 1 shows that we find no differences between different education levels (left panel). Populist radical-right voters in our sample have a stronger corrugator response to the proestablishment treatment than to the antiestablishment treatment ($b = 35.32$, $p = .029$, see right panel), yet this effect just misses our criterion for statistical significance. The corrugator response of populist radical-right voters to the proestablishment treatment is significantly higher than those of the other voter categories (b(left) = 43.118, $p < .001$; b(right) = 41.655, $p = .002$; b(center) = 47.429, $p < .001$ and b(other) = 44.394,
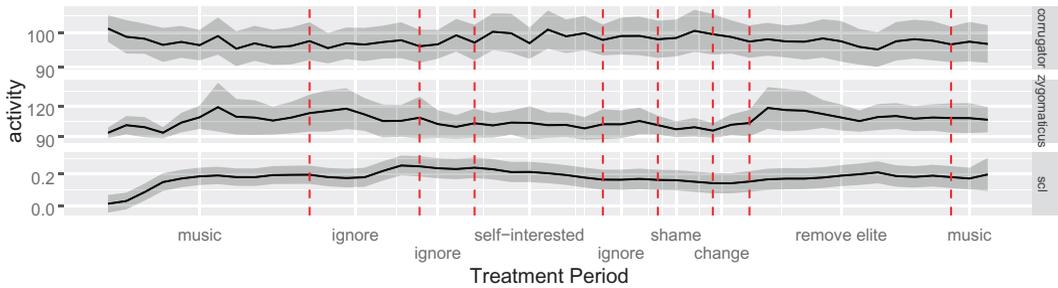
Figure 2. Physiological activity per segment of the antiestablishment treatment. Average physiological activity over entire antiestablishment treatment with 95% confidence intervals. The words on the *x*-axis summarize what is said in the treatment at that specific time. The music segments in the beginning and at the end consist of music and no text.
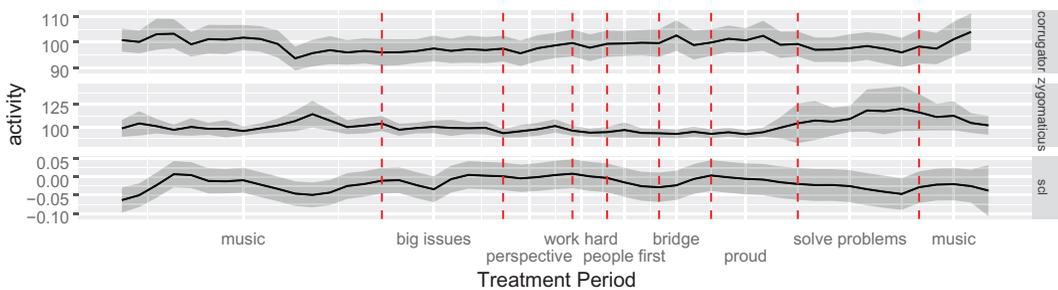

Figure 3. Physiological activity per segment of the proestablishment treatment. Average physiological activity over entire proestablishment treatment with 95% confidence intervals. The words on the *x*-axis summarize what is said in the treatment at that specific time. The music segments in the beginning and at the end consist of music and no text.

$p = .002$). This supports the incongruency effect. There are, however, no differences between vote categories regarding the antiestablishment treatment as can be seen by the point estimates that are close to each other and the overlapping confidence intervals.

Analyzing the Treatments by Segment

Figure 2 displays the physiological activity in the *antiestablishment* treatment per second (for a description of the segments see Table 1 [antiestablishment]). We have also indicated the specific segment of the antiestablishment treatment in which particular claims are made. We have analyzed whether these segments produce significantly more or less activity using the multilevel regression models we preregistered (see Table S11 in the online supporting information for full regression results). Corrugator activity (the top panel, Figure 2) is rather stable with a few minor ups and downs.

Zygomaticus activity is also quite stable over the treatment and peaks at the beginning of the "remove the elite" segment. The increase in activity over the entire segment is, however, not statistically significant by the restricted standard we set ($b = 10.386$, SE $= 4.456$, $p = .022$). In the first ignore segment—"the political elite does exactly the opposite of what the people want"—SCL gradually increases. After this, SCL reclines, which is typical for skin-conductance activity in prolonged treatments. At the end, with the "remove the elite" segment, SCL significantly increases compared to the previous segment ($b = 0.044$, $SE = 0.007$).

Figure 3 displays corrugator activity during the *proestablishment* treatment, also distinguishing the different segments (see Table S10 in the online supporting information for full regression tables).

Corrugator activity is strongest—and statistically significant—in the "proud" segment ($b = 10.42$, $p < .001$, ref = perspective)[3]Note that the full regression table has a different reference point. We report in the text the difference of one segment compared to the previous segment. and the "solve problems" segment ($b = 9.46$, p $<$.001, ref = different perspective). Zygomaticus activity is strongest in the "solve problems" section ($b = 13.63$, $p < .001$, ref = proud). We first see arousal (SCL) dipping in the "big issues" segment and then increasing. Arousal significantly increases in the "bridge differences" segment ($b = 0.017$, $SE = 0.005$) compared to the previous segment. After this it gradually decreases again.

Now we conduct the same per-segment analysis and analyze whether physiological responses differ between participants with different characteristics. We concentrate our analyses on the differences between PRR voters and other voter groups (i.e., left-wing, right-wing, or center) and on the difference between the lowest education group (secondary vocational) in our sample and the rest (secondary,[4]We asked about finished level of education. Participants who only finished secondary education in our sample are almost always students. We therefore do not consider them as part of the lowest educated group. higher vocational, university). This also means that the four measures of agreeableness, cynicism, political knowledge, and political interest did not condition physiological responses to the proestablishment and antiestablishment rhetoric.

Figure 4 shows the physiological responses of PRR voters (in blue) and other voter groups (in red) in the proestablishment condition. Note that in the proestablishment condition we find no differences between these other voter groups, and therefore we cluster them together. Overall, PRR voters have a statistically significant higher level of corrugator activity throughout the treatment ($b = 38.96$, $p = .005$, reference category = left). This line peaks at the "bridge differences" segment in which activity increases significantly ($b = 3.51$, $p = .005$). Skin-conductance levels of PRR voters are also systematically higher, and they particularly increase at the end with the "solve problems" segment ($b = 0.108$, $p < .001$). We interpret these findings as evidence of the incongruency effect: Incongruent messages produce increased corrugator activity and arousal.

Remember that the zygomaticus was only measured in a subset of the study locations. This resulted in a too-small sample of PRR voters for whom we collected a zygomaticus response. Therefore, we cannot compare the zygomaticus response from PRR voters compared to other voters. Yet a final noteworthy observation from Figure 4 is that the increase in zygomaticus activity in the "solve problems" segment in the group of non-PRR voters is caused by left-wing voters (e.g., b(right–left) $= −25.21$, $p < .001$)—compared to right-wing voters.
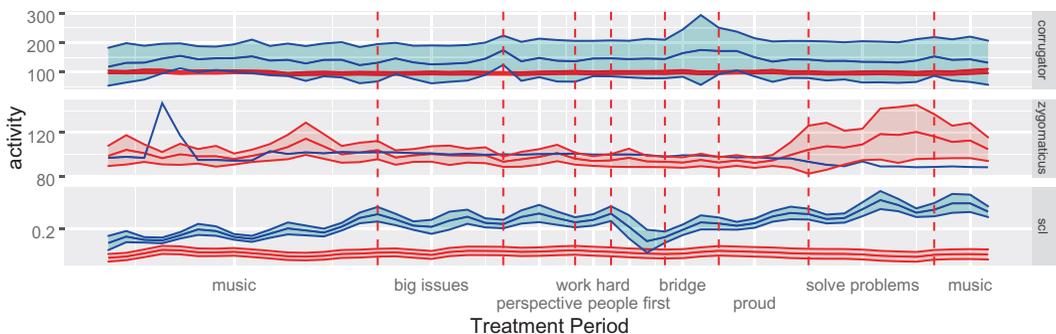

Figure 4. Proestablishment treatment—physiological activity per segment comparing PRR voters (blue) to other voter groups (red). Blue lines are average physiological activity of PRR voters with 95% confidence intervals in shaded area. Red lines are average physiological activity of all other voter groups. Note that the 95% confidence interval for PRR voters in the zygomaticus panel is missing as we have only a very small *N* for this group and this particular measure.
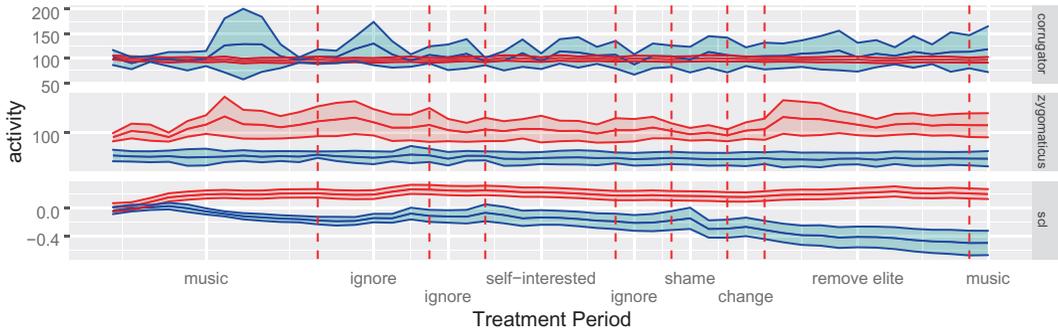
Figure 5. Antiestablishment treatment—physiological activity per segment comparing PRR voters (blue) to other voter groups (red). Blue lines are average physiological activity of PRR voters with 95% confidence intervals in shaded area. Red lines are average physiological activity of all other voter groups.

Figure 6. Proestablishment treatment—skin conductance per segment by lowest level of education (blue line) and higher levels of education (red line). The blue line is the average physiological activity of participants who have finished secondary vocational education with 95% confidence interval in shaded area. Red line is the average physiological activity of all other education groups with 95% confidence interval in shaded area.

Do we find the incongruency effect at work in the antiestablishment treatment? We do not find evidence for this. Mainstream party voters do not increase corrugator activity in response to the antiestablishment treatment (Figure 5). Mainstream party voters are more aroused than PRR voters in the antiestablishment treatment. The latter group relaxes, particularly when hearing the segments "remove elite" ($b = -0.309$, $p < .001$ and "time for change" ($b = -0.112$, $p < .001$). However, as we have reported before, arousal among mainstream party voters in the antiestablishment treatment is not higher than in the proestablishment treatment. We cannot therefore claim that the incongruency effect works in the antiestablishment treatment.

Now we discuss the results per education group. We only do this for skin conductance, because education did not have significant effects in the analyses of corrugator and zygomaticus. Figure 6 displays skin conductance over the entire proestablishment treatment for participants who finished secondary vocational education (blue line) or another level of education (red line). For most of the proestablishment treatment, the secondary vocational education group is more aroused than the other education groups. Arousal among participants with secondary vocational education significantly increases in the "bridge differences" ($b = 0.047$, $SE = 0.013$), "different perspectives" ($b = 0.053$, $SE = 0.019$), and "solve problems" ($b = 0.159$, $SE = 0.010$) segments.

Figure 7 shows that the secondary vocational group (blue line) has on overall lower level of skin conductance than the other educational groups (red line). The two lines particularly diverge half-way
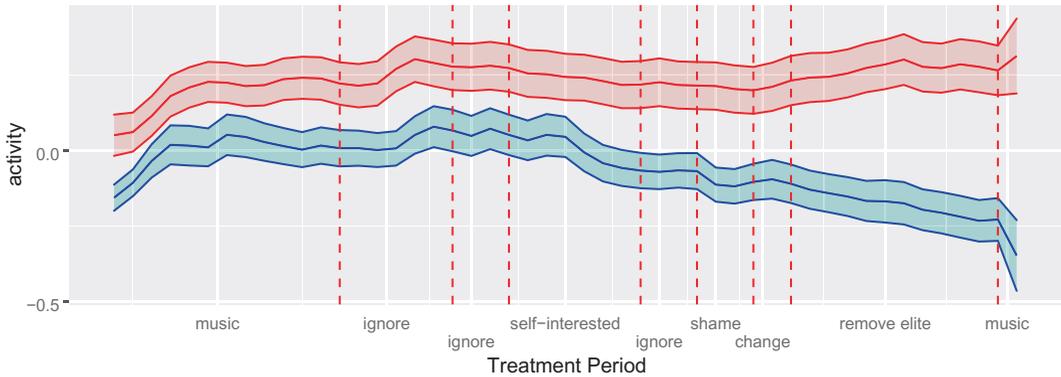
Figure 7. Antiestablishment treatment—skin conductance per segment by lowest level of education (blue line) and higher levels of education (red line). The blue line is the average physiological activity of participants who have finished secondary vocational education with 95% confidence interval in the shaded area. Red line is the average physiological activity of all other education groups with 95% confidence interval in shaded area.

in the segment in which politicians are described as self-interested. The two lines most strongly diverge during the "remove elite" segment in the antiestablishment treatment ($b = -0.23$, $p < .001$). In both treatments, the skin conductance response of the secondary vocational-education group is similar to that of the PRR voters (see Figure 5[5]Note that 38.7% of PRR voters in our sample have finished secondary vocational training. This is more than the sample average of 15.2%. However, within the PRR group a considerable group of people are university students (46.1%), the remainder has finished university or higher vocational education.), yet the corrugator responses of the former are not statistically different from the corrugator responses of the other educational groups. This is in contrast to the responses of the PRR voters.

Discussion

Our article surprisingly shows no difference in affective responses to proestablishment and antiestablishment treatments. Less surprising is that affective responses differ depending on education and vote preferences. Other potential moderators such as cynicism, agreeableness, political interest, and political knowledge do not explain differences in affective responses. Specifically, participants who vote for PRR parties and participants with a lower education (who have finished secondary vocational education), stand out in our analyses. In the proestablishment condition, PRR voters show more overall corrugator activity, and at specific moments, more arousal than other voter groups. In the antiestablishment condition, PRR voters are more relaxed than other voter groups. We suggest the incongruency effect is at work here: Contra-attitudinal rhetoric produces negative valence and arousal. Yet we do not find this incongruency effect for other voter groups. Regarding participants with a lower education, they only stand out in terms of arousal. Their skin-conductance levels behave similarly to those of the PRR voter group: lower than average in the antiestablishment condition, higher than average in the proestablishment condition.

Our analyses suggest that it is not antiestablishment rhetoric but rather proestablishment messages that produce gut-level responses from PRR voters and people with secondary vocational education. An explanation could be that people who have internalized a strongly moralistic and negative set of ideas (i.e., PRR voters and those with lower education levels) are triggered when exposed to a message that blatantly contradicts their existing worldview. In other words, it might be that among

these citizens populism and its antiestablishment outlook is so deeply engrained that it evokes strong negative responses to proestablishment messages because they claim the exact opposite.

An alternative reading of our results is that our participants have grown used to antiestablishment rhetoric. The Netherlands have a long history of left-wing and right-wing parties evoking such rhetoric. Mainstream parties, however, customarily do not respond directly to antiestablishment criticisms and prefer to ignore it. As such, it was fairly difficult for us—the authors—to develop a proestablishment message. In other words, it is possible that on the one hand our antiestablishment treatment was only arousing to a very limited extent because of the extensive real-life pretreatments people have been exposed to, while on the other hand, the proestablishment treatment evoked stronger affective gut responses because it is a message that in real-life Dutch politics is virtually nonexistent. We would like to emphasize, however, that we have no clear a priori reasons to expect different effects in other contexts. The ubiquity of the antiestablishment message and the scarcity of the proestablishment message are by no means typical for the Dutch case only.

We have shown that it is not just important to examine populist antiestablishment rhetoric but also to examine proestablishment communication or other types of messages that challenge the populist outlook—think of messages of pluralism or elitism (Mudde, 2004). Future studies might want to examine how such messages trigger responses among those who can be expected to experience incongruency between these messages and their own ideas. Our findings also invite a discussion on what an antiestablishment counterframe should look like and what its (emotional) effects will be. What language can mainstream parties adopt to counter populist parties? Although at the conceptual level a lot has been written about the ideological opposites of populism (see Mudde, 2004), and several studies have also investigated what antipopulist styles and strategies look like (Moffitt, 2018; Stavrakakis et al., 2018), so far we know only very little about which counter messages might be effective among which specific groups. In any case, based on our findings, we recommend scholars of populism to expand their focus on the consequences of (specific types of) populist rhetoric to the impact of messages that *contradict* the worldview of people with populist ideas. Future studies should thereby also take into account that emotions play an important role in how such messages are processed.

Of course, our analyses are still very exploratory and based on a relatively small sample size. Yet at the same time, the *N* is larger than in most physiology studies, and, moreover, this is the first study that has examined the physiological impact of populism. This in itself is a relevant contribution to a literature that focuses on a highly emotional and negatively valenced message. Most importantly, our analyses suggest that there is such a thing as a populist "gut" response. This is an important finding as it paves the way for an exciting new research agenda on the emotions of populism. What is the affective impact of populist and counterpopulist rhetoric? Exploring this question could bring us closer to understanding the affective dynamics underlying populism.

At this point it is still an open question whether our results can be replicated in other contexts, with other measures, and with other operationalizations of proestablishment and antiestablishment messages. Yet we believe that exploring the uncharted territory of the connection between populist rhetoric and its affective implications is an important agenda for future studies of the populist upsurge and its causes and consequences.

ACKNOWLEDGMENTS

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web site:

Table S1. Descriptive Statistics

Figure S1. Descriptives of education level and voting behaviour.

Table S2. Multilevel Regression Models Measuring Difference between Proestablishment and Antiestablishment Treatment

Table S3. Multilevel Regression Models Measuring Difference between Proestablishment and Antiestablishment Treatment

Figure S2. Predictions of interactions between treatment and covariates.

Table S4. Multilevel Regression Models Predicting Difference in Physiological between the Treatments in Interaction with Moderator

Table S5. Multilevel Regression Models Predicting Difference in Physiological between the Treatments in Interaction with Moderator

Table S6. Multilevel Regression Models Predicting Difference in Physiological between the Treatments in Interaction with Moderator

Table S7. Multilevel Regression Models Predicting Difference in Physiological between the Treatments in Interaction with Moderator

Table S8. Multilevel Regression Models Predicting Difference in Physiological between the Treatments in Interaction with Moderator

Table S9. Multilevel Regression Models Predicting Difference in Physiological between the Treatments in Interaction with Moderator

Table S10. Multilevel Regression Models Predicting Physiological Activity in the Proestablishment Treatment

Table S11. Multilevel Regression Models Predicting Physiological Activity in the Antiestablishment Treatment