Emotions, Partisanship, and Misperceptions: How Anger and Anxiety Moderate the Effect of Partisan Bias on Susceptibility to Political Misinformation

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Citizens are frequently misinformed about political issues and candidates but the circumstances under which inaccurate beliefs emerge are not fully understood. This experimental study demonstrates that the independent experience of two emotions, anger and anxiety, in part determines whether citizens consider misinformation in a partisan or open-minded fashion. Anger encourages partisan, motivated evaluation of uncorrected misinformation that results in beliefs consistent with the supported political party, while anxiety at times promotes initial beliefs based less on partisanship and more on the information environment. However, exposure to corrections improves belief accuracy, regardless of emotion or partisanship. The results indicate that the unique experience of anger and anxiety can affect the accuracy of political beliefs by strengthening or attenuating the influence of partisanship.

Keywords: Misinformation, Misperceptions, Emotion, Fact-checking, Corrections, Motivated Reasoning, Anger, Anxiety.

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Politics are not devoid of emotion. Rather, emotions are a core component of citizenship that shape how people see their political world (Marcus, 2002). Emotions have a powerful influence on political attitudes and behaviors (Brader, 2005; Marcus, MacKuen, & Neuman, 2011; Nabi, 2003), but might they also affect what citizens perceive to be political reality?

Political misperceptions, which are characterized as personal beliefs about politics that are inaccurate based on the best available evidence (Kuklinski, Quirk, Jerit, Schwieder, & Rich, 2000), are prevalent in American politics and held about a range of political issues and candidates (Jerit & Barabas, 2012; Weeks & Garrett, 2014). The prevailing understanding for why misperceptions emerge is based on the theory of
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partisan motivated reasoning and suggests that political information consistent with an individual’s ideology or partisanship is more likely to be believed, regardless of its veracity (e.g., Garrett & Weeks, 2013; Nyhan & Reifler, 2010). Certainly, partisanship matters for political beliefs and misperceptions often fall along party lines, as Democrats and Republicans vary in their accuracy regarding the facts about politics (Gaines, Kuklinski, Quirk, Peyton, & Verkuilen, 2007). However, this partisan-based explanation for political misperceptions may be incomplete, as research has not fully identified the conditions under which politically biased evaluations of misinformation occur.

This study contributes to our understanding of political misperceptions by arguing that citizens’ emotional experiences can enhance or lessen partisanship’s influence on inaccurate beliefs. The focus here is on the effects of two negative emotions: anxiety and anger. Although the literature is beginning to recognize the influence of these emotions on motivated reasoning, the differential effects of anger and anxiety in this process are not fully understood, nor have they been explored in the context of misperceptions. Prior research has focused primarily on the influence of anxiety, showing that the experience of this emotion can attenuate the effect of existing attitudes on political evaluations (MacKuen, Wolak, Keele & Marcus, 2010; Marcus et al., 2011; Redlawsk, Civettini, & Emmerson, 2010). Less attention has been paid to the effects of anger on motivated reasoning, though MacKuen et al. (2010) found that angry individuals were less likely to seek out attitude-challenging information and less willing to compromise politically. While prior work suggests anxiety and anger may uniquely affect partisan processing, it has neither isolated the causal influence of each emotion, nor has it fully assessed whether these emotions’ influence extends to explicitly partisan motivations or to the accuracy of political beliefs.

To address these theoretical gaps, this experimental study manipulates emotional states, partisan cues, and the information environment (presence of a corrective message or not) to better understand how political misperceptions are formed. The results demonstrate that participants at times respond to uncorrected misinformation in different ways when angry or anxious, resulting in divergent beliefs about a series of inaccurate political claims. When false claims go uncorrected, anger exacerbates the influence of partisanship and makes participants more susceptible to party-consistent misinformation — claims they are predisposed to believe because of their political affiliation. Conversely, anxiety lessens the influence of partisanship when considering uncorrected misinformation and increases the likelihood that a claim disseminated from the opposed political party is believed. This study provides a more complete theoretical explanation for how political misperceptions are initially established, as well as a causal account of how anger and anxiety uniquely affect partisan processing of political news and information.

Partisanship and political misperceptions
The formation and persistence of political misperceptions are often attributed to a politically motivated need for consistency (e.g., Meirick, 2013;Nyhan & Reifler, 2010;
Weeks & Garrett, 2014; though, cf. Garrett, Nisbet, & Lynch, 2013). The theory of motivated reasoning suggests individuals at times evaluate information in a biased manner in order to remain consistent with prior attitudes or beliefs (Kunda, 1990). In the case of politics, this means citizens are often motivated to consider new information through a partisan or ideological lens (Taber & Lodge, 2006). Partisan motivated reasoning is presumed to be driven by affective-based goals that lead citizens to evaluate attitude-consistent information as strong, convincing, and valid, while inconsistent information is considered weak and unconvincing (Taber & Lodge, 2006). In the context of misperceptions, the theory suggests that political claims consistent with one’s partisanship or ideology are more likely to be accepted, regardless of their veracity. In contrast, claims are more likely to be rejected if they challenge existing partisan attitudes. Empirical evidence supports this contention, as misinformation regarding political candidates or issues is typically more likely to be believed when it is consistent with party identification or ideology (Jerit & Barabas, 2012; Nyhan & Reifler, 2010; Weeks & Garrett, 2014).

However, citizens do not always interpret political information in a way that is biased toward their partisan leanings but instead at times consider information in a more even-handed manner (Bullock, 2009; Druckman, 2012; MacKuen et al., 2010). This willingness to set aside partisanship is evident with misinformation too, as citizens occasionally believe false, attitude-discrepant claims and reject attitude-consistent ones. For example, a poll conducted in 2012 found nearly one-third of Democrats incorrectly believed or did not know if Iraq possessed weapons of mass destruction prior to the U.S. invasion in 2003, a misperception that seems to contradict Democrats’ opposition to the war at that time (Valentino, 2012). Surveys fielded during the 2012 presidential election show between approximately 10 and 20% of Democrats believed or were unsure whether Barack Obama was born in the United States, while between 30 and 50% of Republicans dismissed this claim as false (Cassino, 2013; Gallup, 2011). So although citizens are more likely to hold attitude-consistent misperceptions, partisan motivated reasoning appears to have limits. The influence of party identification might be conditional but scholars have not fully identified when partisanship affects false beliefs. The following sections argue that anxiety and anger moderate partisanship’s influence when citizens consider the veracity of misinformation.

**Anxiety and anger**

Despite sharing a negative valence, the emotions anxiety and anger exhibit several distinct qualities that should lead to different responses to misinformation. Emotions are “internal, mental states representing evaluative, valenced reactions to events, agents, or objects that vary in intensity … [t]hey are generally short-lived, intense, and directed at some external stimuli” (Nabi, 1999, p. 295). Emotions play a key role in how people interact with stimuli they encounter in their environment and different emotions are distinguished by unique goals and motivations, cognitive appraisals, and action tendencies (Frijda, 1986; Lazarus, 1991; Roseman, Wiest, & Swartz, 1994).
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Anxiety is an aversive and motivational state that occurs in response to threatening stimuli in one’s environment (Eysenck, Derakshan, Santos, & Calvo, 2007; Marcus, Neuman, & MacKuen, 2000). Anxiety is associated with uncertainty, a lack of personal control, and high levels of physiological arousal, all of which lead people to develop strategies to reduce such feelings (Eysenck et al., 2007). Anger is a negatively valenced emotion that is triggered when an individual’s goals are blocked, when one feels slighted, or when a perceived injustice or violation of standards has occurred (Carver & Harmon-Jones, 2009). Anger is associated with perceptions of certainty and individual control (Lerner & Keltner, 2001) and results in behaviors that seek restitution, often by causing harm to or punishing others (Carver & Harmon-Jones, 2009; Frijda, 1986).

Although anger and anxiety often co-occur and are not mutually exclusive, evidence demonstrates these emotions can result in divergent political outcomes (Huddy, Feldman, & Cassese, 2007; Lerner & Keltner, 2001). Anxiety increases political information seeking, learning, and deliberation, whereas anger depresses each and promotes close-mindedness (MacKuen et al., 2010; Redlawsk et al., 2010; Valentino, Hutchings, Banks, & Davis, 2008). Anger and anxiety are also associated with differences in support for various political policies. Anxiety (or fear) can increase support for conciliatory and precautionary policies whereas anger (or known threat) boosts punitive policy support (Goodall, Slater, & Myers, 2013; Nabi, 2003). These unique outcomes of anger and anxiety make it clear that conceptualizations of emotions need to move beyond positive or negative valence (Nabi, 2010).

Emotion and partisan bias

Politically motivated reasoning is thought to be “driven by automatic affective processes that establish the direction and strength of biases” (Taber & Lodge, 2006, p. 756) but the observed differences between anxiety and anger suggest not all affective responses, even those of the same valence, work in the same way. Evidence suggests the experience of anxiety can diminish the effects of motivated reasoning as people form political evaluations. According to the theory of Affective Intelligence, novel and uncertain political situations may trigger feelings of anxiety (Marcus et al., 2000). This anxiety motivates people to take action against that impending threat by more carefully considering each of the various alternatives at their disposal, even information that challenges existing attitudes. Because they pay closer attention to the information at hand and are more likely to weigh opposing viewpoints, the subsequent evaluations made by anxious individuals are less likely to be based on prior attitudes, partisanship, or ideology and are more heavily influenced by contemporary information (Brader, 2005; MacKuen et al., 2010; Marcus et al., 2000). For example, voters who were anxious about their preferred party’s candidate were more likely to reconsider their vote choice and pay closer attention to the candidates’ policy positions and personality characteristics, which at times resulted in an intention to vote against their party’s candidate (Marcus et al., 2011). Redlawsk et al. (2010) directly tested the hypothesis that anxiety is associated with a reduction in attitudinal bias by exposing
participants to large amounts of politically incongruent information. They find evidence of an “affective tipping point” in which encountering a high volume of negative information about a preferred political candidate was associated with increases in anxiety, which was subsequently related to more negative evaluations of the initially liked candidate. This evidence suggests that anxiety may attenuate partisan bias.

Conversely, anger may enhance the motivated reasoning process. Anger arises in response to aversive stimuli in the environment and in order to deal with this anger, people may become defensive, dismiss attitude-challenging information, seek information that supports their position, or rely more heavily on prior dispositions in their evaluations (MacKuen et al., 2010; Marcus et al., 2011). Angry individuals are also less likely to consider and learn from new information (Valentino et al., 2008).

Taken together, this prior work suggests that anxiety and anger should differentially interact with partisanship to affect beliefs, but many important questions remain. The current study builds on work by Redlawsk et al. (2010) and MacKuen et al. (2010) in several important ways. First, evidence of a causal effect of anger and anxiety on motivated reasoning has been elusive.2 Neither study directly manipulated these emotions, which prohibits clear tests about the differential effects of anxiety and anger in the motivated reasoning process (and Redlawsk et al. only examined anxiety). Second, emotions in these studies were generated by exposing participants to various amounts of information that either challenged or was consistent with their preferences. What is still unclear theoretically is whether general anxiety or anger about a political issue, independent of the type or volume of information exposure, can affect partisan processing. Third, the two studies did not test whether the effects of anxiety and anger extend to explicitly partisan motivations. The Redlawsk et al. study was limited to a primary election context and did not test for the effects of partisanship. Similarly, MacKuen et al. examined the effects of emotions on political bias in the context of a political policy and did not examine the role of partisan affiliation. The omission of partisanship in these studies is important in light of criticisms that emotions are often rationalizations of partisan preferences (Ladd & Lenz, 2008). Yet, research has frequently shown that the effects of emotions on political behavior are exogenous to or interactive with partisanship (see Brader, 2011) and the current study is designed to further test this possibility. Finally, while existing studies focus on how emotions may moderate the effect of political bias on information seeking and evaluations of political issues and candidates, the present study examines whether these emotions affect assessments of political facts, which may help explain some uncertainties regarding when partisan bias influences belief accuracy.

Anxiety, anger, and political misperceptions
People should respond to political misinformation quite differently when experiencing anxiety or anger. Anxiety should increase the likelihood that individuals carefully consider a wider range of viewpoints, even those they may disagree with, which should diminish the influence of partisanship and increase the impact of contemporary information in evaluation (MacKuen et al., 2010; Marcus et al., 2011;
Redlawsk et al., 2010). In the case of misinformation, this suggests that anxious individuals exposed to counterattitudinal corrections should more carefully weigh false claims versus facts, which should increase the corrections’ effectiveness. Specifically, when a correction is provided, anxious individuals exposed to misinformation from the in-party will hold more accurate beliefs than those in a neutral emotional state (H1a).

Although the influence of anxiety initially appears to be normatively beneficial for democracy because it may lead to more rational updating, there is also the possibility for adverse effects (Marcus, 2002). For instance, people primed to experience high levels of anxiety who were then exposed to an anti-free-speech message were significantly less tolerant politically compared to those who received a low anxiety prime (Marcus, Sullivan, Theiss-Morse, & Stevens, 2005). In the case of political misinformation, anxiety could make individuals more susceptible to uncorrected false claims that reflect negatively on their own party. Because they are less likely to be driven by partisan motivations, anxious citizens should pause and more carefully consider the nature of the misinformation when it conflicts with their party affiliation (Marcus et al., 2011). As a result, anxious individuals who receive uncorrected misinformation from the out-party will hold less accurate beliefs than those in a neutral emotional state (H1b).

Anger, however, should enhance the influence of partisanship on false beliefs. Anger makes people defensive and increases the likelihood that they ignore information that challenges their attitudes and pay closer attention to attitude-consistent information (Marcus et al., 2011). As a result, anger leads to evaluations that are based more heavily on existing dispositions, such as partisanship. MacKuen et al. (2010) found that angry individuals sought out more information that confirmed their prior attitudes, became resolute in those prior attitudes, and were less willing to compromise politically. Extending these findings to misperceptions, anger should result in less openness to new, attitude-challenging information contained in a fact-checking message and an unwillingness to hear the other side. Thus, anger should enhance the influence of partisanship on beliefs, as people will be more likely to fall in line with their political party when they are angry. As a result, angry citizens should be more susceptible to inaccurate claims endorsed by a member of their preferred political party and less likely to accept corrections that indicate their party’s claims are wrong. In particular, when a correction is provided, angry individuals exposed to misinformation from the in-party will hold less accurate beliefs than those in a neutral emotional condition (H2a). Also, angry individuals exposed to uncorrected misinformation from the in-party will hold less accurate beliefs than those in a neutral emotional state (H2b).

Method

An online, between-participants experiment tested these hypotheses. English-speaking adults over age 18 who live in the United States and have access to the Internet participated in the study (N = 768). The sampling firm Qualtrics recruited the sample using an opt-in panel, and the data were collected between 25 March and 2 April 2014. The sample was diverse in terms of age (M = 47.99, SD = 14.05),
gender (50% male), race (83.3% White, 8.5% Black, and 7% Hispanic), education (22.0% high school or less, 25.3% 4-year college degree, and 11.6% postgraduate), and political party affiliation (43.6% Democrat or leaning, 29.6% Republican or leaning, and 23.7% Independent).

**Procedure**
Qualtrics first sent panel members an email asking them to participate in the study. After providing consent, participants were randomly assigned to take at least 2 minutes to write something about either immigration reform or the death penalty (issue manipulation) that makes them either angry or anxious (emotion manipulation). Participants in a control condition wrote about something that makes them relaxed. Similar tasks have been used in prior research and allow for the independent induction of each emotion related to the target issue (Lerner & Keltner, 2001; Valentino, Brader, Groenendyk, Gregorowicz, & Hutchings, 2011). Although this writing task generates emotions somewhat artificially, in the real world people frequently use strong emotional language to express their opinions online (Papacharissi, 2012), and news organizations’ websites are filled with uncivil and emotional comments (Coe, Kenski, & Rains, 2014). The writing task is thus a reasonable representation of how people express themselves politically outside of the experiment. Immediately following the writing task, participants provided their current emotional state by reporting the extent to which they were experiencing a series of emotions.

Matching the issue they wrote about in the emotional induction, participants next read a news article attributed to the Associated Press that discussed how public misperceptions were circulating around the political debate on either immigration or the death penalty (see Appendix S1, Supporting Information, for sample stimuli). The articles were manipulated to contain either A) a series of four inaccurate and uncorrected claims (misinformation-only) about the issue, or B) the same claims as well as corrective information providing explicit evidence showing why the statements are false (correction). The two issues were used as a form of stimulus sampling, which improves construct and external validity (Wells & Windschitl, 1999). The political affiliation of the source of the original misinformation was also manipulated such that the inaccurate information was attributed to either Congressional Republicans or Democrats. The corrective information in the correction condition was attributed to a fictional independent fact-checking organization. The news articles were fictitious but were based on realistic presentations of misinformation in the media. Outside of the laboratory, the public can be exposed to misinformation presented without explicit corrections via news or political websites, blogs, and e-mail (Garrett, 2011; Weeks & Southwell, 2010), while news organizations and fact-checking organizations such as Fact-check.org often rebut political inaccuracies by presenting both the original claim and an evidence-based correction (Gottfried, Hardy, Winneg, & Jamieson, 2013). The claims were explicitly false and based on real misperceptions surrounding each issue. The factual statements used as corrections were created using evidence from reports by experts at governmental organizations and nonpartisan interest
groups. Immediately after reading their assigned news article, participants reported their beliefs in the claims presented in the article. The study concluded by assessing psychological individual differences and demographics.

**Measures**

**Emotion**

Dummy coded variables were created to represent the emotional induction conditions. Both the anger and anxiety conditions were coded high and the neutral control condition was used as the reference group. All models in the analysis use the induction condition dummy variables as predictors.

**Source of misinformation**

The source of the original misinformation was manipulated such that claims were attributed to either Congressional Republicans or Democrats. A dichotomous variable was created to represent whether the source of the misinformation was from the political party participants supported or opposed. If, for example, a self-reported Republican (or leaning) saw an article in which the false claims were attributed to Congressional Republicans, that combination would be coded as “in-party.” If a Democrat saw that same article that combination would be coded as “out-party.” This resulted in a dichotomous variable in which 287 participants read an article attributing the misinformation to the out-party, while 275 participants saw claims stemming from members of their in-party (coded high). This coding excludes true Independents who did not lean toward one party, participants associated with a third party, or those who did not respond to the political affiliation question.

**Correction**

The presence of a correction (coded high) was manipulated such that inaccurate claims were presented either with or without evidence indicating the claims were not true.

**Political knowledge**

Political knowledge is often associated with political misperceptions and was included as a control in the models (Nyhan & Reifler, 2010). Political knowledge was measured using questions about the current make-up of Congress, the party of the President who appointed the current Chief Justice of the Supreme Court, the current unemployment rate, and the current U.S. Secretary of State. The items were summed, creating a range of possible scores from 0 to 4 ($\alpha = .65$, $M = 2.00$, $SD = 1.37$).

**Belief in false claims**

Belief accuracy was the dependent variable and was measured by asking participants to report the extent to which they believed each of the four claims they read to be true or false. Participants were asked: “The article you just read made several claims about immigration (the death penalty). What do you think about the accuracy of these statements? For each statement listed below, please tell us if you
think it is definitely true, probably true, probably false, definitely false or you are unsure?"

Participants who read the immigration article were asked to report their belief in the following false claims: (a) Illegal immigrants are able to receive government welfare benefits like food stamps and housing benefits; (b) The majority of immigrants do not learn to speak English; (c) Immigrants are more likely to become criminals than native born citizens; and (d) Proposed legislation will allow any current illegal immigrant to become a citizen.

Participants who read the death penalty article reported their belief in four separate claims: (a) The number of inmates executed in the United States is growing; (b) Minorities are more likely to be executed than Whites; (c) It is legal to execute juveniles in the United States; and (d) Public support for the death penalty has increased in recent years.

Prior to analyses, responses were recoded so that the “unsure” response was located at the midpoint of the revised 5-point scale. Higher values on the scale represent greater accuracy in assessing these false claims. On average, participants’ perceptions of the four immigration claims were not very accurate, as the mean was at the midpoint of the 5-point scale (four items averaged scale, \( \alpha = .75, M = 2.99, SD = 1.06 \)). Beliefs about the death penalty claims were more accurate, as the mean fell between the “unsure” and “probably false” response options (four items averaged scale, \( \alpha = .74, M = 3.19, SD = 1.07 \)). A t-test confirmed that beliefs about the death penalty were significantly more accurate than those about immigration, \( t(766) = 2.52, p < .05 \). The issues were combined for analyses (\( M = 3.09, SD = 1.07 \)) but the issue variable served as a control throughout.

Although these scaled items are used to test the hypotheses, converting the belief items into dichotomous measures of accuracy helps illustrate the distribution of correct responses. All four claims about both issues were false, so participants who responded “probably false” or “definitely false” were credited with providing the correct or accurate response. Across the entire sample, participants provided the correct response to just under half of the four claims (range 0 to 4; \( M = 1.89, SD = 1.39 \)). Table 1 displays the percentage of participants with correct beliefs by condition, as well as the mean number of correct responses in each condition. Across the entire sample, one in five participants (20.8%) did not provide a correct response to any of the four claims, while 17.1% were accurate in assessing all claims.

Results

Emotion induction check

An induction check demonstrates the writing task generated the intended emotional response. Emotional responses were assessed on a scale from 1 (very slightly or not at all) to 5 (extremely) and randomly presented items were used to measure anger (angry, outraged, and disgusted; \( \alpha = .90, M = 1.83, SD = 1.08 \)), anxiety (anxious, afraid, and nervous; \( \alpha = .84, M = 1.83, SD = 0.93 \)), and enthusiasm (enthusiastic,
## Table 1 Percentage of Participants With Correct Beliefs by Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Mean Number Correct (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emotion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger</td>
<td>19.1</td>
<td>25.2</td>
<td>18.8</td>
<td>18.8</td>
<td>18.2</td>
<td>1.94 (1.40)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>22.5</td>
<td>20.7</td>
<td>25.3</td>
<td>16.5</td>
<td>15.1</td>
<td>1.91 (1.34)</td>
</tr>
<tr>
<td>Neutral</td>
<td>21.4</td>
<td>19.6</td>
<td>17.3</td>
<td>23.8</td>
<td>17.9</td>
<td>2.06 (1.42)</td>
</tr>
<tr>
<td><strong>Party of source</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-party</td>
<td>21.8</td>
<td>23.3</td>
<td>18.9</td>
<td>18.5</td>
<td>17.5</td>
<td>1.87 (1.41)</td>
</tr>
<tr>
<td>Out-party</td>
<td>16.7</td>
<td>20.6</td>
<td>23.0</td>
<td>20.6</td>
<td>19.2</td>
<td>2.04 (1.36)</td>
</tr>
<tr>
<td><strong>Information environment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Misinformation only</td>
<td>29.4</td>
<td>26.0</td>
<td>24.5</td>
<td>14.5</td>
<td>5.6</td>
<td>1.50 (1.22)</td>
</tr>
<tr>
<td>Correction</td>
<td>11.1</td>
<td>18.1</td>
<td>16.7</td>
<td>24.2</td>
<td>30.0</td>
<td>2.45 (1.38)</td>
</tr>
<tr>
<td><strong>Issue</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immigration</td>
<td>23.8</td>
<td>23.3</td>
<td>20.2</td>
<td>17.9</td>
<td>14.8</td>
<td>1.75 (1.40)</td>
</tr>
<tr>
<td>Death penalty</td>
<td>17.8</td>
<td>21.2</td>
<td>21.5</td>
<td>20.2</td>
<td>19.4</td>
<td>2.16 (1.34)</td>
</tr>
<tr>
<td>Entire sample</td>
<td>20.8</td>
<td>22.3</td>
<td>20.8</td>
<td>19.0</td>
<td>17.1</td>
<td>1.89 (1.39)</td>
</tr>
</tbody>
</table>

**Note:** Beliefs were collapsed into a dichotomous measure and considered accurate if respondent reported that the false claim was “probably” or “definitely” false.

*hopeful, and proud; α = .84, M = 2.69, SD = 1.14*). Anger and anxiety were positively correlated, \( r = .56, p < .001 \), while anger and enthusiasm were negatively correlated \( r = -.06, p < .10 \) [two-tailed]. Anxiety and enthusiasm were positively correlated \( r = .12, p = .001 \).

Participants asked to write something that made them angry reported more anger \( M = 2.10, SD = 1.17 \) than participants in the anxiety \( M = 1.78, SD = 1.06 \) or neutral conditions \( M = 1.42, SD = 0.75 \), \( F(2,764) = 23.61, p < .001 \). The difference in anger between the anger and anxiety conditions was also significant, \( t(597) = 3.50, p < .001 \). Participants who wrote about what made them anxious reported more anxiety \( M = 1.95, SD = 1.00 \) than participants in the anger \( M = 1.78, SD = 0.88 \) or neutral conditions \( M = 1.71, SD = 0.89 \), \( F(2,764) = 4.04, p < .05 \). A direct comparison of anxiety between the anxious and angry conditions was significant, \( t(597) = 2.15, p < .05 \). Finally, those in the anxiety condition felt more anxiety than anger, \( t(284) = 3.23, p < .001 \), while participants in the anger condition experienced greater anger than anxiety, \( t(313) = 5.35, p < .001 \).

**Statistical analyses**

Although main effects of the experimental conditions were not hypothesized, the result of an ordinary least squares regression predicting belief accuracy without the interaction terms is reported (Table 2, Model 1). The hypotheses were tested using two separate “moderated moderation” regression models, also known as three-way
Table 2 Effects of Anxiety and Anger, Partisanship, and Corrections on Belief

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>-.14 (.11)</td>
<td>-.42 (.19)*</td>
<td>-.15 (.11)</td>
</tr>
<tr>
<td>Anger</td>
<td>-.09 (.11)</td>
<td>-.09 (.11)</td>
<td>.26 (.18)</td>
</tr>
<tr>
<td>Correction (coded high)</td>
<td>.78 (.08)***</td>
<td>.70 (.15)***</td>
<td>.98 (.15)***</td>
</tr>
<tr>
<td>In-party (coded high)</td>
<td>-.13 (.08)</td>
<td>-.35 (.15)*</td>
<td>.15 (.15)</td>
</tr>
<tr>
<td>Anxiety × In-party</td>
<td>—</td>
<td>.63 (.24)**</td>
<td>—</td>
</tr>
<tr>
<td>Anxiety × Correction</td>
<td>—</td>
<td>.27 (.24)</td>
<td>—</td>
</tr>
<tr>
<td>Correction × In-party</td>
<td>—</td>
<td>.23 (.21)</td>
<td>—</td>
</tr>
<tr>
<td>Anxiety × Correction × In-party</td>
<td>—</td>
<td>-.71 (.35)*</td>
<td>—</td>
</tr>
<tr>
<td>Anger × In-party</td>
<td>—</td>
<td>—</td>
<td>-.64 (.23)**</td>
</tr>
<tr>
<td>Anger × Correction</td>
<td>—</td>
<td>—</td>
<td>-.45 (.24)*</td>
</tr>
<tr>
<td>Anger × Correction × In-party</td>
<td>—</td>
<td>—</td>
<td>.79 (.34)*</td>
</tr>
<tr>
<td>Issue (death penalty coded high)</td>
<td>.27 (.08)**</td>
<td>.27 (.08)**</td>
<td>.27 (.08)**</td>
</tr>
<tr>
<td>Political knowledge</td>
<td>.15 (.03)***</td>
<td>.15 (.03)***</td>
<td>.15 (.03)***</td>
</tr>
<tr>
<td>Constant</td>
<td>2.18 (.18)***</td>
<td>2.25 (.19)***</td>
<td>2.02 (.20)***</td>
</tr>
<tr>
<td>Observations</td>
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<td>561</td>
<td>561</td>
</tr>
<tr>
<td>F (df)</td>
<td>20.46 (6, 554)</td>
<td>13.07 (10, 550)***</td>
<td>13.16 (10, 550)***</td>
</tr>
<tr>
<td>R²</td>
<td>.18</td>
<td>.192</td>
<td>.193</td>
</tr>
</tbody>
</table>

Notes: Unstandardized regression coefficients reported. Standard error is listed in parentheses. p-values are two-tailed.

* p < .10.  ** p < .05.  *** p < .01.  **** p < .001.

interactions (Hayes, 2013). The first model tested the hypotheses about anxiety, while the second examined predictions related to anger. The hypotheses make different predictions about the interactive effects of emotions and partisanship on belief accuracy depending on the information environment and the three-way interaction models allow for such tests. Table 2 (Models 2 and 3) illustrates that the three-way interaction between the emotion, partisan source, and correction variables is significant in both the model for anxiety, $b = -.71 (.35)$, $p = .04$ (two-tailed) and anger, $b = .79 (.34)$, $p = .02$ (two-tailed). These significant coefficients indicate that the extent to which the two emotions and partisanship interact to affect beliefs is contingent on the presence of a correction. What the coefficients do not indicate, however, is the precise nature of these interactions. In order to examine these conditional effects and test the specific hypotheses posed in this study, these significant interactions were further probed using PROCESS (Hayes, 2013, p. 307). Probing the interactions allows for direct comparisons of the hypothesized group differences. PROCESS provides inferential tests that explain the nature of the emotion × partisan source interactions in both the misinformation-only and correction conditions. In reporting the results of the hypotheses tests below I focus on the coefficients for these inferential tests (which in this case signify adjusted mean differences between groups) as well as the estimated marginal means for the groups being compared.
Tests of main effects
The coefficients reported in Table 2 (Model 1) indicate there were no main effects of the anger or anxiety conditions on participants’ beliefs ($p$s > .20). The coefficient for the variable representing partisanship was negative, $b = -1.13$ ($0.08$), suggesting that participants who received misinformation from the in-party held less accurate beliefs than those who received the same information from the out-party. However, this effect was not significant ($p = .11$) and cannot be taken as strong evidence regarding the direct influence of partisanship. The lack of main effects suggests that emotions and the partisan source of the information alone did not significantly affect belief accuracy. There were main effects of the issue (beliefs about the death penalty were more accurate) and correction manipulations, as participants who received corrective information held significantly more accurate beliefs than those who received only the misinformation. The coefficient for the correction variable suggests that all things equal, receiving a correction was estimated to improve belief accuracy by .78 units ($t = 9.29$, $p < .001$). In addition, the control variable political knowledge was positively related to belief accuracy, $b = .15$, $p < .001$.

Hypotheses tests
H1a predicted that when a correction is available, anxious individuals exposed to misinformation from the in-party hold more accurate beliefs than those in the neutral condition. In other words, corrections that challenge one’s partisan loyalties are more effective when anxiety is present. This hypothesis was tested by examining the coefficient for the anxiety $\times$ partisan source interaction within the correction condition. The coefficient was not significant, $b = -0.08$ ($0.25$), $t = -0.33$, $p = .75$, indicating that anxiety and the partisan source do not interact to affect beliefs in the correction condition. Exploring this nonsignificant interaction further illustrates that false claims attributed to the in-party were no more likely to be rejected in the anxiety condition ($M = 3.29$, $SE = 0.15$) than in the neutral condition ($M = 3.52$, $SE = 0.12$) when a correction was available, $b = -0.23$ ($0.20$), $t = -1.18$, $p = .24$ (see in-party, right half of Figure 1). Thus, H1a is not confirmed.

H1b posited that when misinformation goes uncorrected, anxious individuals who receive false claims from the out-party will hold less accurate beliefs than those in the neutral condition. In the misinformation-only condition, the interaction between the anxiety and partisan source variables is positive and significant, $b = 0.63$ ($0.24$), $t = 2.61$, $p = .009$ (two-tailed). Probing this interaction indicates that beliefs of anxious individuals who were exposed to uncorrected misinformation attributed to the out-party ($M = 2.52$, $SE = 0.15$) were significantly less accurate than those in the neutral condition ($M = 2.94$, $SE = 0.11$), $b = -0.42$ ($0.19$), $t = -2.25$, $p = .02$ (two-tailed) (see out-party, left half of Figure 1). H1b is therefore supported as anxiety (compared to neutral emotional state) reduced belief accuracy when evaluating uncorrected misinformation stemming from the out-party.

H2a predicted that when a correction is available, beliefs of angry individuals exposed to misinformation from the in-party will be less accurate than those in...
Belief Accuracy

In-Party Misinformation Only Out-Party

Correction Out-Party Neutral Anxiety

Figure 1 Predicted belief accuracy by experimental condition and anxiety induction. Notes: Bars represent estimated marginal means by condition, after controlling for issue, the anger condition, and political knowledge. Belief is measured on a 1–5 scale with higher scores corresponding to more accuracy. Error bars denote standard error.

a neutral emotional state. This hypothesis is tested by focusing on the interaction between the anger dummy and partisan source variables within the correction condition. The nonsignificant coefficient for this interaction demonstrates that the influence of anger and partisanship are not dependent on one another in the correction condition, $b = .15 (.25), t = .60, p = .55$. Additional assessments of the data further indicate that when a correction is presented, false claims from the in-party are no more likely to be believed when participants are angry ($M = 3.41, SE = .15$) than when they are in a neutral emotional state ($M = 3.46, SE = .12$), $b = -.04 (.19), t = -.23, p = .82$ (see in-party, right half of Figure 2). As a result, H2a is not supported.

H2b predicted that when misinformation is not corrected, angry individuals who receive false claims from the in-party will hold less accurate beliefs than individuals in a neutral emotional state. In the misinformation only condition, the interaction between the anger and partisan source variables is negative and significant, $b = -.64 (.23), t = -2.73, p = .01$ (two-tailed), suggesting that anger enhances the effect of partisanship on belief. Probing the interaction revealed that belief accuracy for angry participants exposed to uncorrected misinformation from the in-party ($M = 2.45, SE = .13$) was significantly lower than those in the neutral condition ($M = 2.83, SE = .11$), $b = -.38 (.18), t = -2.14, p = .03$ (two-tailed) (see in-party, left half of Figure 2). The findings therefore support H2b; anger reduced belief accuracy when evaluating uncorrected, party-consistent misinformation.

Discussion

Emotions play an important role in how people respond to uncorrected political misinformation. This study provides causal evidence that the independent experience
Belief Accuracy

<table>
<thead>
<tr>
<th></th>
<th>In-Party</th>
<th>Out-Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misinformation Only</td>
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<td><img src="anger" alt="Anger" /></td>
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<td>Correction</td>
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![Figure 2](image)

**Figure 2** Predicted belief accuracy by experimental condition and anger induction.

**Notes:** Bars represent estimated marginal means by condition, after controlling for issue, the anxiety condition, and political knowledge. Belief is measured on a 1–5 scale with higher scores corresponding to more accuracy. Error bars denote standard error.

of anger and anxiety at times has different consequences for political misperceptions by heightening or dampening the influence of partisanship. When initially faced with inaccurate claims about politics, angry people are more likely to process the information in a partisan manner, which results in beliefs that reinforce their party affiliation. In contrast, anxiety reduces the reliance on partisanship at this initial stage and leads to beliefs that are consistent with information contained in the message. In this study political misperceptions appear to stem not from partisanship alone, but rather from an interaction between emotions, party identification, and the information environment.

Relying extensively on the theory of partisan motivated reasoning, previous research has shown that partisanship is related to inaccurate political beliefs (Nyhan & Reifler, 2010; Weeks & Garrett, 2014). However, to date this work has not fully illustrated when party affiliation impacts misperceptions. The current study provides one explanation. The results here suggest that the partisan motivated reasoning process may be facilitated by anger rather than anxiety or general negative affect, as anger resulted in initial beliefs that were consistent with party identification. This raises the possibility that the “automatic affective processes” that are thought to lead to biased processing of information might be limited to the discrete emotion anger rather than other negative emotions or general negative affect (Taber & Lodge, 2006, p. 756). It may be that political attitudes alone are not enough to drive partisan processing of misinformation, but rather attitudes that are tied to anger or resentment. We know there are limits to partisan motivated reasoning (Druckman, 2012; MacKuen et al., 2010; Redlawsk et al., 2010), and people do not necessarily believe derogatory claims about the other side simply *because* they are Republican or Democrat. Rather, the combination of anger and partisanship might be what leaves them misinformed. This
process could help explain why many Republicans believe false information about Barack Obama. For example, 64% of Republicans said it was “probably true” that Obama was hiding information about his birthplace in 2013 (Cassino, 2013), which roughly coincides with the percentage of Republicans (58%) who expressed anger at Obama during that time period (Steinhauser, 2013). The interaction of anger and partisanship to facilitate belief in uncorrected misinformation is especially troubling given that anger also depresses information seeking and increases selective exposure (MacKuen et al., 2010; Valentino et al., 2008). Anger therefore has the potential to create media diets in which people are primarily exposed to like-minded messages, which may further enhance anger directed at political opponents (Slater, 2007). It will be important for future research to examine the potential reinforcing and dynamic influence of anger.

The effects of anxiety provide a theoretical explanation for why people occasionally believe misinformation that is inconsistent with their partisan affiliation (e.g., Democrats who believe Obama was not born in the United States). Anxious participants (vs. neutral) who only received misinformation saw a significant decrease in belief accuracy when exposed to inaccurate information stemming from the out-party. Partisan motivated reasoning would suggest these individuals should reject this misinformation because it challenges their partisanship. Yet that is not what happened. Insights from Affective Intelligence theory help us understand why this seemingly counterintuitive result should actually be expected. Recall anxiety arises out of novel political circumstances and depresses the role of prior attitudes and increases the influence of contemporary information in evaluations (MacKuen et al., 2010; Redlawsk et al., 2010). In the present research, consider Democrats asked to write something that makes them anxious about immigration reform. This experienced anxiety may have signaled that something is wrong with their position or their party’s stance, which should increase the willingness to consider the information at hand (Marcus et al., 2011). When these Democrats are subsequently presented with misinformation originating from the Republican Party they do not automatically process this information in a partisan way. Instead, their beliefs are influenced more by the content of the message. They are more likely to pay closer attention to what the out-party has to say and, when corrective information is not available, have a higher probability of being misinformed. Although anxiety has typically been discussed as an emotion that facilitates democratic thinking and open-mindedness, this suggests a paradox of anxiety. That is, anxiety promotes critical thinking and learning about politics, but it may backfire if the information considered is inaccurate or misleading (Marcus, 2002).

This study does provide reasons to be hopeful about the nature of political misperceptions. Corrections to misinformation were effective, even in the face of emotional experiences and partisan motivations. Whether corrections are effective has been a primary question driving misperception research and the results of prior work are mixed. How are these conflicting findings to be reconciled? First, corrections to attitude-consistent beliefs can be effective as long as they don’t require a change in attitude (Ecker, Lewandowsky, Fenton, & Martin, 2014). The claims in this study are
likely not a critical component of people’s partisan identity, so admitting they are false after seeing strong, corrective evidence did not require people to change their feelings about their political party. In this case, the corrections may update beliefs but attitudes toward the political party remain unchanged. Second, the corrections might have been successful here due to a “tipping point.” Even strong partisan motivated reasoners are willing to give up on their position when exposed to an abundance of information telling them they are wrong (Redlawsk et al., 2010). Given that the corrections provided strong arguments for why each of the claims was false, it is possible that even angry participants for whom the corrections were inconsistent with their partisanship could no longer engage in motivated processing. This may also help explain why some prior experimental research has failed to find corrective effects for counterattitudinal misperceptions. In many of those studies, the correction comes in the form of a brief passage embedded in a news article (e.g., Nyhan & Reifler, 2010) or a subtle identification of the misinformation (Garrett & Weeks, 2013), which may not offer enough contradictory evidence to reach a tipping point. While both of these possibilities are plausible, it will be critical for future research to further outline the conditions and processes related to successful corrective messages.

The study’s experimental design provides the opportunity to examine causal factors that influence misperceptions but it also creates some limitations. Notably, the results reported here are based on a single experiment, making replication essential. The controlled design using a large, politically and demographically diverse sample, as well as the use of stimuli sampling, suggest the findings are not limited to a single political issue or particular subgroup but future research should examine these effects in different contexts.

A strength of this study is that it provides a causal tests of the unique effects of anxiety and anger on partisan bias. However, the benefits of this design come with some drawbacks. The emotional inductions did not direct participants to write about a particular partisan target of their emotion related to the issue. It is possible that participants in the anxiety condition noted something about the out-party’s stance on the issue that made them anxious. This may have limited the study’s ability to find effects in the correction condition, given that anxiety about one’s own party or position on an issue, not the opposition’s, attenuates bias (Marcus et al., 2011). This limitation is a tradeoff that was necessary to test the possibility that these emotions uniquely affect partisan motivated reasoning. Some scholars argue that emotions are often the result of preexisting political attitudes (Ladd & Lenz, 2008), so a stringent test of the theory required that anger and anxiety be induced without any explicit partisan cues. In addition, there was concern that directing attention to partisan considerations about these issues would have inflated anger in the anxiety condition, thus preventing a clean test of the distinct effects of each emotion. So although the writing task comes with disadvantages, it was necessary to isolate the effects of anger and anxiety from each other, as well as from partisanship.

The emotion induction raises another notable limitation. Participants in the neutral condition were not asked to write about immigration or the death penalty, which
creates the possibility that mere salience of the issue, not the experience of emotions, affected the results. It is also possible that the emotional inductions created negative thoughts about the issue, which directly affected belief accuracy. However, the evidence suggests this threat is limited as there was no main effect of emotion on belief, indicating that the induction task alone did not affect perceptions. In addition, the differential interactive effects of anxiety and anger are consistent with theory and demonstrate that the unique experience of these emotions, not simply writing about the issue, influenced what people believe.

Another limitation involves the false claims used. The misinformation here was not widely known and did not receive media attention prior to fielding the study. It is possible the effects observed here might be different with long-standing misperceptions that have been in the public sphere for years. Studies attempting to correct well-known misperceptions have shown the task to be more difficult (e.g., Nyhan & Reifler, 2010) and the format of the corrections used here may work differently with prominent misperceptions in the real world.

Despite these limitations, this study offers a unique theoretical contribution to the study of political misperceptions. Using a highly controlled experimental design, this research directly addresses the question of why people hold political misperceptions by providing causal evidence that two negative emotions—anxiety and anger—uniquely work in connection with other factors to influence people’s responses to inaccurate information. It is clear from this work that political beliefs are formed not by a single consideration but rather by a set of interacting influences including emotion, partisanship, and the information environment. Examining how these components work together—not in isolation—will better serve us as we seek to understand the problem of political misperceptions.

**Acknowledgments**

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**Notes**

1 Redlawsk, Tolbert, & McNeely (2014) find fear exacerbated effects of symbolic racism on evaluations of Obama and a similar mechanism may exist with Democrats’ misperceptions about Obama.

2 Brader (2005) demonstrated experimentally that anxiety can alter candidate preferences. However, his study was not directly interested in emotions’ effects on partisan motivated reasoning, nor did he examine the effects of anger.
3 Some evidence indicates that survey responses to factual questions do not always represent true beliefs, but rather are expressions of partisan loyalty (e.g. Bullock, Gerber, Hill, & Huber, 2013; Prior, Sood, & Khanna, 2013). Although this suggests that partisan differences in factual perceptions may be overstated, research indicates that self-reported misperceptions, whether true beliefs or not, can independently affect democratic outcomes such as support for political policies (Kuklinski et al., 2000) and vote choice (Weeks & Garrett, 2014).

4 The study does not take into account participants’ prior knowledge on these issues, which could affect belief accuracy. For example, being knowledgeable about these issues should improve accuracy, and it is possible that participants who reported accurate beliefs did so because they knew the right answer from the start and not because the corrections were effective. However, given that the experimental design incorporated random assignment, any bias generated from prior knowledge should be evenly distributed throughout the sample.

5 It is possible that respondents would not believe scenarios in which Democrats spread misinformation about immigration or Republicans promote false claims about the death penalty, given each party’s general position on those issues. Two analyses of variance (controlling for the emotion and correction conditions and political knowledge) demonstrate a main effect of participants’ political affiliation, as Republicans held less accurate beliefs than Democrats about immigration ($F(1,270) = 6.62, p = .01$), while Democrats were less accurate than Republicans about the death penalty ($F(1,275) = 4.52, p = .03$). However there was no main effect of the political party of the source of the misinformation on belief for either immigration ($F(1,270) = 1.44, p = .23$) or the death penalty ($F(1,275) = 1.33, p = .25$). More importantly, there was no interaction between the participants’ party affiliation and the partisan source of the misinformation for either issue (immigration: $F(1,270) = 2.38, p = .12$; death penalty: $F(1,275) = 2.28, p = .13$). This indicates that neither Republicans’ nor Democrats’ beliefs about these issues depended on the political party attributed as the source of the misinformation.

References


Supporting Information

Additional supporting information may be found in the online version of this article:

Appendix S1. (a) Misperceptions about immigration make reform harder. (b) Misperceptions about the death penalty cloud debate.