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# Physiological Politics: Stress and Dominance Responses to Political News

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Physiological Politics:  
Stress and Dominance Responses to Political News

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Physiological Politics:  
Stress and Dominance Responses to Political News

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## **Physiological Politics: Stress and Dominance Responses to Political News**

Engagement in a political argument involves the mind and body: it is a psychological and physiological experience. There can be anger, enthusiasm, and depression, as well as potentially physiological stress and dominance responses. Political arguments can occur in face-to-face interactions, but they may also be imagined arguments with political commentators. The Fox News and MSNBC networks use a style of opinion-based news reporting that seems particularly conducive to this imagined viewer participation. Fox News represents the conservative side of the political fight, whereas MSNBC opines with a liberal point of view. A liberal viewer catching up on the day's news on the Fox News channel is likely to be exposed to proclamations of Republican successes and attacks on Democratic people and ideas. A conservative viewer watching MSNBC would encounter similar treatment.

I theorize that watching television in this case is not a passive act; the viewer is brought into a political competition that is controlled by the program host. Ideological allies are expected to benefit from the host's framing and experience positive affect. On the other hand, ideological opponents are expected to experience negative affect. But there is also the hierarchical frame to consider; the host places their allies on top and denigrates the other side. I compare this situation to the literature on social defeat stress and dominance responses. Thought of in this way, watching the news is expected to lead to the associated physiological changes of stress and dominance. In this study Fox News and MSNBC are used to explore changes in emotional state and hormonal markers, cortisol and testosterone, in response to ideologically biased opinion television. I also examine whether political partisans react in different ways to the news clips they are asked to watch.

## **Political News**

Citizens who wish to stay informed about their government and society have a wide variety of news sources to choose from. There are talk radio stations, newspapers, online newspapers, blogs, podcasts, nightly news television, cable news – each with a range of political view points and its own unique presentation style. Each night in 2011, 2.9 million viewers chose to tune into the number one rating cable news program, The O’Reilly Factor, and 853,000 viewers watched The Ed Show (note this gap is typical of the stations: the top rated MSNBC show had only 983,000 viewers in 2011). The choice matters since viewing political media has been shown to result in changed political attitudes (Krosnick & Kinder, 1990; Sears & Kosterman, 1994), and political knowledge (Iyengar & Kinder, 1987; Prior, 2005). Political media may also influence the viewer in physiological ways. Studying this physiological change is important for a number of reasons. First, the changes, if experienced chronically, could affect future well-being of the viewer. Second, physiological changes suggest mediating mechanisms for the previously studied cognitive changes. Finally, physiological changes might mediate behavioral responses to media not presently accounted for by known cognitive changes (e.g., media exposure effects; see Stroud 2011). These possibilities are beyond the scope of the current project, but they are important avenues for future research.

## **The Physiological Stress Response**

A considerable body of research indicates that psychological stress leads to activation of the Hypothalamic–Pituitary–Adrenal (HPA) axis, which can be detected through measurement of its final product, cortisol secretions. For instance, cortisol has been shown to spike in response to academic stressors (Kahn et al., 1992), the pressure of public speaking (Basset, Marshall, & Spillane, 1987) and a range of stressful laboratory tasks (Roy, 2004). Elevated levels of

corticosteroids occur naturally as part of the “fight or flight” response to episodic stressors, with just 15 minutes of stress being capable of stimulating cortisol release that can be measured in body fluids and the cortisol response being greatest 20 to 30 minutes after the onset of stress (Dickerson & Kemeny, 2004; Kirschbaum et al., 1993). The HPA axis, as discussed below, is not the only effect of stress on the body, but it does produce an easily measurable marker.

Cortisol is a steroid hormone that binds to glucocorticoid receptors. It is released when the HPA axis is activated. The first step in this process is the excitation of the hypothalamus and release of CRH (corticotropin-releasing hormone; sometimes referred to in the literature as corticotropin-releasing factor or CRF). This CRH signal stimulates the anterior pituitary to send ACTH (adrenocorticotrophic hormone) into the bloodstream which is then picked up by the adrenal cortex, stimulating cortisol production. This cycle continues until the glucocorticoid receptors in the hypothalamus or anterior pituitary detect an adequate level of cortisol in the blood. As a steroid hormone, cortisol has a relatively slow onset but a long duration of influence. This long duration is due to the hormone being able to permeate the cell body and influence the transcription of future proteins. Other effects of stress with quick onset but short duration are dopamine (DA) and norepinephrine (NE) release in the prefrontal cortex, and the activation of the sympathetic nervous system through the Sympatho-Adrenal axis. In the Sympatho-Adrenal axis a signal is sent down a splanchnic nerve to innervate the adrenal medulla, where epinephrine (EPI) is produced and released into the blood stream.

The acute effects of stress are adaptive. The body releases stored glucose and creates additional glucose, increasing the amount of available energy. The glucose energy is quickly distributed throughout the body by elevating heart rate, blood pressure, and breathing rate. Energy consumption is also diverted from non-essential activities by slowing digestion, and

decreasing the production of proteins and the T and B lymphocytes of the immune system. This increase in metabolic output helps solve immediate problems; however, chronically experienced stress can result in decreased immune function, muscle fatigue, lower dopamine and norepinephrine levels, and heightened risk of coronary disease and depression (Cohen & Herbert, 1996; Kemeny & Schedlowki, 2007; Mangiavacchi et al., 2001; McEwen et al., 1997; Shimamoto et al, 2011).

In the realm of politics, Presidential elections are known to influence cortisol secretion. Stanton and colleagues (2009) examined whether voter participation in the 2008 Presidential election might create physiological responses associated with winning versus losing. Their study tracked salivary cortisol levels of two samples of voters during Election Night, one in Michigan and the other in North Carolina. In the North Carolina sample, McCain voters showed increases in cortisol levels after hearing about the Obama victory, whereas the Obama voters showed stable cortisol levels. These researchers also found that cortisol spikes in the North Carolina sample were predicted by participants' tendency to endorse right-wing authoritarian values. This latter finding suggests that those with the most conservative opposition to Obama in North Carolina had the strongest stress response to Obama's victory. Although the North Carolina effects did not replicate in the Michigan sample (a difference the authors speculated might have occurred because a loss in the "red turned blue" state of North Carolina was harder on conservative voters), these findings offered preliminary evidence that voters at times react to Presidential contests with a physiological response that is comparable to how other mammals react in nature to a win or loss in "dominance contests" (Wilson, 1975). This social defeat stress is related to the dominance response, which will be discussed.

Cortisol response to the 2008 election was also examined with respect to political media (Blanton, Strauts & Perez, in press). At the conservative Texas A&M University, participants were asked to read an article either from the travel section of the newspaper, or about Democrat Barack Obama winning the Presidency. The election condition, as expected, showed post experiment cortisol levels higher than the travel condition. For those reading about the election, higher identification with the Republican Party was related to increased cortisol response, whereas no effect of identification was found among those reading the travel section.

The current project differs from the earlier studies by Blanton, Strauts and Perez (in press) and Stanton et al. (2009) in that it does not investigate the influence of a one-time, historic event (a specific Presidential election). Rather, it investigates the response of partisans to the ongoing fight between Republicans and Democrats. Although the partisan fighting is ubiquitous in American politics, the literature on media selection finds that partisans tend to choose news sources that agree with their own viewpoint (Stroud, 2011). Partisans might then be poorly defended against the stress of opposing views on occasions when they are forced to encounter them. I thus predict the same pattern of stress in the opposition party when a news host succeeds in framing the coverage to benefit their political party.

### **The Physiological Dominance Response**

Watching a political argument may induce feelings of aggression and dominance instead of stress. Competition is at the core of politics. “Who gets what, when, and how” is one of the most widely used definitions of politics (Lasswell, 1950) and referencing the wielding of power is another common way to define politics (e.g. “constrained use of social power”; Goodin & Klingemann, 1998). Both these definitions imply that politics is a constantly evolving

competition over resources. Testosterone is a good measure of this experience; it is the primary marker of dominance and subordination, and it changes around competitive events.

The primary way in which such mechanisms have been conceptualized in the psychological literature involve what has been termed the *challenge hypothesis*. Applied to human competition, this hypothesis predicts an increase in testosterone in anticipation of a competition, during a competition, and either a further increase after a competition if the person was victorious or a decrease if the person was defeated (Archer, 2006). The challenge hypothesis has been supported in a variety of domains including fans of sporting events (Bernhardt, 1998), presidential election results (Markey & Markey, 2010; Stanton et al, 2009), chess tournaments (Mazur, Booth & Jabbs, 1992), and vocabulary tests (van Anders, 2007). These domains have notable parallels to political opinion news. Sporting events are vicarious challenges where the viewer is not directly playing the sport but is rooting for a particular side. Chess tournaments and vocabulary tests involve competition that does not have a physical element. Political opinion news involves both vicarious and non-physical competition, in which the allies of the news host are framed as winners of the political competition presented, whereas members of the opposition party are framed as losers. The current project is meant to shed light on whether this hierarchical difference provokes a dominance response in allies and social defeat response in the opposition.

The marker of the challenge response, testosterone, is a steroid hormone that binds to androgen receptors. It is released when the Hypothalamic-Pituitary-Gonadal (HPG) axis is activated. The HPG axis begins with the release of GnRH (gonadotropin-releasing hormone) by the hypothalamus into the bloodstream of the anterior pituitary, which in turn releases LH (luteinizing hormone) and FSH (follicular stimulating hormone) into the body's bloodstream. This

signal is picked up by the gonads which create testosterone and estrogen for release into the bloodstream.

Basal testosterone levels have been conceptualized as influencing and being influenced by dominance behaviors (Archer, 2006; Mazur & Booth, 1998). These behaviors could be direct displays of aggression, such as using fists or yelling, or passive aggressive acts, such as talking negatively about one person to another. Specifically, some evidence suggests that basal testosterone levels increase in response to chronic dominance behaviors and so indicate preference for high or low social status.

### **Stress and Dominance Interaction**

Generally, inverse changes in testosterone and cortisol levels are expected. The physiological connection between the HPA and HPG axes involves inhibition of synthesis at key steps. CRH, produced as part of the HPA axis, inhibits synthesis of LH effectively inhibiting testosterone production. In turn, androgens produced by the HPG axis inhibits CRH and ACTH synthesis effectively inhibiting cortisol production (Viau, 2002). This model predicts social defeat stress being marked by increases in cortisol and decreases in testosterone after losing a competition, and dominance being marked by increases in testosterone and decreases in cortisol following a competitive win.

However the interaction of the HPA and HPG axes is more complicated than this suggests. The moderating influence of basal testosterone discussed above is also a factor. Being on the losing side of a political competition is a form of induced low status used in this study, where I expect higher basal testosterone partisans (who prefer high status) to respond especially strongly. This hypothesis is based on the work of Josephs and colleagues (2006). They found that for low testosterone individuals, being placed in a high status position causes stress and impaired

cognitive functioning. The same happens to high testosterone individuals placed in low status positions.

Competition has been shown to be analogous to this high versus low status placement. Mehta, Jones, and Josephs (2008) report that males who are high in testosterone at baseline, increase their cortisol levels when they lose, and drop in cortisol after winning. Males low in baseline or basal testosterone, do not change their cortisol levels after winning or losing a competition. Female cortisol response to competition is not moderated by baseline testosterone; they show the same pattern as high testosterone males.

### **Emotional Responses**

Clues to how participants are interpreting the news may be found in their reported emotions. I would expect emotional and hormonal reactions to be coherent within individuals. For instance, participants who feel negative affect may be interpreting the news as a loss, in which case their testosterone should decrease and cortisol increase.

Emotional responses to politics have been examined in the realm of decision making (Marcus, Neuman, MacKuen, 2000), political participation (French et al., 2011; Valentino et al. 2009), and political advertising (Brader, 2005). Only a few political studies have examined hormone changes alongside emotional changes. These studies found higher negative affect among the losing political party of an election, which also correlated with cortisol increases and testosterone decreases (Blanton, Strauts & Perez, 2011; Stanton et al., 2009; Stanton et al., 2010; Waismel-Manor, Ifergane & Cohen, 2011). Mediation was tested in one of these studies and the researchers failed to find evidence for affect mediating cortisol change (Blanton, Strauts & Perez, 2011). There are also three discrete emotions I will examine that have been found to have hormonal correlates. Anxiety is indicative of the feeling of stress and should have a

corresponding increase in cortisol. Fear (related to losing a competition) has been shown to decrease cortisol, whereas anger (related to being actively engaged in competition) generally increases it (Moons, Eisenberger & Taylor, 2010). I hypothesize these same affective-hormonal relationships to hold in this study. Although the two outcomes should correspond, the emotional response may mediate the hormonal responses or both may have been initiated by a common latent cause.

### **Partisanship as Moderator**

Strongly identified political partisans are hypothesized to show a greater testosterone response to political challenge, greater cortisol response to social defeat, and the corresponding emotional and affective changes. Research suggests that the main effect of testosterone increase is associated with having a greater investment in the outcome of the challenge (Archer, 2006). The discussion above relating social status preference to testosterone changes also comes from this theory, but strength of partisanship is an independent contributor to investment in the outcome.

There have been many different definitions of party identification proposed, as well as many ways of measuring the construct. I will discuss the development of some of these measures and their key components. As the central moderator in this project, careful consideration is given to its measurement. This study is not meant to be a strict test of the benefits of measures relative to each other, but they will be compared to suggest the particular measurement that should be used in the future to study physiological changes.

### **Measurement of Partisanship**

Since the early descriptions of partisanship coming out of the Michigan political behavior school in *The American Voter*, identification with the group was considered a central component

(Campbell et al., 1960). However, the standard Michigan school question used to define Democrats and Republicans only asks participants to report favorability of either the Democrat or Republican label. This measurement may obscure differences between those identifying with the party and those who choose the label for other reasons. With the development of social identity theory in social psychology this identity component has received greater attention. Greene (2004) has worked to integrate social identity theory into partisanship to show that it is more than similarity of issue positions or an attitude toward a party. For instance, as would be predicted by partisanship defined in terms of social identity, those who are more extreme partisans show more in-group favoritism and out-group derogation (Greene, 2004).

This study includes multiple identification measures in addition to asking the participant to select a party label. The importance of examining these measures of identification is well articulated by Green's work, but support can also be seen in a line of work, coming from self-determination theory. The level of identification among those who are politically engaged has been shown to change a person's motivation to seek out and think about political information. A study by Koestner and colleagues (1996) examined participants who highly value following current events. They were categorized into two groups: the *identified*, those who had internalized the value and saw it as part of the self, and the *introjected*, those who agreed the value was good but did not fully take it as part of the self. As explained by Koestner and colleagues, the central difference between the identified and introjected participants was their reason for following current events. The introjected hoped to gain approval from others and avoid the guilt and anxiety associated with being uninformed. On the other hand, the identified follow the news because they enjoy following the news and see the act as an expression of their identity. Koestner et al.'s study found that both groups were politically engaged, but the identified were

more likely to seek out political information and had more complex ratings of political figures, whereas the introjected were more likely to be persuaded by a political message. These findings supply further evidence that reporting identification, as opposed to a statement of beliefs, indicates distinct political behaviors. The difference between the identification group and introjected group in Koestner and colleagues' study is analogous to the difference between the politically identified and those who can simply report their party label. The increased complexity of political knowledge found also suggests that in the current study participants who report identification will be more likely to be physiologically engaged in the experience of a political competition.

Based on this difference between identification and introjection, Greene's (1999) political party specific Identification with a Psychological Group scale was included as a measure of partisanship in the study. This *group identification* scale includes statements such as: "When someone criticizes the Republican party, it feels like a personal insult," and "When I talk about the Republican party, I usually say 'we' rather than 'they.'" Participants scoring high on this measure are identified with their political party.

The level of *identity fusion* is another measure of identification with a political group. This was developed by Swann (2009), who modified version of Aron, Aron and Smollan's (1992) measure of Inclusion of Other in the Self (IOS) as a means of assessing political partisanship. For people scoring high on the measure, it is intended that "the group comes to be regarded as functionally equivalent with the personal self" (Swann et al., 2009, p. 995). Support for the inclusion of the group in the personal identity being measured by the scale comes from the demonstration that fused people show a self-verification motive across group and self: after receiving non-verifying feedback about their personal identities, fused individuals appear to

compensate by reporting more willingness to fight and die for their group (Swann et al., 2009). The cognitive structure of fused individuals also aligns with the theory. Tropp and Wright (2001) demonstrated greater cognitive associations between the fused-group and the self in people high in IOS. For fused individuals, reaction time in rating self-descriptive traits was slower for items not representative of the group than for items the self and group shared. This effect was not seen in non-fused individuals. Evidence of vicarious physiological responses has also been found. Kang, Hirsh, and Chasteen (2010) observed stronger brain activity in the anterior cingulate cortex in people observing a mistake of a fused other, than when observing a non-fused other: participants responded as if they themselves had made a mistake, mediated by identity-fusion. Most important for this study, taken together, this prior work points to identity fusion and identification with a psychological group being tied to physiological and emotional responses.

Other measures of partisanship are included in order to compare responses. Based on Weisberg's (1980) comparison of different Michigan school style partisan measures, a *party distance* score will be calculated. This is based on two questions asking "to what extent do you usually view yourself as a [Democrat/Republican]," and is Republican affiliation minus Democratic affiliation. Other aspects of partisanship are the degree of cognitive agreement with each political party's actions and the degree of emotional response to each political party. Two scales from Roscoe and Christiansen (2010) are used to measure these aspects. The evaluation scale includes items such as: "I think the [Democratic/Republican] party does a good job of creating prosperity." This evaluation scale is a measure of policy agreement with the political party and does not require identification with the party. The emotion scale references discrete emotions such as: "The [Democratic/Republican] party makes me feel angry." The emotion

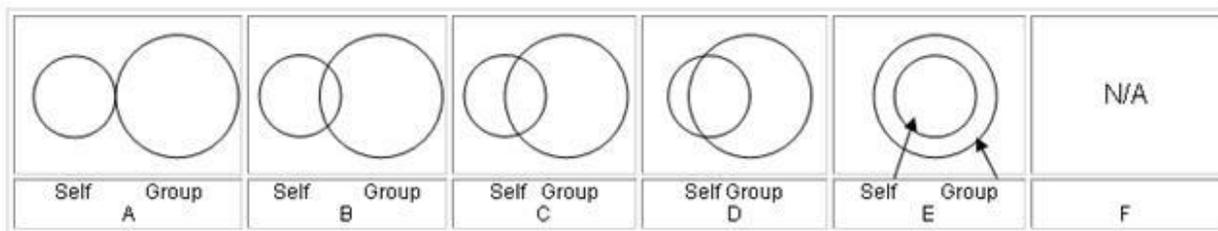
scale, like the evaluation scale, does not assume identification. Instead it measures the emotions associated the each party label. These measures are all summarized in Table 1.

Multiple measures of partisanship are included but physiological and emotional responses are expected to be most closely tied to identification or fusion with a political party. The degree of a participant's reaction is also hypothesized to be related to the extremity of their partisanship. For instance, an extreme liberal watching The O'Reilly Factor is expected to become more angry than a relatively moderate liberal due to having a stronger disagreement with the host on the issues and a stronger negative association with the Republican party.

Table 1

*Measures of Partisanship*

	Wording	Scale	Emphasis
<b>Categorical Party ID</b>	“Which political party do you most affiliate with?”	Democrat, Republican, Other	Party Label
<b>Party Distance</b>	“To what extent do you usually view yourself as a [Democrat/Republican]?”	-12 to 12; Democrat to Republican	Party Label
<b>Ideology</b>	“When it comes to politics, where do you place yourself on this scale”	-6 to 6; Extremely Liberal to Extremely Conservative	Ideology Label
<b>Party Evaluation</b>	“I think the [Democratic/Republican] party does a good job of creating prosperity.”	-12 to 12; Democrat to Republican	Issue Position Agreement
<b>Party Emotion</b>	“The [Democratic/Republican] party makes me feel angry.”	-6 to 6; Democrat to Republican	Emotional Association
<b>Group Identification</b>	“When someone criticizes the Republican party, it feels like a personal insult”	-12 to 12; Democrat to Republican	Identification with Party
<b>Identity Fusion</b>	Look at the picture below. Imagine yourself to be the small circle and your political party to be the bigger circle. Which of the pictures (A-E) best represents how you see yourself in relation to your political party?	-6 to 6; Democrat to Republican	Identification with Party



## Study

### *Participants*

158 undergraduates from UConn participated in the study from October 27<sup>th</sup> to December 2<sup>nd</sup>, 2011. Students were given partial course credit as compensation and were informed of the basic procedures of the study before participating.

The mean age of the sample was 19.1 (range of 18 to 30), with 7.7 percent identifying as African American, 7 percent as Asian American, 7.1 percent as Hispanic American, 73.7 percent as non-Hispanic White, and 3 percent marking “other.” (Participants were allowed to choose more than one category.) Fifty-seven percent of the sample reported being female and 43 percent male. The political composition of the sample was majority Democrat and liberal. In response to the Categorical Party ID question (“Which political party do you most affiliate with?”), 46.4 percent choose Democrat, 22.5 percent choose Republican, and 30.5 percent “other.” When asked to place themselves on an extremely liberal (-6) to extremely conservative (6) scale, the mean response was -.83 (SD = 3.1). On this spectrum, 53.7 percent were below the midpoint (liberal) and 34.7 percent were above the midpoint (conservative).

### *Procedure*

Participants were brought into the lab eight at a time. At individual computer stations separated by privacy screens, participants first watched a 20-minute meditation video designed to bring their mood to baseline. They then completed a questionnaire that included the various political identification measures, external political efficacy, political participation, and political media engagement. Half of the participants watched a 30-minute series of clips from Fox News and half watched MSNBC. These clips drew on episodes from August 9<sup>th</sup> to October 14<sup>th</sup> 2011. Efforts were made to match on topic and tone. There were four MSNBC clips and six shorter

Fox News clips. The clips were designed to place all partisans into a competition frame and for people on the opposite side of the ideological spectrum to see the host as an opponent.

Clip One for Fox News was a discussion on *The O'Reilly Factor* of recent Occupy Wall Street protests with Glen Beck, whereas MSNBC discussed the topic on *The Last Word with Lawrence O'Donnell* with Michael Moore. Both Beck and Moore are figures that were expected to evoke antagonistic feelings from the opposing ideological view point. Clip Two on *The O'Reilly Factor* connected the protests to President Obama and his "class warfare," and blamed Democrats for the state of the economy. MSNBC's *The Ed Show* had a segment in favor of the Occupy protests and redistribution of wealth. In Clip Three, *The O'Reilly Factor* reported on Rep. Barney Frank asking to take money from the war budget, after which he blamed the Democrats for not doing their job in Washington and said the "liberal media" was trying to hide this fact. It was also predicted that if the presidential election were held the next day, that the Republican would win. In *The Ed Show*, Republicans were blamed for attacking the middle class by raising workers' taxes while lowering taxes of the rich. In Clip Four, on Fox News, *Hannity* reported that President Obama was stalling on his jobs proposal because it was actually empty rhetoric; Obama was called the "anointed one" and made fun of for vacationing in Martha's Vineyard. The Ed Show reported on a former Google executive who asked Congress to raise his capital gains taxes. Republicans were also said to be willing to hurt the economy in exchange for political gain. In Clip Five, *The O'Reilly Factor* presented evidence that President Obama was not doing his job in job creation. The last clip, Clip Six, was of Bill O'Reilly discussing the need to cut spending as well as not increasing taxes on the rich. O'Reilly also interrogated a person in the top tax bracket who said he wanted his taxes raised.

The overall tone of both sets of clips had a dual focus: the in-group of political allies was promoted and said to be doing better politically than the other side, and the out-group of political opponents was blamed for the economy and their current practices in Washington. The one major asymmetry was that MSNBC supports the Occupy protests, whereas Fox News is against them; however, both linked Occupy to the Democrats and the “one percent” to the Republicans. Because of this linkage, the Occupy clips fit with the theme of in-group promotion and out-group degradation.

While watching the news and during the meditation video, the participants were asked to rate their current affect on a 12-point scale from “extremely negative” to “extremely positive.” The research assistant cued them to do so every two minutes. The average of the meditation ratings served as the baseline affect, and the average of the video ratings was conceptualized as the affect outcome. This affect trend was complemented by a questionnaire at the end of the video asking participants to report the emotions they felt during the video. The emotion measures included the Positive and Negative Affect Schedule Expanded (PANAS-X) (Watson & Clark, 1994) and Spielberg and Sydeman’s (1994) State-Anxiety Inventory. The post video questionnaire also included items to measure how participants were experiencing the video. Participants were asked to rate the extent to which they felt they were in a competition, threatened, empowered and how much they mentally counter-argued the host.

The saliva samples used to analyze cortisol and testosterone were collected at various points. The baseline hormone levels were taken from a sample collected immediately prior to watching the news. The outcome levels were sampled 10 minutes following the end of the news clips. Due to insufficient quantities of saliva being produced by some participants, 124 participants were analyzed for cortisol levels.

## **Results**

*Partisanship Measures.* A first look at the partisanship measures revealed that they were all internally reliable. Table 2 shows that each measure had a Cronbach's alpha greater than .8, large inter-item correlations, and small inter-item correlation variances.

According to the theory behind the creation of each measure, all the partisanship measures should be highly correlated with each other, but they should also have higher correlations with measures that capture similar aspects of partisanship. Table 3 presents the correlations among the bipolar measures in this sample. Each of these bipolar scores was calculated by subtracting Democratic favorability from Republican favorability. As a result, Republicanism was coded high. In other words, participants in the "political left" were on the left side of the scales, and the "political right" were on the right side of the scales. The average correlation between partisanship measures was .827 (SD = .007). This high average inter-item correlation suggests that, counter to theory, there was little unique variance in any given partisanship measure. Another way of looking at partisanship is to compare the respondents' self-reported party category (their Categorical Party ID). Table 4 gives the means of the other partisanship measures for those labeling themselves as Democrat, Republican, and Independent. It appears from this that respondents mostly divided themselves coherently into the three categories and, again, there was little deviation whether focusing on one partisanship measure or another. The pattern across all measures suggests that Republicans were the most conservative, Democrats the most liberal and independents the most neutral on this evaluative dimension. This finding not only supports the conclusion that each of the partisan measures converged on a similar construct but that the Categorical Party ID is a useful proxy of continuous differences.

To further explore the relationship between the various partisanship measures, an exploratory factor analysis was conducted. Using a Principal Axis Factor Analysis with a direct oblimin rotation, two correlated factors ( $r = .484$ ) emerged from the data. The first factor represents attitudes towards Democrats and the second, attitudes towards Republicans. Note that items were coded so that the factors would have Republican favorability / Democratic unfavorability coded high in order to follow the pattern of “political left” on the left of the scale. The two factors aligned exactly with the Democratic and Republican party attitude measures, such that items meant to measure attitudes towards Democrats loaded higher on the Democratic Factor than the Republican Factor.

Factor scores for each were calculated using the regression method. Some items had a greater correlation with the factors than others, suggesting that taking the mean value of the items for each participant would not fully capture their feelings toward the political parties. An advantage of the factor scores is that each item is weighted such that items with strong loadings influence the final score to a greater extent than weak loadings. The regression method was chosen in particular because it produces unbiased estimates of the latent factor and is appropriate for correlated factors. These factor scores are meant to best capitalize on the variance in this sample in order to find any partisanship effect that may exist. Before any findings with respect to these factor scores are replicated, a separate study would have to be done to validate a new scale that best combines the various partisanship measures.

*Conclusion.* Based on the comparison of partisanship measures and the factor analysis, it was clear that in this sample there was little difference between measuring identification, similarity of issue positions, and degree of affiliation. The summary measures of Combined Partisanship and the two Factor Scores may best represent partisanship since they include the

information of all the measures. This inclusion of multiple measures could be especially important, because some participants were inconsistent in the party they report favoring; the summary measures take this inconsistency into account. The Categorical Party ID variable is also useful for capturing party membership when degree of partisanship is not of interest. In the following analyses, I will focus on these measures and not attempt to make fine distinctions.

### *Cortisol and Testosterone Outcomes*

The testosterone data have not yet been processed, but the study hypotheses will be assessed using cortisol. This is an exploratory study, and as such each measure was examined for support of the hypotheses. Since this type of analysis can result in false positive results, any findings will be used to structure replication studies. All analyses were conducted both with and without outliers removed. The results with outliers removed are presented.<sup>1</sup> These participants were removed based on themselves having a large influence on the results of the analysis. This was done by first removing participants with a DFBETA absolute value much larger than other participants in the analysis, then by checking for the probability of the Mahalanobis Distance being less than .01. By using this type of screening process, emphasis is placed on avoiding type II errors over type I errors. Physiological results should be considered with this in mind.

Table 6 gives the mean levels of cortisol for each sample broken out by Categorical Party ID and Condition. Overall, each group decreased in cortisol on average. Based on post-hoc Tukey's tests, the only significant difference was that Republicans had greater cortisol levels in the post-test sample than did the Democrats, though the change in cortisol between the parties did not reach significance.

A linear regression was conducted predicting Cortisol Change, controlling for Baseline Cortisol, to determine if the predicted interaction between degree of partisanship and video

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<sup>1</sup> None of the presented physiological results reached significance when outliers were not removed.

condition was significant. Since Condition is coded as 0 for MSNBC and 1 for Fox News, and partisanship is coded with greater Republicanism as high, the interaction was predicted to be negative, such that those closer to the “political right” watching MSNBC should increase in cortisol. As shown in Table 7, the Identity Fusion measure was the best predictor of cortisol change and the only measure close to significance. When outliers were removed, the interaction of Identity Fusion and Condition was marginally significant but positive:  $B = 2.78$ ,  $t(89) = 1.64$ ,  $p = .105$  (including outliers,  $B = .649$ ,  $p = .59$ ).

Figure 1 depicts this interaction. Recall that Identify Fusion ranged from -6 (Extremely fused with the Democratic Party) to +6 (extremely fused with the Republican Party). Figure 1 examines the trend lines for those who trend strongly toward Democratic identification (rating of -2.5) or Republican identification (rating a +2.5), as a function of video condition.<sup>2</sup> For Democrats, there was a marginally significant decrease in cortisol for those watching Fox News compared to those viewing MSNBC,  $B = -3.21$ ,  $t(89) = -1.42$ ,  $p = .160$ . For Republicans, there was no significant change in cortisol between conditions, but the change is in the direction of greater cortisol being associated with the Fox News condition,  $B = 2.82$ ,  $t(89) = .888$ ,  $p = .377$ . The two parties have mirror imaged physiological changes in the Fox News condition, but the effect is in the opposite direction as was predicted.

*Emotion Measures.* Emotion was measured in three different ways: with a current affect rating every two minutes during the video, and with the Positive-Negative Affect Schedule Expanded (PANAS-X) and the State Anxiety scale in the post video questionnaire. The PANAS-X manual (Watson & Clark, 1994) describes negative affect as the mean of 10 emotion items: afraid, scared, nervous, jittery, irritable, hostile, guilty, ashamed, upset, and distressed. Positive

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<sup>2</sup> The values of -2.5 and 2.5 approximate the midpoints for respondents below and above the 0 point of the scale.

affect is also the mean of 10 items: active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud, and strong. The Hostility sub-score of PANAS-X includes two items that overlap with negative affect (hostile and irritable) as well as 4 other items: angry, scornful, disgusted, and loathing. The Fear sub-score includes two items in common with negative affect (afraid and scared) and 4 additional items: frightened, nervous, jittery, and shaky. The State Anxiety measure is the mean of 12 emotion items: pleasant (R), overexcited or “rattled”, worried, content (R), “high strung”, comfortable (R), anxious, rested (R), at ease (R), regretful, tense, secure (R). The affect data was collected on a scale from -6 to +6, representing high negative affect and high positive affect respectively. Three variables were computed from this information. Meditation Affect was the average affect rating given while watching the meditation video. The Video Affect was the average affect rating given over the course of the news clips. Affect Change was then Video Affect minus Meditation Affect. All analyses with these variables predicted Affect Change, after controlling for Meditation Affect.

The emotion scale reliability diagnostics can be found in Table 8. Almost all of the scales were adequately reliable, with Cronbach’s alphas greater than .8. However, the State Anxiety measure had a low alpha (.562) and an extremely low mean inter-item correlation (.079). Adjustments were thus made to the scale in order to improve its internal reliability. After removing the positive items from the scale (e.g., comfortable and at ease), the numbers improved to a Cronbach’s alpha of .646 and a mean inter-item correlation of .233, which is not an adequate reliability, but for exploratory purposes, the results for this modified State Anxiety scale were examined.

Table 9 presents the correlations among the emotion measures. The positive correlation between negative affect and positive affect was unexpected, because prior confirmatory factor

analysis results find orthogonal factor models best fit the data (Tuccitto, Giacobbi & Leite, 2010). Though, the measures associate with Affect Change coherently. Positive affect was expected to have a positive correlation with Affect Change (controlling for Meditation Affect), and negative affect was expected to have a negative correlation with Affect Change. The correlations in this sample were .357 and -.223, respectively. Affect change was also negatively correlated with Hostility and Fear, as expected.

Confirmatory factor analyses were then performed on the emotion scales in order to assess their unidimensionality. This analysis followed the procedure described by Miles (2005) to conduct the analysis in Excel. Table 10 summarizes the model fit statistics. Both positive affect and negative affect scales had very similar fit indices. The chi-square tests were significant, indicating that the one factor models did not fit the data perfectly. The Tucker Lewis Index (TLI) results gave values under .95, which suggests that the model was not significantly different than a null model (variances equal to one and co-variances equal to 0). The Root Mean Square Error of Approximation (RMSEA) gave values between .05 and 1 for each scale, indicating that the one factor models were a “fair fit” (note that lower numbers on the RMSEA indicate better fit). Overall, these fit indices call into question the unidimensionality of the positive and negative affect scales for this sample. Results associated with these measures will still be presented. However, more emphasis will be given to the affect trend, as this is likely a more informative measure of the influence of videos on affect in this study. The negative items of the State Anxiety scale, and the PANAS-X Hostility subscale, on the other hand, did have fit statistics that supported their unidimensionality: the TLI was greater than .95, and the RMSEA indicated a “fair fit.” The PANAS-X Fear subscale was on the border of unidimensionality: it

was not perfect fit based on the chi-square test and the TLI test failed, but it was considered a “fair fit” by the RMSEA.

### *Emotion Outcomes.*

The affect trend ratings are displayed in Figure 2. This graph breaks out reported affect by Categorical Party ID. Recall that participants were asked to rate how they were “feeling at that moment” every two minutes during a mediation video (the first 4 ratings) and during the news video (the next 16 ratings). The trends are composed of the mean participant affect rankings at each time point.

The two conditions show distinct patterns of affect change. The Overall MSNBC had more positive affect ratings (mean of -.43 for MSNBC versus -1.49 for Fox),  $F = 9.22$ ,  $p < .01$ . This difference was partially due to there being more Democrats in the sample than Republicans, but as will be shown later, the main effect of Condition was still statistically significant after taking partisanship into account in a regression. The affect trend difference between video conditions was driven mainly by a spike around the 10<sup>th</sup> minute of the MSNBC video. During this time, director and political commentator Michael Moore was reporting from Zuccotti Park in front of Occupy protestors. During the low point of the MSNBC video, around minute 22, Ed Schultz was discussing the how the Middle Class is under attack by Republicans because they support cutting taxes for the rich and raising taxes on the middle class. The next move toward positive affect in the MSNBC video (for Democrats and Independents, but not for Republicans) around minute 26 was when Schultz discussed a Google executive who was asking for his taxes to be increased.

Fox News also showed spikes in affect. There was an increase in positive affect for Republicans around minute 16, during which Bill O’Reilly opined that the American public is

beginning to accept that the “liberal media” is misleading its viewers. Democrats and Independents watching this video showed diminishing mood until near the end of the video, where there was an increase in mood for the last few ratings. At that point, participants began watching O’Reilly debate a wealthy man who was calling for his taxes to be raised. Overall, the affect trends in both videos seem to coherently capture changes in participants’ moods. The shifts in affect ratings align with the content being viewed.

The rank order of the political party members in affect differences between Democrats and Republicans were consistent with both the stress and dominance hypotheses. These hypotheses predict affect to be more negative in the opposition party than those on the same ideological side as the host, the allied party. Republicans were also closer to the midpoint of the scale than Democrats in both video conditions. As a result, the Democrats will likely be driving any interaction between partisanship and condition. This effect is borne out in the regression to be presented.

Interestingly, the Independents were the most negative during the videos. This could be because participants who did not know the difference between the two parties, or who dislike the idea of political parties, marked themselves as independent. This interpretation is supported by their pattern of responding on other questions: Independents had a small positive mean on the Democratic Factor Score and a small negative mean on the Republican factor scores, indicating that they dislike both parties to some degree. They also had the lowest levels of political participation and political media engagement.

Table 11 and 12 present the relationship between partisanship and the emotion measures broken down by participants watching Fox News and those watching MSNBC. The top of each table gives each emotion measures’ mean for each Categorical Party ID. The bottom of each

table gives the emotion measures' correlation with the focal continuous partisanship measures. Only Hostility and Affect Change were significantly related to partisanship. In the Fox News condition, the Affect Change is positively correlated with Combined Partisanship ( $r = .363$ ),  $p < .01$ , and the Republican Factor Score ( $r = .477$ ),  $p < .001$ . These correlations mean the affect of opposition party members (i.e., left-leaning participants watching Fox or right-leaning participants watching MSNBC) was more negative than the affect of allied party members' (i.e., right-leaning participants watching Fox or left-leaning participants watching MSNBC). Hostility was also correlated as expected with partisanship in the Fox News condition, such that opposition party members (to the left of the political spectrum) reported feeling more hostile than allied party members:  $r = -.289$ ,  $p < .05$ , with Combined Partisanship and  $r = -.340$ ,  $p < .01$ , with the Republican Factor Score. In the MSNBC condition, Affect Change is negatively correlated with Combined Partisanship ( $r = -.242$ ),  $p < .05$ , and the Republican Factor Score ( $r = -.321$ ),  $p < .05$ , but no other correlations are significant.

Table 12 presents a set of linear regressions testing a model that more fully tests the emotion hypothesis.<sup>3</sup> Each of these regressions was designed to predict Affect Change, but they varied based on the measure of partisanship used. For each equation, change in affect was regressed on the original meditation affect, video condition and a measure of partisanship, along with the multiplicative cross-product for video condition and partisanship (measured differently in each regression). Results indicate that, regardless of which measure of partisanship was used, the interaction of partisanship and condition predicted change in affect to a significant or

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<sup>3</sup> The results for the regression predicting Affect Change is presented in the table but the other emotion measures were tested none were statistically significant. Although this is just one significant regression out of six, after diagnostics it was clear that, even apart from the study hypotheses, the other measures were not adequate for reasons of either low reliability or non-unidimensionality. Hostility is the one measure that appears to be psychometrically sound; it was correlated with partisanship as expected in the Fox News condition, though the interaction between partisanship and condition in the regression did not reach statistical significance.

marginally significant degree. Since Condition was coded as 0 for MSNBC and 1 for Fox News, and partisanship was coded with Republicans as high, the interaction was predicted and found to be positive (meaning those further to the “political left” had more negative changes in affect, and those further to the “political right” had more positive changes in affect, while watching Fox News compared to MSNBC). The partial  $R^2$  values indicate that the interaction term explained between 4 and 16.2 percent of the variation in Affect Change (depending upon the measure of partisanship used), after controlling for the main effects. The worst partisanship predictors were Identity Fusion (partial  $R^2 = .042$ ) and the Democratic Factor Scores (partial  $R^2 = .040$ ). The best partisanship predictors were Ideology (partial  $R^2 = .130$ ) and Republican Factor Scores (partial  $R^2 = .162$ ).

Inspection of Figure 3 reveals the nature of this effect for the strongest predictor, Republican Factor Scores. Recall that the Republican Factor Scores were computed based on the factor analysis results of the partisanship measures. The regression lines for Democratic (more leftist) and Republican (more rightist) participants at values one standard deviation above and below the mean (-1 and 1 respectively).<sup>4</sup> This graph shows that regardless of video, both Republicans and Democrats had more negative affect following video exposure, compared to the affected reported in the meditation period. For Democrats, however, there was a significantly greater drop in affect in the MSNBC compared to Fox News condition,  $B = -3.372$ ,  $t(117) = -5.867$ ,  $p < .001$ . In contrast, for Republicans, there was no significant difference in affect change in the MSNBC compared to Fox News conditions,  $B = .435$ ,  $t(117) = .785$ . Republicans were in the predicted direction, however, such that they do have less negative affect change while watching MSNBC compared to watching Fox News. However, the Democratic participants were driving the partisanship-condition interaction.

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<sup>4</sup> The Republican Factor Scores ranged from -2.1 to 1.9 and had a standard deviation of .99

*Physiological and Emotion Measure Relation.*

Part of the hypotheses was premised on there being a coherence link between the hormonal and affective reactions, but the affect trend measure recorded during the video and cortisol outcomes were unrelated. Surprisingly, the degree of success the participant had in increasing positive affect during the mediation (above the first affect report given at the start of meditation) predicted lower levels of cortisol at the end of the experiment, even controlling for baseline cortisol levels and average affect during the video. Importantly, the baseline cortisol level was based on a saliva sample given 30 minutes after the participant finished meditating. The post cortisol sample was given 40 minutes after the baseline cortisol level. The time spans between measurements were designed to include the mediation in the baseline cortisol measure, but the time interval may not have been long enough.

Cortisol was also generally unrelated to the emotion measures. The PANAS-X subscales and State Anxiety measures did not have a main effect on cortisol or an interaction effect with partisanship and condition – except for the Fear, Surprise, and Hostility subscales. The interaction of Fear with partisanship and condition was expected. Opposition party members who report feeling fearful during the video were more likely to have increased in cortisol. Republicans scoring low on the Hostility measure were more likely to have higher cortisol levels when watching Fox News. This is counter to prior research (Moons, Eisenberger & Taylor, 2010) and its meaning is unclear. Finally, Republicans scoring low on Surprise were also more likely to have higher cortisol levels when watching Fox News. Scoring low on the Surprise PANAS-X subscale could indicate being familiar with the type of media being watched. These viewers may be inoculated to the effects of ideological media.

## *Discussion*

The cortisol findings were inconsistent with the study hypotheses, whereas the affect changes among Democrats, but not Republicans, were consistent with hypotheses. The Republicans also showed a counter-hypothesis trend in cortisol by showing higher levels of the stress hormone in the Fox News condition compared to MSNBC, but did show (non-significantly) more negative affect while watching MSNBC. Democrats followed the expected pattern of more negative affect watching an opposing news source, but countered the study's hypothesis by decreasing in cortisol in the Fox News condition.

*Investment.* The lack of support for key hypotheses on cortisol require explanation. One possible account is that viewers may have needed to be more actively involved and invested in the competition presented on the experimental videos, instead of passively viewing. Such a requirement for cortisol response is suggested in a recent meta-analysis Dickerson and Kemeny (2004). Although not presented in the results section, various moderators were tested related to investment in political media generally and investment in the episode in particular. Exploratory analyses speak to this potential critique of the study. Of interest was to see if any moderators related to investment changed the way partisanship and video condition influenced cortisol levels and affect.<sup>5</sup> Two moderators reached or were very close to statistical significance. Both of these support the idea of active involvement being necessary to obtain some of the hypothesized effects, suggesting that one of the limitations of the current study was that level of involvement was not given sufficient consideration in the study design.

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<sup>5</sup> Tested moderators included variables thought to be signs of either prior political engagement or current engagement with the video being viewed: level of participation in the last election, engagement with political media during the last election, political knowledge, trust in government, mentally counter-arguing the host, feeling threatened, feeling engaged in a competition, feeling empowered, paying attention to the video, liking the video, opinion of the Fox News and MSNBC networks, prior viewing of Fox News and MSNBC, and not identifying as an Independent.

These analyses revealed that *Media Engagement* (i.e., “In the last election season did you watch or listen to any media about the congressional campaigns? Please mark the box indicating how much you have followed the campaign in these types of media”), and *Counter-Arguing* (i.e., “To what extent did you find yourself counter-arguing the host’s points?”) moderated the first-order interaction between partisanship and video condition. The pattern of results suggested that that the stress and dominance responses to the videos may have been dependent upon the participant being invested in politics (see Appendix I for full results). However, the overall pattern did not fit the predictions from the stress and dominance theory and so the results are at best suggestive of a possible avenue for improving future studies.

The overall pattern of the counter-hypothesis results may also be accounted for by differing levels of investment. The un-invested partisans did show significant effects, just in the opposite direction as predicted. Low Media Engagement implies possibly being *uninitiated* to the news reporting of Fox News and MSNBC. Uninitiated viewers of these networks may be experiencing them differently than those regularly engaged in political media. The shows themselves communicate strong opinions. Instead of engaging in an imagined political competition as was predicted, viewers unfamiliar with this reporting style might be turned off when they disagree politically with the host. Disengaging would likely lead to a physiological response of decreasing cortisol and more negative affect. If the observed cortisol differences between conditions are conceptualized as a decrease in cortisol for partisans watching opposition media (as opposed to a relative increase in cortisol for those watching allied media), then disengagement is consistent with the observed pattern for low Media Engagement partisans.

*Selective Exposure.* One reason for examining physiological reactions to news stories is that they might be found to mediate other known reactions to media. One exciting possibility

relates to research on selective exposure. Research indicates that political partisans actively seek news that is supportive of their points of views or that trumpets desired political events or outcomes. Stroud (2008) provides examples of partisan selective exposure in her analysis of the 2004 Annenberg National Election Survey (ANES). She found that in the five months between the Presidential primaries and Presidential election, 76 percent of liberal Democrats but only 53 percent of conservative Republicans followed at least one liberal media source (via newspapers, radio talk shows, cable news, or the Internet). In contrast, 64 percent of conservative Republicans but only 26 percent of liberal Democrats utilized at least one conservative media outlet during this time period.

Such selection effects among partisan individuals are widely documented (Johnson, Zhang & Bichard, 2010; Garrett, 2009; Stroud, 2008; Stroud, 2010) but current accounts of why these occur are somewhat limited. The current analysis of investment moderation suggests an explanation for that pattern. If low Media Engagement viewers become disengaged when they watch opposition media and have more positive affect when watching allied media, it is no wonder that they form habits around turning the channel to supportive media. On the other hand, viewers who have already developed a high investment in political media generally may enjoy the rush (temporarily increased stress hormones) of being in a political competition and counter-arguing with the host. Consequently, these regular viewers may not act to avoid opposition media put in front of them, but also have never developed the habit to seek out opposition media. This hypothesized pattern of selective exposure outcomes resulting from the observed investment moderation aligns with findings in the selective exposure literature (Johnson, Zhang & Bichard, 2010). The relation between physiological and emotional changes, and the decision

to seek out or actively avoid ideological media, is another avenue for future research that may benefit from crossing the physiological and psychological levels of analysis.

*Partisan Identification.* Insofar as future research does seek to pair the emotion results (and any future physiological measures) to selective exposure, the current findings suggest one important methodological detail. It appears from this study that it is quite easy to measure partisanship. Despite the broad range of theories reviewed, each suggesting important distinctions in how one might operationalize partisanship, it appears from my analysis that at least in a sample of college students, each of the major methods align. It made little difference in this study whether partisanship was operationalized as party identification, emotional attachment, or political attitudes. Perhaps this alignment of measures reveals the partisan times in which we live, where people who to the lean left or to the right in one way do it across the board in other ways. To the extent that media follows these same trends – leaning consistently left or right – there is reason to continue research examining the role of media exposure on the experiences of political partisans.

## Appendix I

Exploratory analyses were conducted to determine if any measured variables moderated the first-order interaction between video condition and partisanship, in the prediction of cortisol. One variable reached significance in these exploratory runs, after outliers were removed. (Outlier participants were the same individuals removed in the prior regression). This key variable was *engagement with political media during the last election*. The *Media Engagement* index was created from questions asking participants: “In the last election season did you watch or listen to any media about the congressional campaigns?” The participants were given five different news sources and asked to rate how many they watched or listened to on four point scales from none to many. The news sources given were: television programs, newspaper or magazine articles, radio shows, blogs, and podcasts. The Media Engagement index is the average of each of these items.

This interaction effect took the form of a three-way interaction between Media Engagement, Condition and Identity Fusion,  $B = -4.407$ ,  $t(90) = -2.01$ ,  $p < .05$ . Figure 4 shows this effect. The lines represent the expected values for participants who made Identity Fusion ratings that were at either the midpoint between the neutral scale midpoint and extreme identification with the Democratic party (suggesting they lean towards the Democratic Party) or the neutral scale midpoint and extreme identification with the Republican Party (suggesting they lean towards the Republican Party). The categories of Engaged and Not Engaged were defined as approximately one standard deviation above and below the mean of Media Engagement (values of 1 and -1).

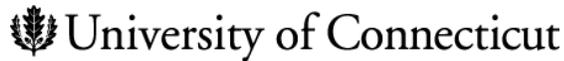
As this Figure reveals, Democrats who were not engaged with political media during the November 2010 election had lower cortisol levels after watching Fox News than after watching MSNBC,  $B = -10.93$ ,  $t(90) = -2.38$ ,  $p < .05$ . Analogously, Republicans who were not engaged

had higher cortisol levels after watching Fox News but the effect was not significant,  $B = 7.19$ ,  $t(90) = 1.23$ ,  $p = .223$ . These un-engaged Democrats and Republicans had the reverse of the pattern predicted by the stress and dominance hypotheses. However, for engaged Democrats and Republicans, the difference between conditions was as predicted, though it was not statistically significant. The difference did reach significance at the  $p = .10$  level for Democrats if “high” Media Engagement was defined as the highest possible rating on the scale, a value of 3. This finding suggests that the hypothesized effects might have been observed if participants were screened to be unusually high in Media Engagement, but such a prescreening would have obscured the stronger, reverse pattern among those who were not engaged. This result is difficult to reconcile with Dickerson and Kemeny (2004).

Exploratory analyses in predicting affect were also conducted. One moderator, *mentally counter-arguing with the host*, revealed an interesting effect. This construct was assessed with the question, “To what extent did you find yourself counter-arguing the host’s points?” with responses made on a 7-point scale that ranged from 0 (Not at All) to 6 (Extremely). In a regression predicting Affect Change, controlling for Meditation Affect, *Counter-Arguing with the host* had a significant three-way interaction with Condition and Combined Partisanship,  $B = .134$ ,  $t(153) = 2.62$ ,  $p = .01$ . Among those who counter-argued (defined as the mid-point of the scale), there was the predicted interaction between partisanship and condition, such that counter-arguing opposition media made affect significantly more negative,  $B = .463$ ,  $t(154) = 4.218$ ,  $p < .001$ . There was no partisanship by condition interaction among those who did not counter-argue (defined as a self-report rating of 0).

## Appendix II

Consent Form for Participation in a Research Study



**Principal Investigator:** Hart Blanton

**Student Researcher:** Erin Strauts

**Study Title:** Political News Television

### Introduction

You are invited to participate in a research study to find out people's opinions and feelings about political television.

### Why is this study being done?

We are conducting this research study to record people's opinions of and reactions to political news media.

### What are the study procedures? What will I be asked to do?

If you agree to take part in this study, you will be asked to first watch a relaxing video, fill out a survey asking your opinions about politics, then watch portions of a political television program, and finally fill out a post-watch survey asking for your reactions to the program. You will also be asked to give four saliva samples during the study. The process for collecting saliva is sterile, with no risk of contagion. Samples will be taken at the beginning of the study, after watching the relaxing video, after watching the program, and 20 minutes after the program ends. The study will take approximately 90 minutes to complete.

Although we have described the general nature of the tasks that you will be asked to perform, the full intent of the study will not be explained to you until after the completion of the study. At that time, we will provide you with a full debriefing.

### What are the risks or inconveniences of the study?

There are minimal risk associated with the above procedures. The study will take approximately 90 minutes to complete which may be an inconvenience. There are questions asked which may be of a sensitive nature, however be assured that the information you provide is anonymous: your name will *not* be attached to your responses. Although this is not expected to occur, if

participation in the present study raises concern over negative mood, you can contact the following agency for a professional consultation or evaluation:

UCONN Counseling and Mental Health Services: (860) 486-4705

What are the benefits of the study?

You may not directly benefit from this research; however, we hope that your participation in the study may help us understand the impact of media on our lives.

Will I receive payment for participation? Are there costs to participate?

You will receive research credit through the participant pool, which is 1 experimental credit for each half hour of participation. The session will be approximately an hour and a half.

How will my personal information be protected?

The following procedures will be used to protect the confidentiality of your data. The researchers will keep all study records on a computer that is password protected to prevent access by unauthorized users. Only the members of the research staff will have access to the passwords. Your saliva samples will be kept in a locked room. A unique id number will be assigned to your data and used in place of your name. The study is anonymous, your name will *not* be linked to your data in anyway. Any information will be presented in summary format and you will not be identified in any publications or presentations. The saliva samples will be destroyed immediately after being analyzed.

You should also know that the UConn Institutional Review Board (IRB) and the Office of Research Compliance may inspect study records as part of its auditing program, but these reviews will only focus on the researchers and not on your responses or involvement. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

Can I stop being in the study and what are my rights?

You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate.

Whom do I contact if I have questions about the study?

Take as long as you like before you make a decision. We will be happy to answer any question you have about this study. If you have further questions about this study or if you have a research-related problem, you may contact the principal investigator, Hart Blanton (860 486-8166) or the student researcher (Erin Strauts 847 707-1834). If you have any questions

concerning your rights as a research participant, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802.

**Documentation of Consent:**

I have read this form and decided that I will participate in the project described above. Its general purposes, the particulars of involvement and possible risks and inconveniences have been explained to my satisfaction. I understand that I can withdraw at any time. My signature also indicates that I have received a copy of this consent form.

\_\_\_\_\_  
Participant Signature:

\_\_\_\_\_  
Print Name:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Signature of Person  
Obtaining Consent

\_\_\_\_\_  
Print Name:

\_\_\_\_\_  
Date:

**Table 2***Scale Reliabilities of Partisanship Scales*

	Cronbach's Alpha	Number of Items	Mean Inter-item Correlation	Variance of Inter-item Correlations
Group Identification	.947	26	.409	.065
Party Evaluation	.947	18	.500	.037
Party Emotion	.872	18	.274	.076
Combined Partisanship	.978	65	.409	.040

**Table 3***Correlations among Partisanship Measures*

	Party Distance	Ideology	Identity Fusion	Group Identification	Party Evaluation
Ideology	.730 n=121				
Identity Fusion	.881 n=115	.707 n=97			
Group Identification	.885 n=151	.719 n=121	.834 n=112		
Party Evaluation	.852 n=151	.703 n=121	.816 n=112	.914 n=152	
Party Emotion	.784 n=151	.647 n=121	.740 n=112	.844 n=152	.890 n=152

\*\* All correlations are significant at the .01 level

**Table 4***Means of Partisanship Measures by Reported Categorical Partisanship*

	Democrats	Independents	Republicans
Party Distance <sup>□</sup>	-2.74 (1.68) <sup>a</sup>	-.294 (1.03) <sup>b</sup>	3.00 (1.56) <sup>c</sup>
Ideology <sup>□</sup>	-2.51 (2.39) <sup>a</sup>	-1.00 (2.90) <sup>a</sup>	1.87 (2.50) <sup>c</sup>
Identity Fusion <sup>□</sup>	-3.05 (1.13) <sup>a</sup>	N/A	1.97 (1.14) <sup>c</sup>
Group Identification <sup>□□</sup>	-4.08 (2.67) <sup>a</sup>	-.324 (1.93) <sup>b</sup>	3.56 (2.53) <sup>c</sup>
Party Evaluation <sup>□□</sup>	-4.17 (3.05) <sup>a</sup>	-.294 (2.13) <sup>b</sup>	3.00 (3.03) <sup>c</sup>
Party Emotion <sup>□□</sup>	-3.08 (2.54) <sup>a</sup>	-.441 (1.90) <sup>b</sup>	2.94 (2.83) <sup>c</sup>
Combined Partisanship <sup>□□</sup>	-3.25 (1.76) <sup>a</sup>	-.511 (1.55) <sup>b</sup>	2.89 (1.85) <sup>c</sup>
Democratic Factor Score	-.759 (.514) <sup>a</sup>	.498 (.842) <sup>b</sup>	.929 (.666) <sup>c</sup>
Republican Factor Score	-.509 (.676) <sup>a</sup>	-.435 (.998) <sup>a</sup>	1.02 (.604) <sup>c</sup>

<sup>□</sup> These measures are on a scale of -6 to 6 scale.

<sup>□□</sup> These measures are on a -12 to 12 scale with -12 being maximum like of Democrats combined with maximum dislike of Republicans.

Means that have no superscript in common are significantly different from each other (Tukey's, P<0.05)

**Table 6***Fox News: Mean Levels of Cortisol by Partisanship*

	Baseline Cortisol	Post Cortisol	Cortisol Change
Democrats	17.2 (12.6)	10.2 (6.55) <sup>a</sup>	-6.95 (12.9)
Republicans	24.1 (18.7)	19.7 (17.1) <sup>b</sup>	-4.34 (9.38)
Independents	15.0 (15.6)	12.3 (7.87)	-2.71 (9.01)

n = 56

*MSNBC: Mean Levels of Cortisol by Partisanship*

	Baseline Cortisol	Post Cortisol	Cortisol Change
Democrats	22.8 (17.7)	17.8 (15.3)	-5.04 (11.5)
Republicans	18.1 (11.2)	12.6 (7.79)	-5.45 (10.5)
Independents	24.5 (15.7)	16.7 (14.1)	-7.75 (10.5)

n = 60

Outliers have been removed based on DFBETAs and Mahalanobis Distances predicting Post Cortisol from Pre Cortisol, Condition, and Identity Fusion.

Cortisol values are in hundreds of ug/dL

Means that have no superscript in common are significantly different from each other (Tukey's,  $p < 0.05$ )

**Table 7***Regression Models with each of the Partisanship Measures and Condition*

	Intercept ( $\alpha$ )	Baseline Cortisol ( $\beta_1$ )	Condition ( $\beta_2$ )	Partisanship ( $\beta_3$ )	Partisanship X Condition ( $\beta_4$ )
Party Distance	3.25	-.398***	-.854	.263	.323
Ideology	3.32	-.325***	-1.964	.568	-.252
Identity Fusion	2.78	-.382***	-.197	-.093	1.207 <sup>□</sup>
Group Identification	3.45	-.375***	-.447	.441	-.154
Party Evaluation	3.44*	-.371***	-.643	.419	-.111
Party Emotion	3.25	-.375***	-.328	.444	-.072
Combined Partisanship	3.40*	-.387***	-.829	.491	-.145
Democratic Factor Score	3.45	-.323***	-2.55	1.96	-1.80
Republican Factor Score	3.90*	-.348***	-2.98	1.20	1.43

Note: Outliers have been removed based on DFBETAs and Mahalanobis Distances

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ □  $p = .105$

**Table 8***Scale Reliabilities of Emotion Measures*

	Cronbach's Alpha	Number of Items	Mean Inter-item Correlation	Variance of Inter-item Correlations
PANAS-X Negative Affect	.800	10	.286	.010
PANAS-X Positive Affect	.849	10	.359	.017
State Anxiety	.562	12	.097	.035
State Anxiety – Neg Items Only	.646	6	.233	.017
PANAS-X Hostility	.823	6	.436	.003
PANAS-X Fear	.805	6	.408	.011

**Table 9***Correlations among Emotion Measures*

	PANAS-X Negative Affect	PANAS-X Positive Affect	State Anxiety Negative Items	PANAS-X Hostility	PANAS-X Fear
PANAS-X Positive Affect	.304**				
State Anxiety	.634**	.447**			
PANAS-X Hostility	.791**	.312**	.537**		
PANAS-X Fear	.846**	.304**	.558**	.486**	
Affect Change □	-.223***	.357**	.041	-.294***	-.120

□ Affect change is the partial correlation with Video Affect after removing the effect of Meditation Affect.

\* p < .05, \*\* p < .01

n = 156

**Table 10***Confirmatory Factor Analysis Fit Statistics for a One Factor Model*

	$\chi^2$	TLI	RMSEA
PANAS-X Negative Affect	706.53 ( $p < .001$ )	.38	.36
PANAS-X Positive Affect	781.69 ( $p < .001$ )	.30	.38
State Anxiety – Neg Items Only	25.77 ( $p < .001$ )	.92	.14
PANAS-X Hostility	8.90 ( $p > .1$ )	1	.08
PANAS-X Fear	43.88 ( $p < .001$ )	.73	.19

**Table 11***Fox News: Mean Levels of Emotion by Partisanship and Analogous Correlations*

	PANAS-X Negative Affect	PANAS-X Positive Affect	State Anxiety Negative Items	PANAS-X Hostility	PANAS-X Fear	Affect Change □
Democrats	1.59 (.92)	1.75 (.93)	1.33 (.87)	2.03 (1.50)	1.34 (1.01)	-4.45 (.363)
Republicans	1.66 (.96)	1.66 (1.02)	1.37 (.96)	1.82 (1.09)	1.46 (1.08)	-3.73 (.423)
Independents	1.84 (.75)	1.94 (1.16)	1.32 (.78)	2.49 (1.10)	1.32 (1.25)	-5.38 (.564)
<u>Correlations</u>						
Combined Partisanship	-.111	-.028	.116	-.289*	-.061	.363**
Democratic Factor Score	-.167	-.074	-.085	-.228	-.125	.252
Republican Factor Score	-.125	-.015	-.079	-.340**	-.088	.477***

□ Affect change is Video Affect - Meditation Affect, controlling for Meditation Affect (higher values represent more positive affect)

Note: None of the differences are significant according to a Tukey post-hoc comparison

\* p < .05, \*\* p < .01

n = 77

**Table 12***MSNBC: Mean Levels of Emotion by Partisanship and Analogous Correlations*

	PANAS-X Negative Affect	PANAS-X Positive Affect	State Anxiety Negative Items	PANAS-X Hostility	PANAS-X Fear	Affect Change □
Democrats	1.58 (1.04)	2.12 (1.12)	1.36 (.87)	2.18 (1.27)	1.30 (1.15)	-2.62 (.372)
Republicans	1.58 (1.30)	1.96 (1.36)	1.21 (1.16)	1.76 (1.50)	1.52 (1.34)	-3.40 (.476)
Independents	1.57 (1.07)	1.74 (.85)	1.13 (.81)	2.09 (1.40)	1.43 (1.29)	-3.68 (.500)
<u>Correlations</u>						
Combined Partisanship	.033	-.067	-.116	-.020	.085	-.242*
Democratic Factor Score	-.041	-.176	-.167	-.069	.202	-.152
Republican Factor Score	.112	.011	-.024	.031	.067	-.321*

□ Affect change is Video Affect - Meditation Affect, controlling for Meditation Affect

Note: None of the differences are significant according to a Tukey post-hoc comparison

\* p < .05, \*\* p < .01

n = 78

**Table 12***Regressions Predicting Average Video Affect with each of the Partisanship Measures*

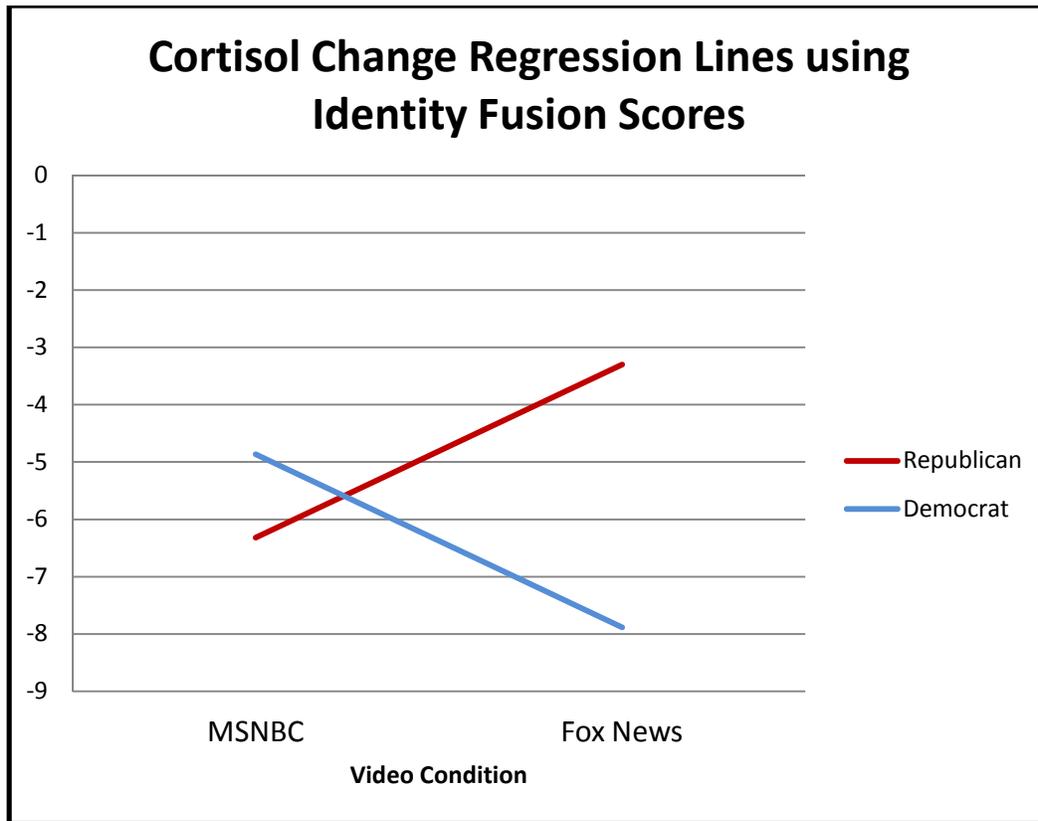
	Intercept ( $\alpha$ )	Meditation Affect ( $\beta_1$ )	Condition ( $\beta_2$ )	Partisanship ( $\beta_3$ )	Partisanship X Condition ( $\beta_4$ )	Partial R <sup>2</sup> for interaction
Party Distance	-1.15**	-.770***	-1.021**	-.144	.377**	.065
Ideology	-1.11*	-.783***	-.872*	-.259**	.529***	.130
Identity Fusion $\square$	-.817	-.825***	-.819	-.094	.296*	.042
Group Identification	-1.30**	-.744***	-.837*	-.119*	.310***	.083
Party Evaluation	-1.43***	-.707***	-.883*	-.112*	.306***	.092
Party Emotion	-1.38***	-.720***	-.902*	-.158*	.361***	.081
Combined Partisanship	-1.28***	-.744***	-.920**	-.158*	.397***	.092
Democratic Factor Score	-.906*	-.751***	-1.41**	-.365	.927*	.040
Republican Factor Score	-1.19**	-.651***	-1.47***	-.738**	1.90***	.162

\* p &lt; .05, \*\* p &lt; .01, \*\*\* p &lt; .001

n = 156

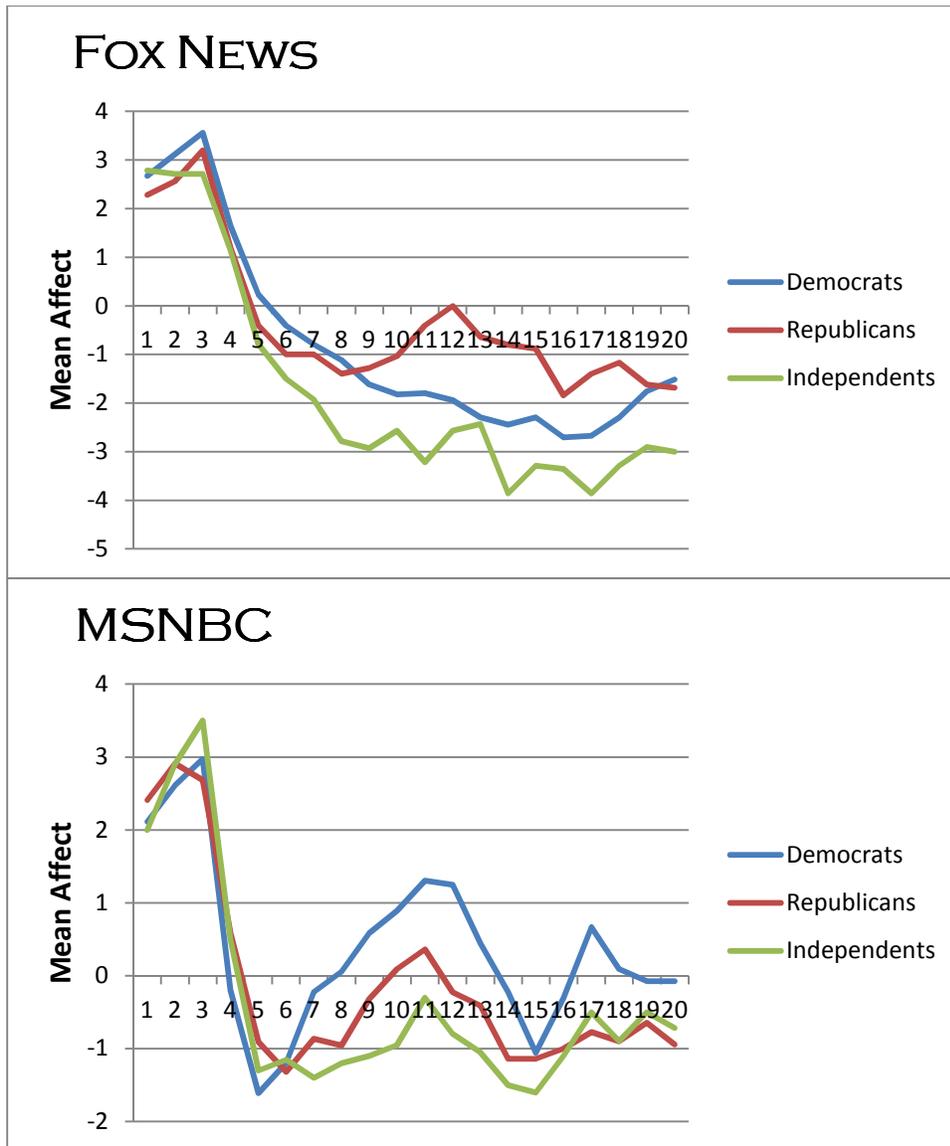
 $\square$  n = 115

Figure 1



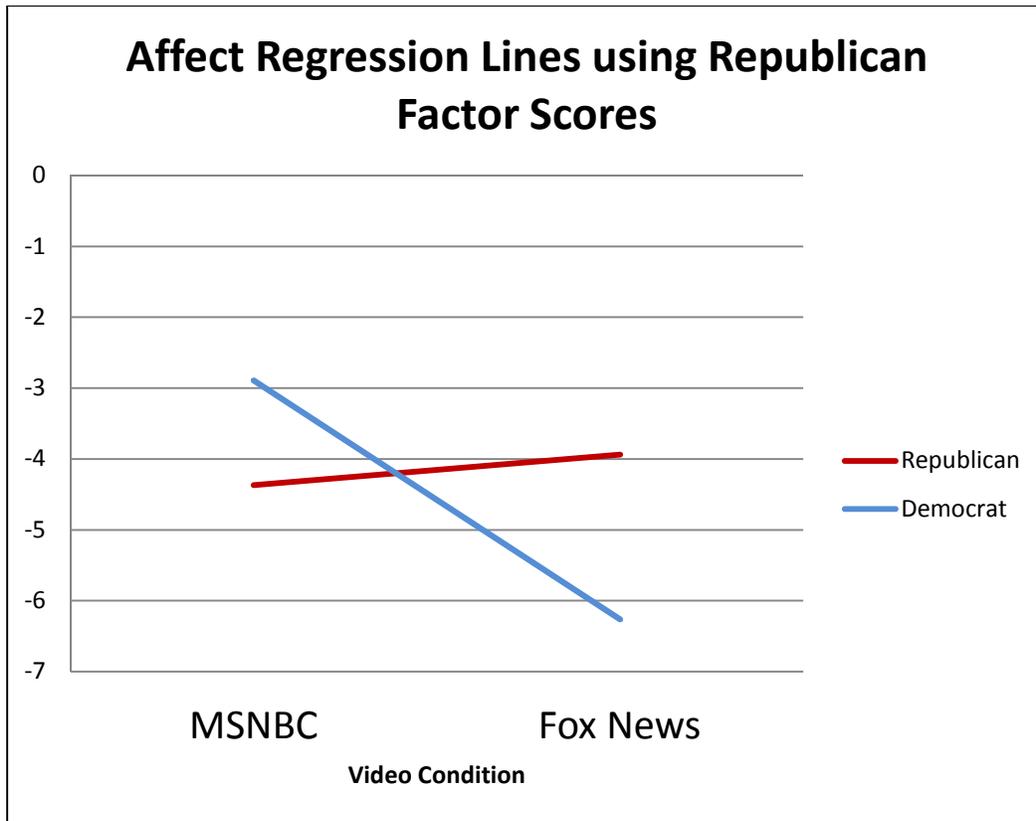
Note: Outliers have been removed based on DFBETAs and Mahalanobis Distances  
n = 90

Figure 2



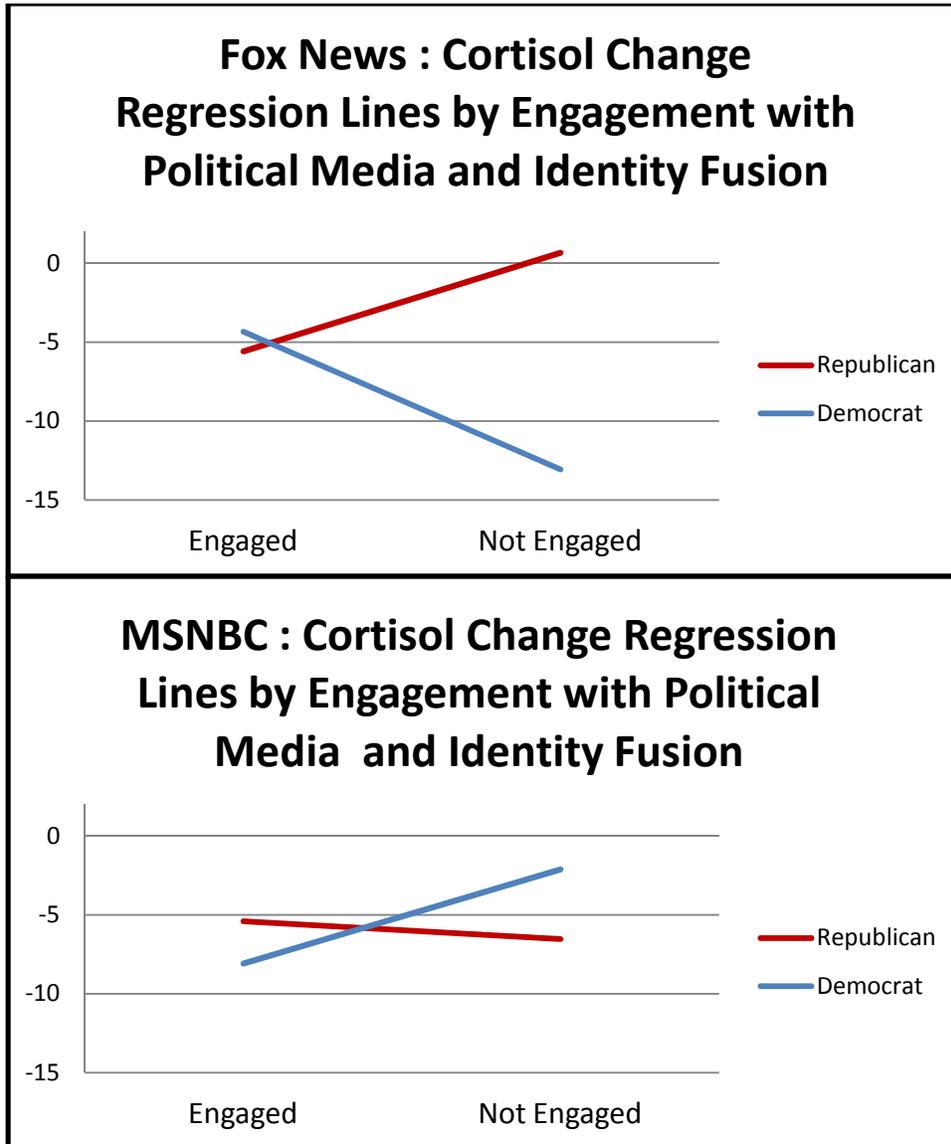
- a. The first four ratings were completed during a meditation video. The news clips start at rating 5.
- b. The affect scale given to participants ranged from -6 to 6.

Figure 3



n = 90

Figure 4



Note: 5 outliers have been removed based on DFBETAs and Mahalanobis Distances  
n = 90

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