Young Adults' Psychological and Physiological Reactions to the 2016 U.S. Presidential Election

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Declarations of interest: none

Abstract

Elections present unique opportunities to study how sociopolitical events influence individual processes. The current study examined 286 young adults' mood and diurnal cortisol responses to the 2016 U.S. presidential election in real-time: two days before the election, election night, and two days after the election of Donald Trump, with the goal of understanding whether (and the extent to which) the election influenced young adults' affective and biological states. Utilizing piecewise trajectory analyses, we observed high, and increasing, negative affect leading up to the election across all participants. Young adults who had negative perceptions of Trump's ability to fulfill the role of president and/or were part of a non-dominant social group (i.e., women, ethnic/racial minority young adults) reported increased signs of stress before the election and on election night. After the election, we observed a general "recovery" in self-reported mood; however, diurnal cortisol indicators suggested that there was an increase in biological stress among some groups. Overall, findings underscore the role of macro-level factors in individuals' health and well-being via more proximal attitudes and physiological functioning.

1. Introduction

As the United States (U.S.) prepared for the 2016 presidential election on November 8th, reports from multiple news sources suggested that the country was experiencing a period of heightened stress. This anecdotal evidence was supported by the Stress in America Survey conducted in August 2016,¹ which found that more than half of all Americans (52%) said that the election was a “very” or “somewhat” significant source of stress in their lives (American Psychological Association, 2017). Guided by an ecological framework and psychobiological theories of social status, the current study examined young adults’ self-reported mood and physiological reactions (i.e., diurnal cortisol) to this election in real-time: two days before the election, election night, and two days after the election of Donald Trump, with the goal of understanding whether (and the extent to which) sociopolitical events influenced young adults’ psychology and physiology. This study fills an important gap in previous literature: How do macro-level factors (i.e., national elections) influence individual mood states and biological processes?

Human development occurs within a system of societal institutions and policies; these distal factors are theorized to influence individual processes via more proximal attitudes, behaviors, and physiological reactions (Bronfenbrenner, 1994). For young adults in democratic societies, political engagement may be particularly important, as it relates to key aspects of identity formation, causing young people to reflect on the values, ideologies, and traditions of their communities, and feel agency in shaping the direction of the nation (Yates & Youniss, 1998). Elections may invoke positive or negative feelings for young voters, depending on how their views and experiences align with the elected candidate, and the extent to which they feel

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¹ The 2016 Stress in American survey included 3,511 adults and was conducted online by Harris Poll on behalf of the American Psychological Association between 8/5-8/31/16. Data were weighted by age, gender, ethnicity/race, education, region, and household income to reflect the U.S. population.

personally affected by potential policy changes (Craig, Martinez, Gainous, & Kane, 2006; Kawachi & Berkman, 2000).

Studying the 2016 presidential election is warranted given the unique political and sociocultural context. One defining aspect of this election was the especially strong negative opinions concerning trustworthiness and likeability of both major candidates: Donald Trump (Republican) and Hillary Rodham Clinton (Democrat) (Faris et al., 2017; Schill & Kirk, 2017). For instance, data from the Pew Research Center suggested significantly more “negative votes” (i.e., voting against the opposing party’s candidate than voting for your candidate) than previous elections (Geiger, 2016). Individuals voting for a candidate whom they did not wholly support may increase stress due to cognitive dissonance: the psychologically uncomfortable state of discomfort when people feel an inconsistency between their beliefs (Festinger, 1957). Therefore, regardless of political affiliation, the strength of one’s belief that a certain candidate would be a good president may be an important moderator of both perceived and biological stress. Relatedly, this election was considered one of the biggest upsets in modern political history. Almost every major forecasting aggregator heavily favored a Clinton victory in the lead-up to election day (Valentino, King, & Hill, 2017). Therefore, the results of this election may have been particularly surprising or unexpected for voters with lower confidence that Trump would win, which may be reflected in their psychological and physiological responses. Finally, the 2016 election, in particular, appeared to heighten intergroup discrimination and feelings of oppression, specific to ethnicity/race, immigration, and gender (Williams & Medlock, 2017). Given well-known links between social status and stress (Sapolsky, 2005; Williams & Jackson, 2005), participants belonging to oppressed groups (i.e., women and ethnic/racial minorities) may

experience exacerbated psychological and physiological responses during election week due to heightened stress.

We examined two aspects of psychological well-being—positive and negative affect (PA/NA)—given previous research that election advertising and election results affect individuals' mood (Frost & Fingerhut, 2016; Waismel-Manor, Ifergane, & Cohen, 2011). Further, we examined the physiological activation of the hypothalamic-pituitary-adrenal (HPA) axis, as measured by the hormone cortisol. Only a few studies have used cortisol to gauge one's physiological response to national elections (Stanton, Labar, Saini, Kuhn, & Beehner, 2010; Waismel-Manor et al., 2011; Trawalter, Chung, DeSantis, Simon, & Adam, 2011). In Israel, adults exhibited extremely high levels of cortisol immediately following voting in the 2009 national election (Waismel-Manor et al., 2011) and in the U.S. (2008 election), those who voted for the losing candidate (John McCain) exhibited increases in post-outcome cortisol levels, compared to those who voted for the winning candidate (Barak Obama) (Stanton, Labar, Saini, Kuhn, & Beehner, 2010).

Even less is known about *diurnal* cortisol in relation to national elections. Cortisol levels follow a circadian pattern that are high upon waking, peak around 30-60 minutes after waking (cortisol awakening response/CAR), and then decrease slowly over the day to the lowest point around bedtime (Hoyt, Ehrlich, Cham, & Adam, 2016). Growing research suggests that irregular diurnal cortisol patterns (e.g., low waking cortisol, high bedtime cortisol, large CAR) are linked to life stress (Adam & Gunnar, 2001; Chida & Steptoe, 2009; Kunz-Ebrecht, Kirschbaum, Marmot, & Steptoe, 2004; Miller, Chen, & Zhou, 2007). There exists only one study that has looked at diurnal cortisol patterns during an election and it found that, on average, participants (and Republicans, who lost the election, in particular) exhibited maladaptive cortisol rhythms (i.e.

lower levels at waking, higher levels at bedtime) on election day (Trawalter, Chung, DeSantis, Simon, & Adam, 2011). We focused on two aspects of the diurnal cortisol rhythm that best capture dynamic responses to a specific macro-level event (i.e., election results): bedtime cortisol and the CAR. Bedtime cortisol was examined because it most closely aligned with the events of election week (e.g., the unexpected results on election night) and it was assessed at the same time that individuals reported their psychological feelings (i.e., PA and NA). The inability to suppress cortisol at night, leading to prolonged glucocorticoid exposure, is a hypothesized mechanism linking flat cortisol slopes to a variety of poor health outcomes including obesity (Mattsson, Reynolds, Simonyte, Olsson, & Walker, 2009), depression (Gunnar & Vazquez, 2001), and all-cause mortality (Kumari, Shipley, Stafford, & Kivimaki, 2011). The CAR was chosen because it too aligned with events of the election (e.g., next morning after the results) and is considered a distinct feature of the cortisol diurnal rhythm that plays a role in regaining arousal upon waking and helping people meet the anticipated demands of their day (Clow, Hucklebridge, Stalder, Evans, & Thorn, 2010).

In sum, the current study examined young adults' NA, PA, and cortisol levels during election week. We expected high levels of anticipatory stress for all young adults leading up to the election, particularly for members of non-dominant social groups (i.e., women, ethnic/racial minorities). We further hypothesized that post-election responses would be moderated by both demographic and political factors (i.e., perceptions of Trump's presidential abilities and expectation that Trump would win the election). Specifically, women and ethnic/racial minorities would report lower levels of PA, higher NA, and less adaptive cortisol patterns (i.e., higher bedtime level, larger CAR), particularly on election night and subsequent days. Finally, those who were more positive or confident, would display greater PA, lower NA, and exhibit more

adaptive diurnal cortisol patterns (i.e., lower bedtime level, lower CAR) on election night and subsequent days.

2. Methods

2.1. Participants and Procedures

Data from the current study come from two studies focused on college students' stress and emotions during the 2016 U.S. presidential election in a large state school in Arizona and a mid-size private university in New York City; each study was approved by the respective university Institutional Review Boards. Both studies followed similar protocols; students were recruited by posting flyers around campus, sending emails to university student groups, and announcements in university classes. To participate in the study, individuals had to be: a current student, between the ages of 18-25 years old by November 8, 2016, not taking any steroid-based medications, and planning to vote in the 2016 election. Interested students were asked to attend a brief informational meeting that described the study. Young adults who provided informed consent were instructed to complete a baseline online survey (approximately 1 hour) before Sunday, November 6th. Participants were then asked to complete a nightly survey and provide salivary samples on Sunday, Monday, Tuesday, Wednesday, and Thursday (November 6-10, 2016). Nightly surveys were sent at around 8:00pm via email, with instructions to complete immediately before going to bed (and a text message reminder). Each survey asked participants about their stress levels, emotions, activities, and election involvement (e.g., watching news, talking to friends) that day. Participants also provided three salivary samples per day (described below). Participants were instructed to bring finished samples to the lab and pick up their study payment on Friday or the following Monday.

The final sample² included 286 young adults ($M_{\text{age}} = 20.24$, $SD = 2.16$; 72% women; 66% non-Hispanic White), the largest sample to date examining real time psychological or physiological responses to a national election. 189 students were attending school in New York, and 98 in Arizona. The majority of participants (94%) were born in the U.S.; 35% reported at least one parent born outside of the U.S.

2.2. Measures

2.2.1. Positive and negative affect (PA/NA).

Every night, from Sunday-Thursday, participants were asked to indicate the extent to which they felt certain emotions during that day. Questions came from the brief version of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988): positive affective states included 10 items (i.e., interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active) and negative affective states also included 10 items (i.e., distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid). Responses were rated on a scale from 0 (*Very slightly or not at all*) to 4 (*Extremely*) and answers were summed to create a daily PA score ($\alpha = .88-.90$) and a daily NA score ($\alpha = .80-.88$).

2.2.2. Cortisol.

Salivary cortisol was gathered three times per day over five consecutive days (Sunday-Thursday): wake-up, 30 minutes after wake-up, and bedtime. Participants passively drooled through a straw into a 2mL polypropylene tube and labeled each tube with the time and date. Participants were instructed not to eat, drink, or brush their teeth 30 minutes before giving the sample, and to keep completed samples in the refrigerator throughout the study period.

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² One participant dropped out of the study after providing informed consent and beginning the initial survey and was therefore not included in the analytic sample.

Returned samples were labeled and then sent by courier to Biochemisches Laboratory, Trier, Germany to be assayed for cortisol. Past research has shown that cortisol levels are stable at room temperature for several weeks; minimally affected by repeated freeze-thaw cycles and undisturbed by similar shipping conditions (Clements & Parker, 1998). Assays were conducted in duplicate using a time-resolved dissociation-enhanced lanthanide fluorescence immunoassay (DELFA; Dressendörfer, Kirschbaum, Rohde, Stahl, & Strasburger, 1992). The intra-assay coefficient of variation (CVs) ranged from 4.0% - 6.7%, and the corresponding inter-assay CVs ranged from 7.1% - 9.0%. As per prior cortisol studies, the raw cortisol values were transformed using the natural log value and cortisol values were top coded at 3 standard deviations (SDs) above the mean to reduce the effects of outliers on the analysis (Adam & Kumari, 2009). The CAR was based on the formula for area under the curve with respect to increase (i.e., cortisol change from waking level to 30 minutes after waking) based on the first two samples, which has been validated in previous research (Hoyt et al., 2016).

2.2.3. Individual and political predictors.

Gender, race, and political attitudes were assessed using self-report. Gender (1 = cisgender male, 0 = cisgender female)³ and ethnicity/race were reported in the baseline survey. Due to the limited sample size of Black, Hispanic, and Asian participants, ethnicity/race was recoded as either White (1) or ethnic/racial (ER)-minority (0). We also created an indicator for site: New York (1) or Arizona (0). The political moderators were also measured in the baseline survey. Perception of Trump's presidential ability was based on the question, "Please rate how well you think Donald Trump would fulfill the role of president from 0 (lowest/worst rating) to 100 (highest/best rating)." Confidence in whether Trump would win was assessed with the

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³ Additional gender categories (that were not endorsed by any study participants) included trans female, trans male, gender queer, or other gender identity. Given that all youth in the current sample identified as either "cisgender male" or "cisgender female" we will use the terms male/men and female/women in subsequent references to gender.

question, “How confident are you that Donald Trump may win the election?” with response choices ranging from 0 (not confident) to 100 (fully confident). On election night (Tuesday), participants were asked which candidate they had voted for: responses were recoded as either voting for Trump (1) or other (0) and participants with missing data on election night ($n = 15$) were coded by who they planned to vote for on the day closest to the election (i.e., Sunday or Monday night).

2.2.4. Behavioral controls.

To account for daily behaviors related to cortisol secretion, young adults reported on a wide range of behaviors as part of the nightly survey, including whether they had taken a nap, consumed caffeine or alcohol, taken any medication, smoked, or exercised during the day (all responses were coded as 0 = no; 1 = yes). Participants also reported on wake time (current day), bedtime (current day), and prior nights’ hours of sleep hours. In the nightly survey, participants were asked whether they had tests or assignments due in class on each day. Participants who answered affirmatively to either question were coded as having school stress (0 = no school stress; 1 = school stress).

2.3. Analytic Strategy

Piecewise trajectory analyses were conducted in SAS, Version 9.4. These models account for nested data and are used to examine discontinuous or non-linear change across the study duration (Singer & Willet, 2003). For the current study, days (Level 1) were nested within individuals (Level 2), so piecewise models examined how young adults’ emotions and cortisol levels changed across election week (Sunday-Thursday) and whether there was variability by young adult gender, ER-minority status, perception of Trump’s ability to fulfill the role of president, and confidence in Trump’s chances of winning. Utilizing different centering

techniques for time, piecewise models allow for the examination of *initial* levels of the dependent variable (i.e., pre-election intercept), change *before* a particular event (i.e., pre-election slope), change *on or during* an event (i.e., election day intercept), and change *following* an event (i.e., post-election slope)⁴. Time-invariant predictors (i.e., perception of Trump's abilities, and confidence that Trump would win, gender, and ethnicity/race) were interacted with each of the aforementioned parameters to examine variability in individuals' responses throughout election week.

Given that the CAR was assessed in the mornings, coding was adjusted so that the pre-election slope captured intra-individual differences in CAR from Sunday to Tuesday, the election intercept captured the differential change on Wednesday (cortisol upon waking after the election), and the post-election slope captured change from Wednesday to Thursday. For bedtime cortisol and negative/positive affect (collected in the evenings), the pre-election slope captured change from Sunday to Tuesday (for those who reported knowing the results of the election, 35% of individuals) or Wednesday night (for those who did not know the results on Tuesday night); the election intercept captured the differential change in the DV when the results of the election were known and the post-election slope captured change in the DV after that point.

Each dependent variable (i.e., PA, NA, CAR, bedtime cortisol) was modeled separately, with the full set of covariates (gender, ethnicity/race, study site, voting behavior, and daily measures of wake time, bedtime, caffeine use, cigarette use, exercise, alcohol consumption, medication usage, naps, school stress, and prior night's hours of sleep), following the same series of steps: (1) overall model without moderators, (2) moderation by gender, (3) moderation by ER-minority status, (4) moderation by perception of Trump's presidential abilities, and (5)

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⁴ Piecewise model equation without covariates: $Y_{ij} = \pi_{0i} + \pi_{1i}DAY_{ij} + \pi_{2i}ELECTION_{ij} + \pi_{3i}POSTDAY_{ij} + \epsilon_{ij}$

moderation by confidence in Trump winning. Continuous predictors were standardized and dichotomous variables were dummy coded. Significant interactions were probed using Aiken and West (2002) techniques.

Preliminary growth models were estimated to examine whether each intercept and slope should be fixed or random (Singer & Willet, 2003). This was conducted by model comparisons using chi-squared difference tests. Based on non-significant chi-squared statistics, pre-election slope, election intercept, and post-election slope variances were fixed for CAR and bedtime cortisol analyses. For PA, NA, pre-election slope, election intercept, and post-election slope were allowed to vary.

3. Results

Table 1 presents descriptive information about the voting behaviors of our sample and Table 2 presents sample means and standard deviations among key variables. Overall, 68% reported casting their ballot for Clinton, 18% for Trump, and 7% for third party candidates; 7% did not vote. More men (25%) voted for Trump than women (15%), and more women voted for Clinton (72%) than men (57%). Men were more likely to vote for third party candidates or not vote at all. White participants were more likely to vote for Trump (22%) than ER-minorities, 81% of whom voted for Hillary Clinton. Men and White participants, on average, were more positive that Trump would be able to fulfill the role of president, compared to women, $t(284) = -2.86, p = 0.01$, and ER-minorities, $t(284) = -2.91, p = 0.01$. Men and White participants were also more confident that Trump would win the election (compared to women and ER-minorities), although differences were not statistically significant. Perceptions of Trump's ability to fulfill the role of president and confidence in Trump winning were highly correlated, $r(286) = 0.54, p < 0.001$.

We also examined difference in voting behavior and psychological/physiological reactions to the election by site. There were no statistically significant site differences in voting behavior or cortisol levels across the week.⁵ Further, no differences in PA were evident across the two sites; however, differences in NA emerged on election night, $b = .47$, $SE = .19$, $p = .02$. Specifically, Arizona participants reported no change in NA on election night, $b = -.08$, $SE = .16$, $p = .63$, whereas New York participants reported a significant increase in NA, $b = .39$, $SE = .11$, $p < .001$. All subsequent analyses controlled for site.

3.1. Overall Psychological and Physiological Responses to the Election

3.1.1. Positive and negative affect (PA/NA).

The overall model suggested that PA did not change before the election or on election night (Appendix Table A.1, Model 1); however, an increase in PA emerged after the election, $b = .08$, $SE = .04$, $p = .02$. In contrast, NA increased before the election, $b = .25$, $SE = .04$, $p < .001$, peaked on election night, $b = .23$, $SE = .09$, $p = .02$, and decreased after the election, $b = -.64$, $SE = .06$, $p < .001$ (Appendix Table A.2, Model 1).

3.1.2. CAR and bedtime cortisol.

The overall model suggested no change, on average, in CAR or bedtime cortisol before the election, on election night, or after the election (Appendix Table A.3, Model 1; Appendix Table A.4, Model 1).

3.2. Individual Moderators of Election Response

3.2.1. Positive and negative affect (PA/NA).

For PA, gender moderation revealed differences in the initial intercept, pre-election slope, and election night intercept (Appendix Table A.1, Model 2). Specifically, men reported higher

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⁵ A site difference in the CAR after the election emerged ($b = -.08$, $SE = .03$, $p = .03$), however, probing this interaction revealed that neither site's simple slope was statistically significant.

levels of PA on Sunday than women, $b = .20$, $SE = .09$, $p = .04$. Leading up to the election, women reported no change in PA, $b = -.00$, $SE = .03$, $p = .88$, whereas men reported a decrease in PA, $b = -.16$, $SE = .05$, $p < .01$. On election night, women reported a significant decrease in PA, $b = -.16$, $SE = .06$, $p < .01$, whereas men reported a marginally significant increase in positive affect, $b = .20$, $SE = .11$, $p = .07$. No moderation of PA by ER-minority status emerged (Appendix Table A.1, Model 3).

For NA, gender moderation revealed that men and women differed on their post-election slopes; both decreased in NA, but women's decrease, $b = -.72$, $SE = .07$, $p < .001$, was steeper than men's decrease, $b = -.42$, $SE = .11$, $p < .001$ (Appendix Table A.2, Model 2). Moderation by ER-minority status revealed differences in pre-election and post-election slope (Appendix Table A.2, Model 3). For both ER-minority and White young adults, NA increased leading up to the election and decreased after the election; however, the pre-election increase for ER-minority young adults was stronger, $b = .34$, $SE = .06$, $p < .001$, than for White young adults, $b = .19$, $SE = .05$, $p < .001$. Similarly, ER-minority young adults reported a steeper NA decrease after the election, $b = -.82$, $SE = .09$, $p < .001$, than White young adults, $b = -.51$, $SE = .07$, $p < .001$.

3.2.2. CAR and bedtime cortisol.

Gender and ER-minority status did not moderate the CAR response before, during, or after the election (Appendix Table A.3, Model 2 & 3). For bedtime cortisol, test of moderation by gender revealed significant differences between women and men on election night (Appendix Table A.4, Model 2); women's bedtime cortisol did not change, $b = .15$, $SE = .12$, $p = .21$, whereas men's demonstrated a marginally significant drop in bedtime cortisol, $b = -.37$, $SE = .20$, $p = .07$.

Moderation by ER-minority status also revealed significant differences in the pre- and post-election slopes in bedtime cortisol (Appendix Table A.3, Model 3). Specifically, for ER-minority participants, no change in bedtime cortisol levels was observed before ($b = .11$, $SE = .07$, $p = .11$,) or after ($b = -.11$, $SE = .10$, $p = .29$) the election. For White young adults, a marginally significant decrease in bedtime cortisol was observed before the election, $b = -.10$, $SE = .06$, $p = .08$, and a significant increase in bedtime cortisol was observed after the election, $b = .19$, $SE = .09$, $p = .04$.

3.3. Political Moderators of Election Response

3.3.1. Positive and negative affect (PA/NA).

For PA, moderation by perceptions of Trump's ability to fulfill the role of president (Appendix Table A.1, Model 4) was evident on election night and after the election (Appendix Table A.1, Model 4; Figure 1a). Probing of the interaction revealed that on election night, participants with high perceptions of Trump's ability to fulfill the role of president reported no change in their PA, $b = .08$, $SE = .07$, $p = .29$, whereas those who reported low levels of Trump's ability had a significant decrease in PA on election night, $b = -.22$, $SE = .07$, $p < .01$. After the election, the probed interaction revealed that those with high perceptions of Trump's ability reported no change in PA, $b = .00$, $SE = .05$, $p = .86$, whereas those with low perceptions of Trump's ability reported an increase in PA, $b = .15$, $SE = .05$, $p < .01$. Moderation by confidence in Trump winning was evident on election night only (Appendix Table A.1, Model 5). Probing revealed that individuals with high confidence reported no change in PA, $b = .05$, $SE = .07$, $p = .46$; whereas individuals with low confidence in Trump winning reported a significant decrease in PA on election night ($b = -.21$, $SE = .08$, $p < .01$).

For NA, moderation by perceptions of Trump's ability to fulfill the role of president revealed differences on election night and post-election slope (Appendix Table A.2, Model 4; Figure 1b). Specifically, at high levels of fulfillment, NA did not change on election night, $b = -.02$, $SE = .13$, $p = .85$, but decreased after the election, $b = -.44$, $SE = .08$, $p < .001$. For those individuals with low levels of fulfillment, NA increased on election night, $b = .48$, $SE = .13$, $p < .001$, and decreased after the election, $b = -.84$, $SE = .08$, $p < .001$. Moderation by confidence in Trump winning was not significant.

3.3.2. CAR and bedtime cortisol.

For the CAR, political variables did not moderate any of the growth parameters (Appendix Table A.3, Models 4 & 5). For bedtime cortisol, however, moderation by perceptions of Trump's ability to fulfill the role of president emerged on election night, $b = -.21$, $SE = .10$, $p = .03$ (Appendix Table A.4, Model 4; Figure 1c). Probing of the interaction revealed that individuals who reported high levels of Trump's ability (1 SD above the mean) demonstrated no change in bedtime cortisol on election night, $b = -.19$, $SE = .14$, $p = .19$; whereas individuals who reported low levels of Trump's ability (1 SD below the mean) demonstrated a marginally significant increase, $b = .24$, $SE = .14$, $p = .09$. Moderation analyses by confidence in Trump winning demonstrated an interaction on pre- and post-election change (Model 5). Probing of the interaction revealed that individuals who reported high confidence in Trump winning showed no change in bedtime cortisol levels leading up to the election, $b = .08$, $SE = .06$, $p = .15$, and no change after the election ($b = -.07$, $SE = .09$, $p = .45$). Individuals with low confidence demonstrated a marginally significant decline in bedtime cortisol leading up to the election, $b = -.12$, $SE = .06$, $p = .06$, and a significant increase in bedtime cortisol after the election, $b = .21$, $SE = .10$, $p = .03$.

4. Discussion

The current study examined young adults' mood and cortisol diurnal rhythm during the week of the 2016 U.S. presidential election. Overall, our findings support the ecological framework (Bronfenbrenner, 1994), which posits that macro-level sociopolitical events influence individual processes (i.e., mood, cortisol levels). Further, we found that most psychological and physiological responses were largely dependent upon (or moderated by) political attitudes and individual factors.

In the days leading up to the 2016 U.S. presidential election, we observed higher levels of negative affect (NA), and an increase in NA from Sunday to Tuesday (election day) across all young adults, as hypothesized. This pattern supports the idea that the country was experiencing a period of heightened anticipatory election stress (American Psychological Association, 2017). After the election there was a significant decline in NA. Overall, this psychological "recovery" could reflect a regression to the mean for the entire sample (i.e., because individuals exhibited a spike in NA on election night, their NA levels after the election naturally declined). However, given that the first sample was taken only a few days before the election, we do not have a true baseline assessment during a normative, non-election time point. Thus, our recovery explanation may only mean that young adults were returning to their psychological functioning right before the election, which may not be reflective of normal or healthy levels.

Not surprisingly, one of the main distinguishing factors in young adults' responses, particularly on election night, were attitudes towards the winning candidate (Trump). For instance, young adults who expressed negative attitudes towards Trump fulfilling the role of president displayed a pattern of increased bedtime cortisol and NA, and a significant drop in positive affect (PA) on election night, as well as a decrease in NA and increase in PA after the

election. Although this affective pattern suggests a *psychological* recovery after the election, there does not appear to be a *physiological* recovery (i.e., bedtime cortisol levels remain elevated). This mismatch between mood and physiological response (i.e., increased PA, reduced NA, elevated cortisol) may reflect psychological coping mechanisms (e.g., solidarity with others who are upset, avoidance) that affect self-report measures but do not penetrate biological responses. Active coping efforts (e.g., problem-focused or engagement coping) could attenuate cortisol activity in the longer-term, but this may be especially difficult to achieve in the days immediately following an unwanted election result.

Unique findings also emerged when looking at individuals' confidence in Trump's likelihood to win the election. Those with high confidence that Trump would win had no change in any psychological or physiological variables across election week, but those with low confidence demonstrated a drop in PA on election night, as well as a significant increase in bedtime cortisol after the election. Given that all major election forecasting models were predicting a Clinton victory, this physiological response aligns with previous research that surprising and uncontrollable stressors produce the most pronounced cortisol responses (Dickerson & Kemeny, 2004).

Gender and ethnicity/race also emerged as differentiating factors in election experiences. Men, on average, showed a decrease in PA leading up to the election, as well as a marginal increase in PA and decrease in bedtime cortisol on election night. Women, on the other hand, showed a significant decrease in PA on election night (and no post-election recovery). Given previous research that men feel more threatened to females in superior roles (Netchaeva, Kouchaki, & Sheppard, 2015), it is possible that men had a more positive reaction to the maintenance of the patriarchal dominance in the U.S., overall, compared to women. ER-minority

young adults generally reported an increase in NA and marginal increase in bedtime cortisol leading up to the election (with no post-election recovery), whereas White young adults showed increasing NA before the election, decreasing NA after election night, and a distinct physiological response across the week: marginal *drop* in bedtime cortisol before the election and a significant increase after the election. This may suggest a delayed response to the election results among White young adults in this sample, to the extent that they were more surprised by Trump's win than their ER-minority peers.

Many of these effects for individual differences were only marginally significant, which likely reflects the considerable variability within group membership. That is, women/men and ER-minority/White young adults are not homogenous groups—they have considerable variation in political ideology that affect psychological and physiological reactions to macro-level events. Unfortunately, we were unable to test how political ideology interacted with group membership (i.e., 3-way interaction) in the current study due to limited power. Future research with larger samples should examine the complexity of group membership by interacting individual and political characteristics in predicting psychological and physiological reactions to sociopolitical events.

Furthermore, research designs with more sampling points can better assess precise measurements of diurnal changes in cortisol throughout the day, particularly the dynamic nature of the morning awakening response and recovery (Stalder et al., 2015). Notably, we did not observe any significant differences in the CAR before, during, or after the election. Given dramatic shifts in sleep across the study period (i.e., staying up late to watch election results), and previous research with college students that short sleep is associated with morning cortisol

levels (Van Lenten & Doane, 2016), it is possible that changes in sleep behaviors explained most of the variance in the CAR models.

There are several other limitations worth noting. First, young adults participating in this study were attending college, and mostly middle to upper class. Indeed, the effects of election-related events on psychological and physiological functioning may be attenuated in the current study, given that higher placement in the socioeconomic hierarchy can reduce stress and its somatic correlates (Adler et al., 1994). Future research should explore how young adults who do not attend college – the majority of young adults – experience sociopolitical stressors. Further, although students were reminded to complete the diary measure and cortisol sample multiple times per day (via email and text reminders), we did not assess compliance using objective measures. We also assessed cortisol and affect over a limited number of days. Importantly, longitudinal studies are needed to examine the long-term psychological and physiological consequences of elections or other key sociopolitical events, which may particularly significant among marginalized groups (Williams & Medlock, 2017). Future work should consider the long-term impact of elections and related policy changes on women and ethnic/racial minorities, but also other marginalized groups that include immigrants and sexual and gender minority populations.

6. Conclusions

This study demonstrates that macro-level events, such as a presidential election, can influence young adults' psychological and physical functioning. Furthermore, while most individuals reported an increase in negative mood in the days leading up to the election, and a spike on election night, affective and physiological responses were largely dependent upon (or moderated by) gender, ethnicity/race, and political attitudes. In sum, these findings open the door

for researchers to account for the nuanced and multilayered contributions of sociopolitical factors in health and well-being in young adults.

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Table 1. Participant voting behaviors and opinions of Donald Trump in the 2016 presidential election

	Trump (%)	Clinton (%)	Other (%)	Did not vote (%)	Trump Fulfill ^a <i>M (SD)</i>	Trump Win ^b <i>M (SD)</i>
Overall Sample ^c	50 (17.6%)	193 (68.0%)	20 (7.0%)	21 (7.4%)	19.89 (25.50)	37.05 (20.50)
Gender						
Female	31 (14.9%)	150 (72.1%)	13 (6.3%)	14 (6.7%)	17.28 (24.06)	36.56 (20.05)
Male	19 (25.0%)	43 (56.6%)	7 (9.2%)	7 (9.2%)	26.85 (27.99)	38.35 (21.75)
Ethnicity/Race						
White	42 (22.2%)	116 (61.4%)	17 (9.0%)	14 (7.4%)	22.97 (27.76)	38.20 (20.48)
Ethnic-Racial Minority	8 (8.4%)	77 (81.1%)	3 (3.2%)	7 (7.4%)	13.79 (19.02)	34.76 (20.47)
Party Affiliation ^d						
Republican	39 (66.1%)	12 (20.3%)	5 (8.5%)	3 (5.1%)	50.0 (22.6)	47.7 (22.6)
Democrat	3 (2.0%)	134 (91.2%)	1 (0.7%)	9 (6.1%)	8.0 (11.9)	31.6 (16.4)
Other	7 (11.1%)	36 (57.1%)	12 (19.0%)	8 (12.7%)	19.2 (22.0)	38.2 (21.5)

^aParticipants (n = 286) were asked “*How well do you think Donald Trump would fulfill the role of president?*”; ^bParticipants (n = 286) were asked “*How confident are you that Donald Trump may win the election?*” with responses from 0-100%. ^cTwo participants were missing data on voting behavior (n= 284) · ^dSelf-reported party affiliation on the initial survey including: 60 Republican party, 147 Democratic party, 64 Other (60 Independent, 4 Libertarian), 15 missing.

Table 2. Descriptive statistics for key study variables

	Sunday (Day 1)	Monday (Day 2)	Tuesday (Day 3)	Wednesday (Day 4)	Thursday (Day 5)
	%	%	%	%	%
<i>Behavioral Controls</i>					
Nap	23%	21%	22%	21%	28%
Caffeine	58%	57%	55%	54%	60%
Smoked	2%	3%	2%	3%	3%
Alcohol	12%	11%	24%	7%	18%
Exercised	59%	60%	51%	53%	54%
Medications	23%	24%	23%	27%	24%
School Stress	18%	59%	23%	39%	55%
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
<i>Positive Affect</i>					
Female	1.51 (.84)	1.48 (.88)	1.56 (.88)	1.24 (.88)	1.39 (.91)
Male	1.88 (.85)	1.73 (.83)	1.51 (.93)	1.50 (.96)	1.59 (.82)
White	1.72 (.87)	1.67 (.89)	1.64 (.90)	1.45 (.95)	1.54 (.82)
Ethnic-Racial Minority	1.36 (.77)	1.31 (.79)	1.36 (.84)	1.05 (.74)	1.27 (.82)
<i>Negative Affect</i>					
Female	0.89 (.60)	0.82 (.56)	1.71 (.89)	1.63 (.86)	1.17 (.72)
Male	0.90 (.53)	0.89 (.56)	1.50 (.91)	1.35 (.88)	1.06 (.70)
White	0.90 (.56)	0.84 (.56)	1.69 (.88)	1.55 (.87)	1.13 (.70)
Ethnic-Racial Minority	0.88 (.62)	0.85 (.57)	1.56 (.93)	1.54 (.88)	1.15 (.75)
<i>Waking Cortisol</i>					
Female	.25 (.17)	.29 (.22)	.25 (.20)	.27 (.22)	.29 (.22)
Male	.27 (.15)	.29 (.21)	.28 (.22)	.31 (.30)	.32 (.31)
White	.29 (.17)	.31 (.19)	.24 (.23)	.29 (.24)	.31 (.25)
Ethnic-Racial Minority	.23 (.14)	.27 (.24)	.28 (.18)	.27 (.24)	.29 (.25)
<i>Waking+30 Cortisol</i>					
Female	.42 (.30)	.47 (.28)	.41 (.25)	.43 (.28)	.45 (.26)
Male	.41 (.30)	.42 (.28)	.39 (.30)	.38 (.23)	.42 (.20)
White	.41 (.22)	.28 (.02)	.42 (.27)	.41 (.23)	.43 (.26)
Ethnic-Racial Minority	.42 (.37)	.28 (.03)	.38 (.25)	.42 (.30)	.44 (.24)
<i>Bedtime Cortisol</i>					
Female	.08 (.19)	.09 (.26)	.08 (.20)	.09 (.22)	.11 (.21)
Male	.08 (.21)	.10 (.28)	.15 (.40)	.08 (.22)	.12 (.30)
White	.09 (.17)	.23 (.02)	.10 (.29)	.07 (.17)	.12 (.23)
Ethnic-Racial Minority	.07 (.22)	.31 (.03)	.10 (.24)	.10 (.28)	.10 (.24)

Note. Mean and standard deviation (SD) reported for continuous variables; Cortisol values reflect raw values (non-transformed) µg/dL.

Figure Caption

Figure 1. Positive affect (1a), negative affect (1b) and bedtime cortisol levels (1c) across election week, according to one's perception of Donald Trump's ability to fulfill the role of president.