European Neuropsychopharmacology (2011) 21, 789–795

www.elsevier.com/locate/euroneuro

When endocrinology and democracy collide: Emotions, cortisol and voting at national elections

Israel Waismel-Manor [a,*], Gal Ifergane [b], Hagit Cohen [c]

[a] School of Political Science, University of Haifa, Israel
[b] Department of Neurology, Soroka Medical Center, Ben-Gurion University of the Negev, Israel
[c] Ministry of Health, Mental Health Center, Anxiety and Stress Research Unit, Faculty of Health Sciences, Ben-Gurion University of the Negev, Israel

Received 10 January 2011; accepted 6 March 2011

KEYWORDS
Cortisol;
Voting;
Decision-making;
Negative affect

Abstract

Faced with stressful experiences, such as uncertainty or novelty, the adrenal glands secrete glucocorticoid hormones to help us cope with stress. Since many decision-making situations are stressful, there is reason to believe that voting is a stressful event. In this study, we asked voters in Israel's national election (N=113) to report on their general affective state immediately before entering the polling place using the Positive Affect Negative Affect Schedule (PANAS) and to provide us with a saliva sample through which we could evaluate their cortisol levels. Compared to a second sample of voters who reported their affective state on election night (N=70), we found that voters at the ballot box had higher positive and negative affect. Moreover, our voters at the polling place exhibited cortisol levels that were significantly higher than their own normal levels obtained on a similar day, and significantly higher than those of a second control group sampled the day after the elections (N=6). Our data demonstrate that elections are exciting, yet stressful events, and it is this stress, among other factors, that elevates the cortisol levels of voters. Since elevated cortisol has been found to affect memory consolidation, impair memory retrieval and lead to risk-seeking behavior, we discuss how these outcomes of elevated cortisol levels may affect voting in general and the field of electoral studies in particular.

1. Introduction

Faced with stressful experiences, such as uncertainty, novelty and lack of control, the adrenal glands secrete glucocorticoid hormones, which, together with other components, facilitate our ability to cope with stress (Hennessy and Levine, 1979). For this reason cortisol is sometimes called the stress hormone, because its main function is to help the body cope with a potential threat. Obviously, increases in cortisol occur not only in a fighting situation. In fact, research has documented such increases in many other situations involving decision-making tasks, from students taking exams (al'Absi, et al., 1994) to

* Corresponding author at: Amadrega 4018, University of Haifa, 31905, Israel. Tel.: +972 52 606 9998.
E-mail address: wisrael@poli.haifa.ac.il (I. Waismel-Manor).

0924-977X/$ - see front matter © 2011 Elsevier B.V. and ECNP. All rights reserved.
doi:10.1016/j.euroneuro.2011.03.003

traders making financial decisions (Coates and Herbert, 2008). Increases in cortisol can even take place in anticipation of stressful events (Lacey et al., 2000; Martinek et al., 2003).

Emotions have been found to play a major role during elections. Marcus et al. (2000) found that while enthusiasm reflects and reinforces individuals' preferences, anxiety leads people to interrupt their habitual behavior and seek new information. However, given that National Election Studies do not test these emotions directly, but rather voters' anxiety and enthusiasm about the candidates, it is most likely the voters' evaluations that influence their feelings towards the candidates (Ladd and Lenz, 2008).

Is voting itself an exciting or an anxious event? Given that stress is a key element in many decision-making situations in which much is at stake, and choosing one alternative over the other involves risk and uncertainty (Janis and Mann, 1977), there is reason to believe that voters will feel anxious and exhibit higher than normal cortisol levels. These levels should be higher among those who expect greater losses (Janis and Mann, 1982), such as supporters of parties likely to lose an election, and those in a state of decisional conflict (Janis and Mann, 1977), debating among themselves who they should vote for.

In a recent study, Stanton et al. (2010) show that on the 2008 election night in the United States, those who voted for John McCain experienced increases in post-outcome cortisol levels, while Barack Obama supporters had stable cortisol levels. This finding seems to suggest that stress and hormonal levels (other than testosterone) may be related to political decisions. However, to our knowledge, this hypothesis has never been tested directly, either by asking voters at the ballot box to report their general affective state or by probing biomedical measures such as serum or salivary cortisol. Moreover, if cortisol is indeed elevated at the time of voting, what may be its implications on voting itself?

The 2009 Israeli national election presented us with an opportunity to test this hypothesis. Israeli elections are always emotional ordeals. However, this election was particularly emotional, coming on the heels of two wars in less than three years. The election was also a struggle between two camps, with Kadima and Labor pushing for a two-state solution, and Likud and Israel Beiteinu calling for an amorphous regional solution, understood by many as the continuation of the status quo. Hence, the election was the perfect proving ground for testing our hypotheses.

2. Experimental procedures

2.1. Subjects

The study was conducted on Israel's national election day in 2009 in Omer, a small southern town 70 miles from Tel Aviv. This location was chosen due to harsher weather conditions elsewhere.[1] The main group of subjects was recruited on Election Day at the town's sole polling place (n=113; 70 (61.9%) male; age range 20–84; mean 46, SD 15.95). Each participant completed a survey and submitted a biomedical sample. Forty percent of them volunteered to participate in a second wave conducted 21 months after the elections (n=46; 27 (58.7%) male; age range 23–84; mean 45, SD 17.2). Fifty percent of the second wave participants also completed the biomedical component of the study (n=23; 18 (78.3%) male; age range 26–83; mean 54, SD 13.7) (Fig. 1).

A second group of participants was recruited on the evening of Election Day through a random telephone survey sample of eligible voters conducted in the very same town (response rate=37.9%). Of these participants, 70 stated that they had already voted and another 7 indicated that they intended to do so later that evening (n=77; 30 (36.6%) male; age range 22–84; mean 55, SD 13.8).

To ensure that cortisol levels were not the product of recent local stressful events,[2] the following day we collected saliva samples from a third group of randomly selected residents from the same town (n=6; 3 (50%) male; age range 38–62; mean 50.2 SD 8.9).

All of the participants were told that participation was voluntary and that their participation confirmed their consent. The study was approved by the local Committee for Ethical Research and the Protection of Human Participants.

2.2. Experimental procedure

Local election personnel allowed us to set up our stand about a dozen yards from the voting booths' entrance. All adults who entered the polling place were invited to participate in the study — prior to voting. Those who agreed were informed that they would be asked to complete a short questionnaire and provide us with a saliva sample through which we could evaluate their affective state prior to voting. People who were smoking or chewing gum were excluded from the study, as were non-eligible voters or individuals not fluent in Hebrew who would be unable to fill out the questionnaire. Using a screening question we further excluded voters who had experienced a major traumatic event, such as a divorce, terrorism or the terminal disease or death of a loved one in the six months prior to the election. Voters receiving steroid treatment for any medical condition or suffering from any endocrine disorder affecting steroid levels were excluded as well. All those who agreed to participate in the study were asked to fill a small vial with saliva and complete the questionnaire. Data were gathered between 8:30 in the morning and 2:00 in the afternoon. Saliva examples were stored at −20 °C before assay. The evening control group was recruited through a random telephone survey conducted among eligible voters in the very same town between 1700 h and 1900 h. To match the majority of our Election Day sample, the cortisol control group samples were collected the day after the election between 1100 h and 1300 h.

To ensure that the second wave of participants was identical to the first in all but the act of voting itself, we coordinated the visits with our respondents on their day off from work around the same time they were sampled during wave one. Since diurnal cortisol levels decrease considerably in the first few hours after awakening, we insisted that wave one early voters (those who voted prior to 10:00 h) be sampled at the same time or earlier than they were sampled in wave one (n=8; mean −30.3 minutes; SD 22.27). For later voters, where the difference between the average person's 10:00 cortisol level is only 2 ng/ml higher than his 16:00 h level (Yehuda et al., 2003, 354), we allowed respondents to participate before and after their original sample time, with the majority completing it within an hour of their original time (n=27; mean+41.6 minutes; SD: 42.7).

2.3. Questionnaire

To capture the mood of voters prior to casting their ballot we used the Positive Affect Negative Affect Schedule (PANAS). Developed by

[1] The Israeli Metrological Service reported that the weather was the second worst in Election Day history, with rain in most of the country except southern Israel.

[2] Twenty days before the election Israel completed Operation Cast Lead, a three-week long war against the Palestinians in southern Israel and the Gaza Strip.