2017

The Effects of Ego Depletion and Emotional Intelligence on Risk-Taking

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Suggested Citation
Bishop, Travis, "The Effects of Ego Depletion and Emotional Intelligence on Risk-Taking" (2017). UNF Graduate Theses and Dissertations. 759.
https://digitalcommons.unf.edu/etd/759
The Effects of Ego Depletion and Emotional Intelligence on Risk-Taking

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A Thesis submitted to the Department of Psychology
in partial fulfillment of the requirements for the degree of
Master of Science in Psychological Science
UNIVERSITY OF NORTH FLORIDA
COLLEGE OF ARTS AND SCIENCES
August 2017
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Abstract

Ego depletion theory postulates that the ability to exert self-control depends upon the availability of a limited mental resource. In this experiment, we investigated the effects of ego depletion on risky decision-making. We also examined the moderating effect emotional intelligence may have on this relationship. First, participants completed a trait emotional intelligence questionnaire and a self-control task. This was followed by a mood questionnaire and a series of risky-decision scenarios. Results showed (1) participants who were depleted made more risky decisions than non-depleted participants, (2) no differences in perceived task effort between groups, (3) no evidence of a moderating effect for emotional intelligence and (4) depleted participants were more aroused and their moods were more negative than non-depleted participants. Taken together, these results imply that ego depletion enhances the inclination to take risks and that decisions involving risks should not be made under these conditions.
The Effects of Ego Depletion and Emotional Intelligence on Risk-Taking

As most people can attest, it is often quite difficult to avoid immediate, or persistent behaviors in order to follow rules, get along with others or achieve long-term goals. Such actions generally require the exertion of self-regulatory resources (Muraven, 2011). An extensive body of research suggests that an individual’s self-control capacity fluctuates and can be easily depleted by short actions of self-control such as changing a mood state or inhibiting thoughts, which results in a state of diminished resources or ego depletion (Heatherton & Baumeister, 1996). Prior research has focused primarily on the consequences of ego depletion. Findings indicate that a deterioration of self-control resources makes people less focused on long-term goals or plans (Langhe, Sweldens, Van-Osselaer, & Tuk, 2009). Therefore, people tend to behave more impulsively in an attempt to alleviate urges or desires which may result in potentially destructive behaviors such as increased alcohol consumption, drug use, sexual indiscretion, impulsive spending or overeating (Langhe et al., 2009).

In this paper, we adopt a dual-process framework which suggests that decision-making is a joint function of both a rational and emotional information-processing system (van Gelder, de Vries, & van der Pligt, 2011) to investigate how the availability of self-control resources or ego strength is related to risk seeking or risk aversion. Furthermore, we investigate how emotional intelligence - the ability to perceive, understand and use emotions to assist in decision-making - influences behavioral outcomes when in a state of ego depletion. Many decisions require sophisticated strategies which consume time and cognitive resources (Pohl, Erdfelder, Hilbig, Liebke, & Stahlberg, 2013). Therefore, better understanding how ego depletion operates will allow us to determine how a person is able to override a potentially negative response or
decision, in favor of a safer, more adaptive and practical decision when insufficient cognitive resources are available.

**Self-Control Strength**

Research concerning self-control failure has suggested that self-control is vulnerable to deterioration and thus worsens over time. Much like a muscle that becomes fatigued after prolonged exercise, exerting self-control causes future attempts at self-control to suffer. Such a depletion model is often contrasted with a skill model of self-control. Skill models predict that self-control should not be directly affected by the demands of a previous task (Muraven, 2011). However, extensive research has strongly suggested that the depletion model is the best fit for observed data on self-control (Heatherton & Baumeister, 1996). The basic approach to testing the depleted-resource model involves a dual task paradigm. This paradigm incorporates the use of two unrelated self-control tasks, whereby self-control is measured at two different time points. Poorer performance on a subsequent self-control task as evidenced by decreased persistence and frustration is often used as an indicator of diminished resource capacity (Hagger, Wood, Stiff, & Chatzisarantis, 2010). For example, Baumeister, Bratslavsky, Muraven, and Tice (1998) found that only five minutes of resisting the temptation of eating cookies and forcing oneself to consume radishes reduced persistence on a set of difficult puzzles from 21 to 8 minutes.

Further evidence for the depleted-resource model was provided by Baumeister, Vohs, and Tice (2007) who demonstrated that while watching an emotionally evocative film, attempting to suppress one’s emotional responses caused a decrease in performance on a test of physical stamina. Handgrip strength was used as a measure of self-control because it involved resisting the urge to quit due to fatigue. Hand strength was measured both before and after affect regulation to control for variations in strength. This effect has also been relatively consistent
across different spheres and domains of depletion. Each of these studies asserts that the first self-control task consumed and depleted a cognitive resource and was, therefore, less available to aid performance on the second self-control task.

It has been suggested by Muraven and Baumeister (2000) that engaging in self-control draws upon a resource called self-control strength or ego strength. The amount of ego strength one possesses is critical to any attempt at self-control and is not used for any other activity except self-control. After engaging in repeated activities requiring self-control, people have less ego strength and are said to be in a state of ego depletion. As noted in several studies, the observed depletion effects do not appear to be a function of perceived self-efficacy, mood or arousal (Baumeister et al., 1998; Fischer, Kastenmuller, & Asal, 2012). In short, the observed decline in self-control performance after exercising self-control appears to be directly related to the amount of self-control exerted and cannot be better explained by other psychological processes such as frustration, irritation or boredom.

Outcomes of Depletion

Consistent with the strength model of self-control, the most obvious consequence of depletion is a loss of self-control (Baumeister, 2002). As previously mentioned this effect has carried over to many different domains. For instance, in a series of experiments examining the impact of ego depletion on aggressive behaviors, Stucke and Baumeister (2006) showed that depleted participants were more willing to give into aggressive impulses. More specifically, depleted participants judged the experimenters more negatively as indicated by retaliatory and potentially damaging evaluations of the experimenters. Depletion of ego strength has also been found to affect both implicit and explicit attitudes towards alcohol consumption. To this end, Muraven, Collins, and Nienhaus (2002) found that after controlling one’s thoughts, social
drinkers consumed greater amounts of alcohol despite incentives to refrain from doing so when compared to social drinkers who were asked to solve difficult math problems that did not require self-control. Furthermore, ego depletion has also been found to affect smoking behavior, impulsive spending, overeating and the regulation of sexual urges (Gailliot & Baumeister, 2007; Vohs & Faber, 2007).

Furthermore, it has been shown that depleted individuals demonstrated an increase in approach motivation and were more reward-seeking than nondepleted participants (Giacomantonio, Jordan, Fennis, & Panno, 2014). Additionally, Schmeichel and Harmon-Jones (2010) also demonstrated that depleted individuals displayed increased approach motivation. That is, they focused more on reward-relevant stimuli and less on reward-irrelevant stimuli. Ego depletion could, therefore, lead to poorer self-control by strengthening impulses toward reward and undermining inhibition.

As would be expected, depletion appears to affect various aspects of cognition. Basic cognitive processes affected by depletion are considered to require higher executive function. For example, depleted individuals tend to do worse than non-depleted individuals on tests of logic and reasoning as well as tests of reading and arithmetic competency. Due to these observed changes in cognitive functioning, it stands to reason that decision-making is also affected by depletion, given that one of the most important cognitive resources necessary for making good decisions is self-control. In general, it appears that depleted individuals take more risks, make worse decisions, and fail to consider all decision alternatives as well and as thoroughly as non-depleted individuals (Freeman & Muraven, 2010). In the section that follows, a brief overview of the dual-process model of decision-making will be discussed.
The Dual-Process Model

Many decision theories assume that people decide on a particular course of action by making a mental calculation that incorporates the probability of the decision outcome with an evaluation of the success of these outcomes (Gelder, De Vries, & Pligt, 2009). When making risky decisions, however, Kahneman and Tversky (1982) suggest that people combine the perceived severity or possible consequences of an outcome of a decision with the perceived probability of its occurrence. More recent literature has also started to address the prominent role that affect plays when making risky decisions. For example, Slovic, Fincane, Peters, and MacGregor (2004) propose that decision-making is a function of two different information-processing systems: an analytic or “rational” system which utilizes normative rules, calculations of probability, formal logic, reasoning, and risk assessment; and an experiential or “affective” system which is fast, automatic, and requires little deliberate control. In sum, risk behavior is influenced by both conscious, effortful goals and underlying emotional states.

The analytic and affective systems do not have identical determinants or equal consequences for risky behavior. When making decisions, people differ in the way they react affectively and in their tendency to rely on the affective information when choosing a course of action. The analytic system depends more so on objective features of the risky situation, as well as probabilities and careful assessments of outcome severity. Consequently, the response of the affective system in a risky situation is likely to shift depending on previous experiences with similar situations, such as formerly experienced emotional reactions. Although the analytic system is also influenced by previous knowledge, the outcomes of the system are determined more so by objective features of the current situation and therefore remain relatively stable and unchanged in terms of the decision-making process.
Given that the analytic system is the slower and more effortful of the two information-processing systems, Epstein (2003) suggests that it is ideal for monitoring the output of the affective system. Baumeister et al. (2007) have recently put forth the notion that self-regulatory resources serve as fuel for the cognitive system. Therefore, when sufficient cognitive resources are available, the output of the affective system should be closely monitored by the analytic system and overridden if necessary to ensure optimal decision-making. However, when cognitive resources are low, the monitoring capacity of the analytic system is reduced; thus, the output of the affective system is weighted more heavily when making a final decision (Strack, Werth, & Deutsch, 2006). It has been well established that ego strength can be easily depleted by actions requiring self-control. Baumeister et al. (2007) further suggest that when ego depletion occurs, it leads to an increased reliance on affective decision-making. Empirical evidence for this notion will be reviewed here.

**Depletion and Decision-Making**

As stated previously, depleted individuals appear to take more risks and make worse decisions than non-depleted individuals. To this end, Fischer et al. (2012) examined the influence of ego depletion on risky decision-making by employing a quasi-simulated driving paradigm. For this task, participants were exposed to 15 videotaped driving situations and instructed to indicate whether they would abandon or complete the presented vehicle maneuver when depleted. The time elapsed between the start of the video clip and the participant’s decision to abandon the vehicle maneuver was used as a measure of risk. Depleted individuals were significantly less cautious in dangerous road traffic situations than non-depleted individuals, as indicated by higher response times. These results are in line with Bruyneel, Dewitte, Franses, and
Dekimpe (2009) who showed that salient negative affective states lead to increased risk-taking via resource depletion caused by attempts to regulate the affective states.

Freeman and Muraven (2010) have found similar patterns. In their study, 12 hypothetical scenarios were used, in which a character was given the choice between two different courses of action. Although one of the options is more desirable, the probability of achieving it is less certain than the safer option. Results indicated that depleted participants chose the riskier option more often than non-depleted participants. Further evidence for this position comes from research which showed that both negative affective states and increased arousal lead to greater risk-taking, thus, demonstrating that affective decision-making can lead to suboptimal outcomes (Leith & Baumeister, 1996).

Although prior research appears to suggest that ego depletion leads invariably to greater risk-taking, a case can be made that depletion may lead to increased risk aversion. Unger and Stahlberg (2011) suggested that many of the aforementioned studies examined the impact of ego depletion in situations in which the decision-maker had little control over the outcomes of the decision. They further stated that in cases where the decision-maker had more control over the outcomes and thus more responsibility, risk aversion would be expected. To this end, they showed that depleted individuals were significantly less inclined to take risks and acted more cautiously when deciding where to build a new management company than non-depleted individuals (Unger & Stahlberg, 2011). Additionally, Langhe et al. (2009) assert that when depletion occurs, the affective information-processing system becomes inherently risk averse, due to a general bias to give greater weight to negative contingencies. In this regard, they illustrated that depleted participants demonstrated more risk aversive behavior. That is, the depleted participants made fewer risky investment decisions in mixed gambling situations than
non-depleted participants. Taken together, these results suggest that an increased reliance on the affective information processing system due to ego depletion may not indiscriminately result in increased risk-taking and are indicative of a potential moderating factor influencing decision outcomes when depleted. We now outline one possible moderator, emotional intelligence.

**Emotional Intelligence: Ability or Trait**

Currently, there are two construct models used to define emotional intelligence (EI). First is the ability model, which purports that EI is a type of aptitude and therefore overlaps with general cognitive abilities (Joseph & Newman, 2010). Originally conceptualized by Mayer, Caruso, and Salovey (2000) EI is believed to represent “the ability to accurately reason about emotion and use emotional knowledge to advance thought.” As a mental ability, EI is also thought to be distinct from social-emotional personality characteristics (See below). Despite the widespread use of ability EI models, several criticisms have been noted. For example, Vergara, Alonso-Alberca, San-Juan, Aldas, and Vozmediano (2015) assert that ability EI models may be limited in their capacity to detect individual differences in people’s reactions to changes in their affective states and that due to the subjectivity of the perceivers’ emotional experiences, EI cannot be reliably assessed using performance-based testing.

The second model used to define EI is the trait model, which conceptualizes EI as a constellation of behavioral dispositions and self-perceptions concerning one’s ability to recognize, process and use emotion-based information (Petrides & Furnham, 2001). Trait EI has demonstrated a capacity to better predict reactions to affective changes. Trait EI may also provide greater insight into how emotional processes and other psychological processes relate to one another (Vergara et al., 2015). However, much like ability models of EI, criticisms have been raised concerning trait models of EI. For instance, one of the most substantial criticisms of
the trait EI construct concerns its’ discriminant validity with regards to other personality traits (Mathews, Zeidner, & Roberts, 2001). However, many studies have revealed correlations between trait EI and personality are not large enough to raise doubt about the discriminant validity of trait EI (Avsec, 2012). For the purposes of our investigation, we utilized a trait EI framework when discussing how EI influences decision-making.

**Emotional Intelligence and Decision-Making**

Extensive evidence suggests that certain aspects of decision-making are influenced by emotions, especially when considering the difficulty or riskiness associated with the decision (van Gelder et al., 2009). When insufficient cognitive resources are available, it has been established that the output of the affective information-processing system is heavily weighted in the decision (Strack et al., 2006). Thus, it stands to reason that individuals with high EI should possess a greater capacity for using emotion-based information to facilitate effective decision-making. To this end, it has been shown that when making risky decisions, individuals with greater EI were more likely to use objective information rather than rely on irrelevant emotional information (Day & Carroll, 2004). While it is believed by some that emotions disrupt adaptive decision-making, individuals with high EI have also previously demonstrated a high adaptive advantage which protects them against making choices which lead to negative outcomes.

Furthermore, Pilarik and Sarmany-Schuller (2009) showed that participants with high EI displayed a greater number of advantageous choices during the Iowa Gambling task than participants with lower EI. It is thought that perhaps these individuals are able to use emotional signals, derived through greater emotional awareness as a means of achieving high levels of decision effectiveness. Individuals with lower EI, however, typically engage in riskier behaviors and make poorer decisions such as chronic smoking (Hill & Maggi, 2011). These results
illustrate that EI is crucial to maximizing advantageous decision outcomes, especially when insufficient cognitive resources are available. In a similar vein, Telle, Senior, and Butler (2011) demonstrated that individuals who were higher in EI performed significantly better in a social gambling task. It is further suggested, that individuals high in EI may produce internal emotional cues of higher quality; thus, resulting in better situational assessments, judgments, and decisions, all of which may have profound effects when in a state of depletion.

The present study uses the self-control strength model to examine how self-control depletion and emotional intelligence contribute to risky decision-making. The following four hypotheses were tested. First, it was hypothesized that depleted participants would take more risks than non-depleted participants. Second, it was hypothesized that depleted participants would have to use more effort on the self-control task than non-depleted participants. Third, we hypothesized that emotional intelligence would moderate the effect of depletion condition risk-taking; specifically, it was hypothesized that depleted individuals with high emotional intelligence would be more risk adverse; whereas, depleted individuals with low emotional intelligence would be more likely to make risky decisions. Lastly, it was hypothesized that there would be no differences in mood between depleted and non-depleted participants see previous findings (Alberts, Martijn, & de Vries, 2011). This study adds to previous research by directly focusing on the role of emotional intelligence and ego depletion in a variety of risky situations.
Method

Participants

The participants in this study were 118 students from the University of North Florida, who volunteered in exchange for course extra credit. All participants were between 18 and 60 years of age ($M = 21.52$, $SD = 4.95$). Of those who responded, 21% were male and 79% were female. Additionally, regarding ethnicity 65% of participants were Caucasian, 10% were African-American, 9% were Hispanic, 7% were Asian and 7% were other. Prior to any research procedures, all participants signed an informed consent approved by the University of North Florida Institutional Review Board.

Instruments

**Trait Emotional Intelligence.** To assess emotional intelligence, we used the Trait Emotional Intelligence Questionnaire Short Form (TEIQ-SF) (Cooper & Petrides, 2010). The questionnaire consisted of 30 items, two items were included from each of the 15 subscales of TEIQ full form to provide a comprehensive coverage of the trait EI domain, and to produce a global EI score. Each item was presented on a 7 point Likert Scale where (1 = completely disagree) and (7 = completely agree). Scores on the TEIQ-SF may range from 30 to 210, with higher scores indicating greater EI. A sample item is “Many times I can’t figure out what emotion I am feeling”. The TEIQ-SF has previously demonstrated high reliability with Cronbach’s Alpha’s ranging from .87 – .89. The Cronbach’s alpha for the current study was .87.

**A & N Controlled Writing Task.** To induce ego depletion, the A & N controlled writing task was used (Mead, Baumeister, Gino, Schweitzer & Ariely, 2007). This task requires that participants provide responses to three individual prompts, with the provision that both letters A and N cannot be used in the response. For example, one such prompt may require participants to
describe their current residence and what it looks like. A 140-character response limit was imposed on each prompt. Also, included in the survey, was a question regarding the difficulty of the controlled writing task, which served as a manipulation check for the task. This task has been successfully used to manipulate regulatory resources in previous research (Mead et al., 2009).

**Brief Mood Introspection Scale.** To assess the influence of mood on task performance, the Brief Mood Introspection Scale (BMIS) was used (Mayer & Gaschke, 1988). The BMIS consisted of 16 words, such as “happy” or “gloomy” and asked respondents to indicate how well each word described their current feelings. Each item was scored using a four-point Likert Scale where (1 = definitely do not feel) and (4 = definitely feel). The BMIS has previously demonstrated high reliability with Cronbach’s Alpha’s ranging from .76 – .83. The Cronbach’s Alpha for the current study was .87.

**Decision Scenarios.** To examine the impact of ego depletion on decision-making, four risky-decision scenarios were created. Each scenario pertained to a different decision domain such as financial, career, social, and health decision-making; (see Appendix). For each scenario, three answer options were available to participants, a highly risky option, a moderately risky option, and a low-risk option. Scores may range from 1 – risk aversive to 3 – highly risk-taking.

**Demographic Questionnaire.** A brief demographic questionnaire was used to gather information regarding the participant’s age, gender, and ethnicity.

**Procedure**

The participants were recruited using the university’s SONA online survey system. After the participants arrived at the laboratory, they were first presented with an informed consent form. Once participants agreed to participate, they were randomly assigned to either an ego-depletion or no-depletion condition. Following the assignment, participants in both conditions
completed the Trait Emotional Intelligence Questionnaire Short Form (TEIQ-SF), a brief questionnaire designed to assess global trait emotional intelligence.

Thereafter, participants completed the A & N controlled writing task which requires participants to respond to a series of prompts without using words containing the letters A or N. However, those in the no-depletion condition were not subject to the same restrictions as participants in the depletion condition and could use all letters. After completing the A & N task, participants completed the Brief Mood Introspection Scale (BMIS). The BMIS is a measure designed to assess a respondent’s current feelings.

Participants were then presented with a series of risky decision scenarios. Each scenario required the participants to choose between three potential options a low, moderate, and high-risk course of action, across four separate decisional domains including financial, career, social and health related decisions. Lastly, after completing the decision scenarios, participants completed a brief demographic questionnaire designed to gather information concerning participant’s age, gender, and ethnicity. After completing all measures, the participants were thanked for their participation in the study, thoroughly debriefed, and any questions or concerns regarding the study were addressed.

**Results**

**Risk-Taking**

The main dependent variable of interest in this experiment was the participant’s inclination to take risks. We predicted that participants in the depletion condition would take more risks than participants in the no-depletion condition. To test this hypothesis, we utilized an independent samples t-test. The analysis yielded a significant effect for depletion condition on participant risk-taking $t(116) = 10.49$, $p < .001$, $d = 1.94$. Consistent with our hypothesis,
depleted participants took more risks ($M = 2.23, SD = .24$) than non-depleted participants ($M = 1.81, SD = .19$).

**Perceived Effort**

An additional independent samples t-test was conducted to assess differences in perceived effort on the verbal flexibility task. We hypothesized that participants in the depletion condition would find the verbal flexibility task more demanding and effortful than participants in the no-depletion condition. The analyses revealed no significant differences in perceived effort between the depleted participants ($M = 17.38, SD = 3.87$) and non-depleted participants ($M = 16.52, SD = 3.45$), $t(116) = 1.28, p = .20, d = .24$.

**Emotional Intelligence**

Multiple regression was then used to determine whether trait emotional intelligence scores moderated the effect of depletion condition on participant risk-taking. Depletion condition and global trait emotional intelligence scores were entered as predictors of participant risk-taking. The interaction effect between depletion condition and trait emotional intelligence was non-significant $\beta = .15, p = .48$, indicating no moderation.

**Mood**

We conducted additional analyses to determine if differences in mood valence or mood arousal could account for differences between conditions. A series of independent samples t-tests were conducted with depletion condition predicting the subscales of the Brief Mood Introspection Scale (BMIS). There were no significant differences in scores for the pleasant-unpleasant subscale $t(99) = -.45, p = .65$, or the negative-relaxed subscale $t(112) = -.67, p = .51$. However, there were significant differences in positive-tired mood subscale scores between the depleted participants ($M = 16.95, SD = 5.08$) and non-depleted participants ($M = 19.08, SD =$
4.38), $t(107) = -2.32, p = .02, d = -.45$ indicating that depleted participants moods were more negative than non-depleted participants. Additionally, there were also significant differences in arousal-calm mood subscale scores between the depleted participants ($M = 26.10, SD = 4.50$) and non-depleted participants ($M = 28.22, SD = 3.53$), $t(102) = -2.61, p = .01, d = -.52$ indicating that depleted participants experienced less arousal than non-depleted participants.

**Discussion**

Ego depletion theory views self-control as a limited resource. The limited resource model proposed by Baumeister and colleagues posits that depleting self-control resources negatively impacts future attempts at self-control. The purpose of the present study was to examine the potential for the ego depletion effect to be influenced by emotional intelligence and how that may influence the propensity to take risks. Regarding the effect of ego depletion on risk-taking, previous research has indicated contradictory results. Whereas Langhe et al. (2007) have observed increased risk-aversion when depleted, both Freeman and Muraven (2010) and Fischer et al. (2012) have reported increased risk-taking when depleted. We believe that these contradictory results could be explained by taking into account both affective influences and our ability to perceive and interpret such information.

Regarding risk-taking behavior, it was hypothesized that those who were depleted would take more risks than those who were not depleted. Our results indicated an effect for depletion. that is, individuals who were depleted displayed greater risk-taking behavior than individuals who were not subjected to depletion, thus supporting our hypothesis. Given the underpinnings of each construct, such findings are in line with previous research. Self-control behaviors rely heavily on effortful and controlled information-processing and are designed to maximize long-term interests (Baumeister, 2002). Ego depletion disrupts our ability to engage in higher level
cognitive processing, which can then lead to less desirable outcomes such as risk-taking (Macrae et al., 2014).

Participants in this study were presented with a series of prompts and asked to provide a response in which they had either to reframe from using the letters A or N or provide a response with no restrictions. No statistically significant differences were found when examining perceived task difficulty and effort. Given that previous literature has indicated that the A&N controlled writing task adversely affected participant’s effort and persistence (Mead et al., 2007), it is surprising that non-depleted participants found their task to be as difficult as the task for depleted participants despite any task restrictions. It may be the case that the demands of the research design were ineffective in influencing perceived effort on the task. Such limitations will be more thoroughly discussed below.

It was hypothesized that participants ‘global emotional intelligence scores would moderate the relation between ego depletion and risky decision-making. More specifically, it was believed that participants with higher global emotional intelligence scores would be more risk averse when depleted than participants with lower global emotional intelligence scores. No significant moderation was detected between the variables of interest. Given that emotional intelligence has been previously shown to facilitate adaptive decision-making and improve situational assessments (Telle et al., 2011), it is surprising that its impact on risk-taking was negligible under conditions of depletion.

The BMIS was administered to assess if mood influenced participant risk-taking. No significant differences were found between conditions for the pleasant-unpleasant mood subscale or the negative-relaxed mood subscale. However, our findings did indicate that there were differences between conditions for both the positive-tired mood subscale and the arousal-calm
mood subscale. Depleted participants experienced greater negative affect and lower levels of arousal than non-depleted participants. These findings are in line with previous research which suggests that depleted individuals may experience an increase in negative affect, and a decrease in positive affect (Hagger et al., 2010). The lower levels of arousal, however, may be attributed to fatigue induced by the self-control task.

**Limitations and Future Direction**

One limitation of our study pertains to the time allotted to complete the self-control depletion task and the character limit imposed on the responses. Due to time constraints, each of the prompts used in the current study had a predetermined response time of three minutes, resulting in a total response time of nine minutes. Additionally, a response limit of 140 characters was used. Historically, the A&N controlled writing task does not utilize a time limit or a response length limit; therefore, it is possible that the lack of differences in perceived effort between the groups reflects insufficient task length. Future studies should reframe from using time restrictions when using measures of depletion to ensure adequate effort is put forth on the tasks.

Regarding emotional intelligence, it may be that the expected anticipatory emotional reactions elicited by features of the risk-decision scenarios were not pervasive enough to warrant further assessment via the affective information-processing system. Therefore, emotional intelligence would carry little weight in determining decision outcomes even in a state of ego depletion. Therefore, further empirical work should investigate the possible effects of emotional intelligence when using measures of risk in which the behavioral consequences are immediate.
Conclusion

Decision-making and self-control are both important aspects of the self’s executive function. It is, therefore, useful to acknowledge that both processes draw upon a common psychological resource. The main findings of the current study, that ego depletion leads to increased risk-taking, have major practical implications. They suggest that prototypical decisions involving risk should never be made in a state of ego depletion, for many of these decisions have consequences that can compromise the personal safety of both the self and also others as well.
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doi:10.1037/0033-2909.126.2.247


Table 1

*Correlations between Global EI, Mean-Risk, Perceived Effort, and BMIS*

<table>
<thead>
<tr>
<th></th>
<th>Global</th>
<th>Mean-Risk</th>
<th>Perceived Effort</th>
<th>Pleasant-Unpleasant</th>
<th>Arousal-Calm</th>
<th>Positive-Tired</th>
<th>Negative-Relaxed</th>
</tr>
</thead>
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<td>Global EI</td>
<td>-.54</td>
<td>.57</td>
<td>.48**</td>
<td>.07</td>
<td>.46**</td>
<td>-.41</td>
<td></td>
</tr>
<tr>
<td>Mean-Risk</td>
<td>-.54</td>
<td>-.05</td>
<td>-.01</td>
<td>-.19</td>
<td>-.16</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>Perceived Effort</td>
<td>.06</td>
<td>-.05</td>
<td>-.01</td>
<td>-.16</td>
<td>-.03</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>Pleasant-Unpleasant</td>
<td>.48**</td>
<td>-.01</td>
<td>-.01</td>
<td>.09</td>
<td>.82**</td>
<td>-.71**</td>
<td></td>
</tr>
<tr>
<td>Arousal-Calm</td>
<td>.07</td>
<td>-.19</td>
<td>-.16</td>
<td>.09</td>
<td>.57*</td>
<td>.46**</td>
<td></td>
</tr>
<tr>
<td>Positive-Tired</td>
<td>.46**</td>
<td>-.16</td>
<td>-.03</td>
<td>.82**</td>
<td>.57**</td>
<td>-.36**</td>
<td></td>
</tr>
<tr>
<td>Negative-Relaxed</td>
<td>-.41</td>
<td>.00</td>
<td>-.11</td>
<td>-.71**</td>
<td>.46**</td>
<td>-.36**</td>
<td></td>
</tr>
</tbody>
</table>

**p < .01
Appendix A

*Instructions:* Please answer each statement below by putting a circle around the number that best reflects your degree of agreement or disagreement with that statement. Do not think too long about the exact meaning of the statements. Work quickly and try to answer as accurately as possible. There are no right or wrong answers. There are seven possible responses to each statement ranging from ‘Completely Disagree’ (number 1) to ‘Completely Agree’ (number 7).

<table>
<thead>
<tr>
<th>Completely Agree</th>
<th>Completely Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Expressing my emotions with words is not a problem for me.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>2. I often find it difficult to see things from another person’s viewpoint.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>3. On the whole, I’m a highly motivated person.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>4. I usually find it difficult to regulate my emotions.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>5. I generally don’t find life enjoyable.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>6. I can deal effectively with people.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>7. I tend to change my mind frequently.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>8. Many times, I can’t figure out what emotion I’m feeling.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>9. I feel that I have a number of good qualities.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>10. I often find it difficult to stand up for my rights.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>11. I’m usually able to influence the way other people feel.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>12. On the whole, I have a gloomy perspective on most things.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>13. Those close to me often complain that I don’t treat them right.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>14. I often find it difficult to adjust my life according to the circumstances.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>15. On the whole, I’m able to deal with stress.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>16. I often find it difficult to show my affection to those close to me.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>17. I’m normally able to “get into someone’s shoes” and experience their emotions.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>18. I normally find it difficult to keep myself motivated.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>19. I’m usually able to find ways to control my emotions when I want to.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>20. On the whole, I’m pleased with my life.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>21. I would describe myself as a good negotiator.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>22. I tend to get involved in things I later wish I could get out of.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>23. I often pause and think about my feelings.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td></td>
<td>24. I believe I’m full of personal strengths.</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>25. I tend to “back down” even if I know I’m right.</td>
</tr>
<tr>
<td></td>
<td>26. I don’t seem to have any power at all over other people’s feelings.</td>
</tr>
<tr>
<td></td>
<td>27. I generally believe that things will work out fine in my life.</td>
</tr>
<tr>
<td></td>
<td>28. I find it difficult to bond well even with those close to me.</td>
</tr>
<tr>
<td></td>
<td>29. Generally, I’m able to adapt to new environments.</td>
</tr>
<tr>
<td></td>
<td>30. Others admire me for being relaxed.</td>
</tr>
</tbody>
</table>
A and N Task

The first thing you’re going to do is take part in a Verbal Flexibility Task. This task will require you to provide typed responses to three prompts. While you type, we want you to adhere to one specific rule: Do NOT use any words that contain the letters A or N (Z or Z). For example, you would want to avoid using the word ‘exam’ because it contains the letter A (X). Instead, you would want to use an alternative word like ‘test’. Click ‘continue’ below to move on.

When you receive each prompt, start typing your response and continue typing for the entire time allotted. When time is up for the current prompt, the program will move to the next prompt automatically. Again, for each prompt, do not use any words that contain the letters A or N.

Prompt 1: Describe the place where you currently live (i.e., your dorm room, apartment, or house). What does it look like? What kind of furniture and decorations do you have? Describe it in enough detail so that another person could picture easily what your living space is like.

Prompt 2: Describe what you do on a typical weekday. Begin with the moment you wake up and end with the moment you go to sleep.

Prompt 3: Describe your hometown. What is it like there? What is the climate like? What are the people like? What makes it different from other towns?

In what way were you told to alter your writing while answering the previous 3 prompts?

How much did you have to override your typical way of writing during the verbal flexibility task? (1 = not at all, 4 = somewhat, 7 = very much)

How much did you have to control your responses during the verbal flexibility task? (1 = not at all, 4 = somewhat, 7 = very much)

How much effort did it take to adhere to the instructions for the verbal flexibility task? (1 = not at all, 4 = somewhat, 7 = very much)
BMIS

For each of the following words, please indicate how much each word describes how you are currently feeling. Please provide a rating from 1 to 4, using the following scale:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>definitely do not feel</td>
<td>do not feel</td>
<td>slightly feel</td>
<td>definitely feel</td>
</tr>
</tbody>
</table>

_____ 1) lively  
_____ 2) peppy  
_____ 3) active  
_____ 4) happy  
_____ 5) loving  
_____ 6) caring  
_____ 7) drowsy  
_____ 8) tired  
_____ 9) nervous  
_____ 10) calm  
_____ 11) gloomy  
_____ 12) fed up  
_____ 13) sad  
_____ 14) jittery  
_____ 15) grouchy  
_____ 16) content
Decision Scenarios

You have just completed your undergraduate studies and are currently looking for a job. Recently, you have been offered three full time job positions, your options are as follows.

Option 1: Accept the job and receive a high salary; however, the job security is highly unstable.

Option 2: Accept the job and receive a moderate salary; however, the job security is moderately unstable.

Option 3: Accept the job and receive a low salary; however, the job security is mostly stable.

In order to generate some additional income, you decide to invest in the stock market. After reading an online news column, you have determined there are three potential stocks you could invest in.

Option 1: Invest in a stock which provides the largest return on your investment; however, the stock is highly unstable.

Option 2: Invest in a stock which provides a modest return on your investment; however, the stock is moderately unstable.

Option 3: Invest in a stock which provides the lowest return on your investment; however, the stock is mostly stable.

Upon returning from a recent vacation, you begin to not feel well and develop flu like symptoms. You then visit your local emergency room only to discover that you have contracted a viral infection. There are three options available to you.

Option 1: Take a medication that has been shown to effectively treat the virus in most patients. However, there is a high potential for experiencing side effects.

Option 2: Take a medication that has been shown to treat the virus in some, but not all patients. However, there is a moderate potential for experiencing side effects.

Option 3: Take a medication that has been shown to treat the virus in a few, but not most patients. However, the potential for experiencing side effects is low.
Imagine that you and your romantic partner are currently in the middle of a situation that could easily escalate into a major argument and end the relationship. You have three options.

Option 1: Avoid confronting your partner by ending the current discussion with your partner. However, because problems with the relationship may continue in the future, there is a high chance the relationship will end.

Option 2: Confront your partner and offer a mutual compromise to resolve the situation. However, because your partner may not agree to cooperate, there is a moderate chance the relationship will end.

Option 3: Confront your partner and blame them for the current situation. However, because blaming your partner may force them to address and fix problems in the relationship, there is a low chance the relationship will end.