THE ROLES OF PERSONAL AGENCY AND EMOTIONAL DISCREPANCY IN EMOTION REGULATION

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ABSTRACT

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While previous research has found that some emotion regulation strategies are more harmful to well-being outcomes than others, there has been relatively little investigation into the role of explanatory mechanisms and individual differences. This study analyzed the mediating role of emotional discrepancy in the relationship between emotion regulation strategy (suppression or cognitive reappraisal) and two strain outcomes (emotional exhaustion and physiological arousal). The tendency to view action at higher or lower levels of abstraction, called personal agency, was also tested as a moderator of these relationships. An experiment was conducted where participants were asked to use different emotion regulation strategies while watching emotion-inducing video clips. Results indicated that emotional discrepancy did mediate the relationship between suppression and the two measures of strain; however, the results for cognitive reappraisal were not significant. Also, using moderated mediation analyses, personal agency was found to moderate the indirect effect of suppression on strain such that low personal agents (compared to high) experienced less strain when suppressing emotions. Implications and future directions are discussed.
To my parents, Tim and Sandy, who have always been my greatest source of inspiration.
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAPTER I. INTRODUCTION</td>
<td>Emotion Regulation and Strain</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Emotional Discrepancy as a Mediator</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>A Moderator of the Discrepancy-Strain Relationship</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Trait-Behavior Congruence</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Action Identification/Personal Agency</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Current Study, Dependent Variables, and Hypotheses</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Current Study, Dependent Variables, and Hypotheses</td>
<td>11</td>
</tr>
<tr>
<td>CHAPTER II. METHOD</td>
<td>Participants</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Design and Manipulation</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Measures</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Demographics</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Personal agency</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Felt emotion</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Perceived emotional discrepancy</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Emotional exhaustion</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Physiological arousal</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Data Reduction</td>
<td>20</td>
</tr>
<tr>
<td>CHAPTER III. RESULTS</td>
<td>Descriptive Statistics and Control Variables</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Preliminary Analyses</td>
<td>21</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Descriptive Statistics and Correlations of Study Variables</td>
<td>52</td>
</tr>
<tr>
<td>2</td>
<td>Means and Standard Deviations of Outcomes by Condition</td>
<td>53</td>
</tr>
<tr>
<td>3</td>
<td>Regression Results for the Indirect Effect of Suppression</td>
<td></td>
</tr>
<tr>
<td></td>
<td>on Emotional Exhaustion through Emotional Discrepancy</td>
<td>54</td>
</tr>
<tr>
<td>4</td>
<td>Regression Results for the Indirect Effect of Suppression</td>
<td></td>
</tr>
<tr>
<td></td>
<td>on Physiological Arousal through Emotional Discrepancy</td>
<td>55</td>
</tr>
<tr>
<td>5</td>
<td>Conditional Indirect Effect at Values of Personal Agency for Emotional Exhaustion</td>
<td>56</td>
</tr>
<tr>
<td>6</td>
<td>Conditional Indirect Effect at Values of Personal Agency for Physiological Arousal</td>
<td>57</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A Process Model of Emotion Regulation (From Gross, 1998)</td>
<td>58</td>
</tr>
<tr>
<td>2</td>
<td>Current Proposed Model</td>
<td>59</td>
</tr>
<tr>
<td>3</td>
<td>Change in Heart Rate by Condition</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>The Interaction between Emotional Discrepancy and Personal Agency on Emotional Exhaustion</td>
<td>61</td>
</tr>
<tr>
<td>5</td>
<td>Indirect Effect of Suppression on Emotional Exhaustion</td>
<td>62</td>
</tr>
<tr>
<td>6</td>
<td>Indirect Effect of Suppression on Physiological Arousal</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>through Emotional Discrepancy across Levels of Personal Agency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>through Emotional Discrepancy across Levels of Personal Agency</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER I. INTRODUCTION

Emotions serve important evolutionarily adaptive functions in many animals, including humans (Lazarus, 1991). Emotions have been described as a crucial mechanism by which organisms coordinate response systems to stimuli that require some adjustment of behavior (Levenson, 1994). Although emotions such as fear, anger, disgust, surprise, and joy all serve to orient our physiological and psychological resources toward an appropriate response, sometimes it serves us best to regulate these emotions. Some classic views of emotion from Socrates to Victorian era thinking emphasize the control of emotion through rational thinking. Freud (1961) argued for the psychological benefits of controlling often emotion-laden impulses associated with the “irrational” id. Still today, scholars agree that we regulate our emotions on a daily basis (e.g., Morris & Reilly, 1987).

Emotion regulation refers to the process by which we influence which emotions we experience, when we experience them, and how we express them (Gross, 1998a). Although we sometimes regulate our emotions on our own accord (e.g., Grandey, Fisk, & Steiner, 2005), social norms often dictate that we not express, or even feel, certain emotions that are considered inappropriate in certain situations and/or at certain times. For example, laughing at the thought of a humorous joke that a coworker told that day would be highly inappropriate at a funeral. Similarly, it is inappropriate to lash out in anger at a stranger who accidentally bumps into someone on the street. In these situations, the individual experiencing the emotion is under pressure to regulate that emotion and respond in a way that is socially acceptable. Although these social norms often dictate our everyday emotional expressivity, the realm of the workplace often requires employees to regulate emotions deemed inappropriate. These rules regarding expression
of emotions at work, called *display rules*, can be either explicitly stated or deduced through observation of coworkers (Ashforth & Humphrey, 1993; Ekman, 1973).

Using Gross’ (1998a) process model of emotion regulation, different types of strategies of emotion regulation have been identified and shown to have differential consequences on the person using them. The first type of strategy, antecedent-focused emotion regulation, occurs when the situation or the perception of the situation is modified before a full emotional response is created. One specific form of antecedent-focused regulation is cognitive change, or *cognitive reappraisal*, in which people either reevaluate the situation they are in and/or their ability to manage that situation. In contrast, response-focused emotion regulation is a type strategy where people attempt to modify their overt emotional response to the cue (i.e., after the emotional response tendency has been generated). One specific form of response-focused emotion regulation is *suppression*, where people try to suppress the manifestation of the inappropriate emotion in their facial expressions, body language, or vocal tone and/or fake the manifestations of a more appropriate emotion. Gross (1998b) found that these antecedent- and response-focused emotion regulation strategies have differential effects on strain, which is defined by Jex and Beehr (1991) as “adverse psychological, physiological, and behavioral reactions to work stressors, including anxiety, low commitment, elevated heart rate, and absenteeism.” Gross found that the antecedent-focused strategy decreased the subjective experience of the emotion. Conversely, the response-focused strategy increased sympathetic nervous system arousal, which has been shown to lead to negative health outcomes. Other researchers have found that antecedent-focused emotion regulation strategies carry with them lower psychological tolls in terms of emotional exhaustion (Brotheridge & Grandey, 2002; Grandey, 2000) and job satisfaction (Grandey, 2003).
If cognitive reappraisal as an antecedent-focused emotion regulation strategy can lead to less strain (as compared to response-focused suppression or no emotion regulation), then it follows that cognition may play an important role in the experience of emotion. In fact, Appraisal Theory states that our emotional response to an event is a function of our cognitive appraisal of that event (Scherer, Shorr, & Johnstone, 2001). Given that the experience of emotion is heavily influenced by cognition via our appraisal of the emotional event, I propose that individual differences in action identification affect how emotion regulation strategies are employed. This has implications for employee health and strain (Grandey, 2000; Gross, 1998a).

*Action identification* is the level of abstraction with which an individual identifies some behavior (Wegner & Vallacher, 1986). For example, an artist who is painting could identify her actions as “applying brush strokes to canvass.” This would be considered a relatively low action identification and is characterized by a specific, concrete conceptualization. That same artist could appraise her action as “painting a landscape” or even “creating art.” These identifications would be considered higher in the action identification hierarchy and are more abstract and more consequential. In other words, higher action identification gets at the “why” of the action and lower action identification gets at the “how” of the action. Although one’s action identification can change several times within a certain task, there are individual differences such that people exhibit a general tendency to view actions at relatively higher or lower points on the hierarchy; this is called *personal agency* (Vallacher & Wegner, 1989).

Drawing primarily from the aforementioned literatures, this study looks to extend upon Gross’ (1998a) model of emotion regulation. The primary contribution of this study is the inclusion of personal agency as a moderator of the emotion regulation-strain relationship. I focus specifically on the antecedent- and response-focused strategies of reappraisal and suppression,
respectively. More specifically, I propose that those relatively high in personal agency (i.e., high personal agents) will find it easier than low personal agents to use reappraisal because they already tend to think at the higher level of abstraction required for this form of emotion regulation. Similarly, I propose that those relatively low in personal agency (i.e., low personal agents) will find it easier than high personal agents to employ suppression because the relatively concrete mindset of low personal agents is more consistent with that strategy.

Further, I also propose an explanatory mechanism or mediator of the emotion regulation strategy-strain relationship, which will add theoretical support to the personal agency moderator already mentioned. Thus, in this study, I test both the mechanism by which emotion regulation strategy may affect strain as well as a potential moderator (or condition) of that indirect effect.

*Emotion Regulation and Strain*

Gross (1998a) proposed a process model in which emotional response tendencies (our behavioral, experiential, and physiological changes characterized by emotion) can be regulated at either the antecedent or response end. Thus, we can either regulate emotions before we have even fully experienced them or once they have already emerged. Regulating emotion at the antecedent end means that the person must use emotional cues to determine that an opportunity, challenge, or something otherwise important is at stake. They can then use an antecedent-focused emotion regulation strategy (e.g., cognitive reappraisal) to proactively change the emotion before it is even experienced, thus changing the expression of emotion. However, someone using a response-focused emotion regulation strategy (e.g., suppression) would experience the emotion but regulate the overt response that is normally associated with that emotion. See Figure 1 for a graphical depiction of Gross’ model.
Certain forms of emotion regulation have been shown to adversely impact physiological functioning. Regulating the display of negative emotions has been shown to increase physiological arousal via the sympathetic nervous system, especially using response-focused strategies, such as suppression. A program of research by Pennebaker (e.g., Gortner, Rude, & Pennebaker, 2006; Pennebaker & Chung, 2007; Pennebaker, Colder, & Sharp, 1990) has shown that suppression of emotions (referred to as “inhibition” in Pennebaker’s work) leads to a host of psychological and physiological problems including rumination over the emotion-inducing event. Other research has shown that acute increases in sympathetic nervous system activity selectively inhibit the body’s natural immune system response (Maier, Watkins, & Fleshner, 1994), and predict coronary heart disease and hypertension (Gross, Richards, & John, 2006). Suppression has also been shown to lead to emotional exhaustion and depersonalization, thus causing burnout and strain (Zapf, Seifert, Schmutte, Mertini, & Holz, 2001; Brotheridge & Grandey, 2002). Lastly, Gross (1998b) found that individuals using suppression were more likely to report experiencing the negative emotion compared to those not regulating at all.

*Emotional Discrepancy as a Mediator*

The direct effects of emotion regulation on strain have been well documented; however, there has been little research on the mechanisms that might explain this relationship. As an exception, Judge, Woolf, and Hurst (2009) found that state negative affect mediated the relationship between surface acting and emotional exhaustion and lower job satisfaction\(^1\). I believe that there may be another mediator, namely, emotional discrepancy that could explain this relationship. To better understand this rationale, it is necessary to discuss the concept of emotional discrepancy and how it works as a self-regulatory function.

\(^1\) State positive affect was also hypothesized to mediate the relationship between deep acting and job satisfaction, but this hypothesis was not supported.
Emotional discrepancy stems from a control theory perspective of emotion regulation, which has been shown to be a useful way of thinking about how we regulate emotion (Diefendorff & Gosserand, 2003; Grandey, 2000, 2008; Hochschild, 1979). Control theory states that a discrepancy-reducing feedback loop is present that acts to drive behavior (Carver & Scheier, 1981; Powers, 1978). This behavioral theory has two basic components: the cognitive and the affective. The cognitive component utilizes feedback regarding one’s progress on a task, or current state, and compares it to the goal of the task, known as the desired state. When the cognitive component senses a difference between the current state and desired state such that the desired state has not yet been reached, “error” is created. The affective component then reacts to this error and causes distress and negative feelings in the individual. It is in response to this negative affect that the individual then works to reduce the discrepancy between the two states.

Whereas typically applied to the self-regulation of behavior (e.g. Carver & Scheier, 1998), Diefendorff and Gosserand (2003) apply control theory to propose a model of the self-regulation of emotion (see also Lazarus, 1975). In this model, the currently perceived or felt emotion is compared to the emotional display that is required in a given situation (i.e., by organizational display rules). If no difference is sensed between the two states, people will continue displaying the same emotion (with much of this occurring automatically, as in without much deliberate attention). However, if there is a discrepancy (especially one that is relatively large or unexpected), then people may employ an emotion regulation strategy so as to display the proper emotion. In a customer service interaction, for example, an employee might be required to conceal (i.e., not display) negative emotions. If an employee starts to experience (and therefore show) a negative emotion, he might sense a discrepancy and use an emotion regulation technique to reduce that discrepancy and express the desired emotion. Thus, people compare their currently
felt emotion to the desired emotional feeling and feel a “pinch” when there is a difference between the two (Hochschild, 1979). However, I argue that the emotional labor strategy of suppression is unlikely to reduce emotional discrepancy because this strategy only focuses on displaying the correct emotion and not on the experience of the underlying felt emotion. Reappraisal, on the other hand, is likely to reduce this discrepancy because the actual felt emotion is changed, which then results in a match or concordance between the felt emotion and the required emotional display. Because control theory would state that the error associated with this discrepancy is distressing, we include emotional discrepancy as a mediator in our emotion regulation-strain model.

A Moderator of the Discrepancy-Strain Relationship

Trait-behavior Congruence. There is quite a bit of evidence to support the idea that people experience less stress when behaving in ways concordant with their personality. For example, the free trait model (Little, 2000) as well as the behavioral concordance model (Moskowitz & Cote, 1995) imply that behaving in ways that are in line with our personality leads to less stress and more positive affect. Applying these trait-congruence models to emotional regulation, Bono and Vey (2007) found in the lab that participants high (versus low) on extraversion experienced a decrease in perceived stress and heart rate when asked to express positive emotions. Similarly, Judge, Woolf, and Hurst (2009) found in a field sample of customer-facing employees with positive display rules that the stress associated with surface and deep acting differed based on the level of extroversion/introversion. Thus, it seems that people with certain traits are better equipped to comply with certain display rules. Barger and Gillespie (2010) found similar results in that congruence between trait affectivity and display rule sign resulted in less emotional discrepancy. Specifically, they found that high positive affectivity and
low negative affectivity were associated with less emotional discrepancy when subjects were regulating enthusiasm, an emotion concordant with those trait levels.

Although these studies show that concordance between the display rule and one’s trait-like experience of emotion has positive effects on stress, there has been very little research on the concordance between specific emotional labor strategies and other, non-affective related traits. Because successful emotion regulation is an effortful, dynamic process, it is likely that there are other cognitive or skill-based traits that might influence the ability to use certain emotion regulation strategies. This might be especially true for reappraisal where planning and preparation are needed before the emotion is already felt. Thus, I propose a stable individual difference\(^2\), personal agency, which might be useful when it is in concordance with the emotion regulation strategy used and might be detrimental when there is not concordance.

*Action Identification/Personal Agency.* The theory of action identification consists of a set of principles regarding how we view and control action (Vallacher & Wegner 1985). Any action we perceive, whether it is our own action or someone else’s, can be identified at different levels of abstraction. This variation in how we view and describe the same action does not necessarily mean there is a contradiction or that one identity is more right than another; rather, both identities describe different aspects of the same action. Our cognitive representations of actions can be arranged from high level actions that are more abstract and relate to the bigger picture to low level actions that are more concrete and specific. High action identifications tend to relate more to the purpose and the “why” of the action and low identifications are more related to the mechanics of how the action is performed. When more than one level of action identification is available, the higher identification is usually adopted (Wegner, Vallacher, 2015).

\(^2\) Although personal agency is conceptualized as an individual difference and not a trait, it is still framed within the trait-concordance model as the logic and inferences made are the same.
Kiersted, & Dizadji, 1986). Also, people tend to adopt higher-level action identifications when performing a task rather automatically or if the task is inherently simple, but will adopt a lower action identification if the task becomes difficult or is interrupted (Vallacher, Wegner, & Frederick, 1981). This tends to lead to an oscillation effect where the individual begins to adopt higher action identifications until it becomes too difficult to manage the task at that level and then drop to a lower identification in order to effectively complete the task. The actor, therefore, must find an adequate level of action identification that best balances the abstract with the concrete (Vallacher, Wegner, & Somoza, 1989). For example, when first navigating to a new job, a person will likely have a low action identification regarding the commute. The driver may think in terms of “turning right” and “getting on freeway”. Once this becomes easy and second-nature, the person does not need to devote the resources to every minute detail of the trip and may adopt a higher identification like “going to work”. Sometimes though, there is abnormal traffic or construction and the higher identification is no longer useful. In this case the person would probably benefit from taking a lower identification, similar to when that person was first learning.

Although the particular level of action identification that an individual uses may vary from task to task and even within tasks, there is a general tendency for people to view actions across a wide variety of domains either in higher or lower action identification terms (Vallacher & Wegner, 1989). The authors call this individual difference personal agency and describe it as something different than what is traditionally defined as a trait. It is not an accumulation of behaviors over several situations, rather, it is a way in which the individual organizes those behaviors and connects them to larger meanings. Thus, personal agency is a relatively stable and global individual difference regarding the perception of action (Vallacher & Wegner, 1989).
Given the current research on personal agency, it is likely that this could be a useful construct when considering tasks of varying abstraction. Suppression and reappraisal fit this description of relating to a hierarchy of abstraction levels and appear to map on well to the idea of personal agency. More specifically, I propose that reappraisal is easier to achieve for high agents than low agents and that suppression is easier to achieve for low agents than high agents. In line with the trait-behavior congruence theory, there are several reasons why this may be the case. First, reappraisal is a more complex and abstract task than suppression because it requires a change in the way an emotion is experienced rather than just a manipulation of facial muscles and vocal tone. Thus, there seems to be fit between the level of abstraction needed to use reappraisal and the level of abstraction with which high personal agents already view their actions. Similarly, the low level of abstraction needed to suppress emotional expression fits with the low level of abstraction with which low personal agents think about their actions.

In addition to the level of abstraction, the timing of the emotion regulation (as in Gross’ model) likely fits with certain levels of personal agency. To regulate emotion before one has even experienced it (i.e., antecedent-focused) likely requires more planning than regulating emotion once it has occurred (i.e., response-focused). Thus, people who are more planful are probably better suited for the former and those who are more impulsive are probably better suited for the latter. Vallacher and Wagner (1989) found that high level agents were less impulsive and more planful than lower level agents. It follows then, that low personal agents are better suited for suppression because they are accustomed to acting on a whim, something that is required if one is to change the emotion expression after the emotion is already felt. Conversely, high personal agents are better suited for reappraisal because they tend to plan their actions.
ahead of time. This is consistent with the planning necessary to change the onset of an emotion before it is even experienced.

Also important is the meaning that high and low personal agents attach to their action. For example, a low level agent might conceptualize an action as “writing a check” whereas a high level agent might see that same action as “paying down debt.” The high level agent probably ascribes more meaning to his/her action and is more likely to associate that action with their sense of self. Vallacher & Wegner (1989, p. 667) put it this way:

“Because they [low level agents] are consciously concerned with the minutiae of action, they are likely to think about the self in a relatively impoverished way: as the author of simple movements. High-level agents, in turn, tend to conceptualize most of their actions in more meaningful terms, and these high-level identities often capture important traitlike themes of self-conception.”

This implies that low level agents conceptualize their actions as “simple movements” whereas high personal agents think of their behavior as self-defining. Again, this fits with the concept of emotion regulation strategy. Low level agents may not be as stressed by the discrepancy associated with suppression because that action isn’t tied to their self-concept. They see it as just another action that they have to perform as part of their job. However, high level agents might be more adversely affected by having to suppress, as that action, and the resulting discrepancy, is seen as a defining part of the self. This provides further evidence for the congruence between levels of personal agency and emotion regulation strategy.

Current Study, Dependent Variables, and Hypotheses

As mentioned, Gross (1998b) found that people who use suppression are more likely to experience physiological strain than those not regulating at all. To that end, I plan to replicate
these findings as well as build upon them by including a measure of psychological strain, namely, emotional exhaustion, which may have differential effects for both reappraisal and suppression such that that the latter is more stressful. See Figure 2 for a graphical depiction of the hypothesized model.

A measure of arousal is important to consider because sympathetic arousal has been known to selectively inhibit the body’s natural immune system response (Maier, Watkins, & Fleshner, 1994). Chronic sympathetic arousal has also been linked to hypertension and coronary heart disease (Friedman & Booth-Kewley, 1987). Because the consequences associated with chronic physiological arousal are potentially great, I include such a measure in our study and hypothesize its relationship with emotion regulation. Gross (1998b) only found a significant effect for suppression; however, I will also analyze the effects of reappraisal in a more exploratory fashion.

Additionally, a measure of emotional exhaustion is included. Research suggests that people may have a limited pool of cognitive and emotional resources (Baumeister et al., 1998; Beal et al., 2005; Kahneman, 1973; Kanfer & Ackerman, 1989). Although some have found that self-regulatory behaviors can increase over subsequent tasks (Converse & DeShon, 2009), it is likely that these resources can become depleted during the maintenance of strong emotions. This depletion of emotional resources associated with suppression has been shown to lead to emotional exhaustion (Goldberg & Grandey, 2007; Grandey, 2003; Martinez-Inigo, Totterdell, Alcover, & Holman, 2010). I seek to replicate these findings for this study as well as test for the effect of reappraisal on emotional exhaustion. Because this relationship has received much less support in the literature, this hypothesis is again more exploratory.
H1a-b: Suppression will have a positive direct effect on a) emotional exhaustion and b) physiological arousal.

H2a-b: Reappraisal will have a negative direct effect on a) emotional exhaustion and b) physiological arousal.

Gross did not test a mechanism by which emotion regulation strategy effects physiological arousal. Based on the research already outlined regarding emotional discrepancy, it is likely that the disparity between the emotion that is being felt and the emotional display required is a stressful experience (Diefendorff & Gosserand, 2003). This could be a mechanism by which emotion regulation leads to increased physiological arousal. Similarly, it is likely that perceptions of this discrepancy (and the effort exerted to reduce it) will cause an increase in emotional exhaustion. More specifically, those using suppression would be more likely to report higher discrepancy than those not using any emotion regulation strategy at all. It is likely that people with no specific display rule will still attempt to not show negative emotion on their own accord, however, the explicit display rule is likely to lead to more discrepancy. Because this effort to align felt emotion with the display rule is present in reappraisal, I propose that reappraisal will be negatively related to emotional discrepancy. This is because changing the felt emotion to be in line with the display rule is likely to result in very little discrepancy; however, those without a display rule will probably perceive some discrepancy due to the individual’s spontaneous regulation of emotional display.

H3a-b: Emotional discrepancy will mediate the relationship between suppression and a) emotional exhaustion as well as b) physiological arousal such that suppression will be positively related to emotional discrepancy which will be positively related to stress.
H4a-b: Emotional discrepancy will mediate the relationship between reappraisal and a) emotional exhaustion as well as b) physiological arousal such that reappraisal will be negatively related to emotional discrepancy which will be positively related to stress.

As mentioned, a high level of personal agency means that one is thinking abstractly about actions and thinking about the consequences and implications of those actions. It follows that people who naturally think of their actions at a more abstract level would be more able to perform a complex action that requires thinking about that action in abstract ways. Similarly, people who naturally think about their actions in concrete ways would be better able to perform a more concrete action. Thus, consistent with trait-behavior congruence theory, I plan to test the hypothesis that individuals with high personal agency are better equipped to use reappraisal, a form of antecedent-focused emotion regulation, than individuals with lower personal agency. Similarly, lower personal agents might be better suited to use suppression, a response-focused emotion regulation strategy, because they prefer thinking about things in more concrete, specific ways. This moderating effect is hypothesized to occur specifically for the emotional discrepancy-stress relationship (second-stage) because the perception of discrepancy is not likely to be influenced by personal agency. However, once the discrepancy is observed, low personal agents might have less of a problem maintaining the suppression and the associated discrepancy and thus feel less strain. Similarly, high personal agents probably have more experience with reappraisal and thus have an easier time enacting and maintaining that type of regulation.

H5a-b: Personal agency will moderate the relationship between suppression and a) emotional exhaustion as well as b) physiological arousal through emotional discrepancy such that the indirect effect will be stronger at higher levels of personal agency.
H6a-b: Personal agency will moderate the relationship between reappraisal and a) emotional exhaustion as well as b) physiological arousal through emotional discrepancy such that the indirect effect will be stronger at higher levels of personal agency.
CHAPTER II. METHOD

Participants

Participants for this study were recruited via Bowling Green State University’s online subject pool. This subject pool consists largely of undergraduate psychology students in introductory psychology classes. The total sample consisted of 154 participants\(^3\). The majority of participants were female (50.3%) and white (68.6%) with a mean age of 19.6.

Design and Manipulation

Participants signed up for the experiment online and chose an available time to come to the lab. The experiment was conducted with one participant at a time. Upon arriving in the lab, participants first read and signed the informed consent. Then, the experimenter attached electrodes to the participant’s right arm and both ankles. Next, they filled out the pre-task surveys which included personal agency, trait anxiety, felt emotion, demographic information, and other trait measures that were not analyzed for this study.

Participants were then randomly assigned to one of two experimental groups (reappraisal or suppression) or to the control group (watch). Instructions were provided for each group based on Gross (1998). All three groups were told:

“Please face the computer and relax your arms and legs, keeping your arms on the arm rests and your feet comfortably on the floor. We will be showing you a series of short film clips. It is important to us that you watch these films clip carefully, but if you find the films too distressing, please just say stop. The first video will just measure baseline physiology and will be about 3 minutes and 30 seconds long. This will be followed by 3

\(^3\) The original sample size was 158. Four participants asked to leave the experiment before the end. All four indicated that they did not feel well due to disgust-inducing videos that they were watching. These symptoms were mild and all four participants were fine as they left the lab. They were debriefed and excused from the experiment.
emotion-inducing videos that will be 1 minute-20 seconds long, 38 seconds long, and 1 minute-, 5 seconds long. It is very important that you keep your arms and legs still as movement will affect both the electrode outputs.”

Then, subjects who were assigned to one of the experimental conditions were given additional instructions regarding emotion regulation. Those in the control condition did not receive any additional instructions to regulate emotions. The “reappraisal” group was told told:

“As you watch the film clips, try to think of the situations you are seeing differently, so that you feel less of an emotion. For example, when watching a medical procedure, think about how this procedure might be helping the patient by eliminating chronic pain or stopping the spread of infection. Watch the film clip carefully, but please try to think about what you are seeing in such a way that you don’t feel any negative emotion. If you begin to experience a negative emotion, try to think about the situation in a way that lessens that feeling.”

Those in the “suppression” condition were told:

“If you have any feelings as you watch these film clips, please try your best not to let those feelings show. In other words, as you watch these film clips, try to behave in such a way that a person watching you would not know you were feeling anything. Watch the film clips carefully, but please make yourself look like you are not experiencing any negative emotion.”

If participants had no questions, they then watched the series of videos. The first video clip was simply a colorful graphic that has been shown to elicit very little emotion of any kind (Gross & Levenson, 1995). The reason for this was to measure baseline physiological arousal. Subjects were then presented with three videos shown to elicit disgust. Disgust was chosen because it is
easily manipulated in a lab setting and it is associated with a strong behavioral impulse (i.e.,
wincing, closing eyes). This is also an emotion that is commonly experienced by those in the
health care profession, where feelings of disgust are often coupled with requirements to hide
negative emotions. The first video took place in a medical setting and was footage of a badly
infected leg that was being drained of fluid. The second video took place in a much more
rudimentary medical setting and includes footage of doctors try to repair the tendon in the hand
of a woman who had a very deep stab wound. Both of these videos were found online by the
author. The third video was one that has been used in previous emotion regulation research
(Rottenberg, Ray, & Gross, 2007). It was a video of a doctor amputating a man’s arm. These
videos were pilot tested before use and participants rated each of these as high on inducing
disgust and relatively low on inducing other emotions like anger or frustration.

After the film period, participants filled out the post-task measures of felt emotion,
emotional discrepancy, state anxiety, and emotional exhaustion. The entire experiment was
videotaped to elicit compliance with the instructions to suppress emotion as well as for any
future behavioral analyses. Before leaving the lab, all participants were debriefed.

Measures

Demographics. Demographic information included age, sex, race, and GPA.

Personal agency. This was measured using the 25 item Behavior Identification Form
(BIF; Vallacher & Wegner, 1989). This measure presents the subjects with several act identities
followed by two alternative identities each. The alternatives consist of one identity at a higher
level and one at a lower level on the action identification hierarchy. An example item would be
“picking an apple” with a higher level option being “getting something to eat” and a lower level
option being “pulling an apple off a branch.” Level of agency is determined by the number of
higher level identities chosen. Thus, scores can range from 0 to 25. This scale showed good internal consistency ($\alpha=.83$). See Appendix A for the full measure.

*Felt emotion.* In this measure participants rated the extent to which they currently feel each of several emotions rated on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The discrete emotions used were adapted from the Discrete Emotions Emotional Labor Scale (Glomb & Tews, 2004). The target emotion (disgust in this case) is embedded within 6 other distracter emotions (e.g. sadness, anger, frustration etc.). See Appendix B for the full measure.

*Perceived emotional discrepancy.* This is a 7 item measure of emotional discrepancy created by Barger and Gillespie (2010). This scale assesses one’s perceived discrepancy between the emotional display and the felt emotion. Participants were to recall the extent to which their felt emotion was congruent with the display rule. A sample item is “There is a difference between what I "felt" and what I was expected to "show" during the video.” This scale showed good internal consistency ($\alpha=.96$). See Appendix C for the full measure.

*Emotional exhaustion.* This was measured using 7 items taken from the Maslach Burnout Inventory (Maslach and Jackson, 1981). The response options were on a 5-point scale ranging from 5 (*strongly agree*) to 1 (*strongly disagree*). Higher scores indicate greater emotional exhaustion. Sample items include, “I feel emotionally used up” and,“I feel fatigued.” This scale showed good internal reliability ($\alpha=.82$). See Appendix D for the full measure.

*Physiological arousal.* Physiological arousal was operationalized as change in heart rate from baseline. Because people vary considerably on their level of resting physiological arousal, this was taken into account by subtracting the average heart rate across the 3 emotion-inducing videos from the average heart rate during the baseline video. Thus, positive scores (i.e., increased
strain) for physiological arousal indicate an increase in arousal from baseline and negative scores (i.e., decreased strain) indicate a decrease in arousal from baseline. This method is consistent with related studies assessing physiological arousal (e.g. Bono & Vey, 2007; Gross & Levenson, 1997)

Data Reduction

Physiological data was recorded with a BioPac Mp30 data acquisition unit and accompanying software. This machine assesses cardiac interbeat intervals using an electrocardiogram (ECG). Average R-R intervals were measured via a 3-lead configuration with electrodes attached to each ankle and one on the wrist. Interbeat interval (IBI) series were derived from the ECG and were hand corrected for artifacts using QRSTool software. Then, CMetX software was used to transform the interbeat intervals into average heart rate for each video segment. Change scores were then created as outlined above.
CHAPTER III. RESULTS

Descriptive Statistics and Control Variables

Descriptive statistics and correlations between all study variables are included in Table 1. Age was not significantly correlated with any of the dependent variables (emotional discrepancy, emotional exhaustion, and physiological arousal\(^4\)) in this study. Additionally, there were no significant differences in any of the dependent variables among categories of race, sex, and GPA. Thus, none of these demographic variables were used as controls in this study. Also, note that the average change in physiological arousal in negative. This means that, on average, heart rate decreased during the emotional videos compared to baseline. In fact, an examination of average change in physiological arousal by condition indicates that this is the case for all conditions. Analyses that use this variable, then, are testing whether one group experienced a greater decrease in physiological arousal than another.

Preliminary Analyses

Statistical tests where conducted to determine whether the random assignment worked to eliminate any systematic differences in key variables. One-way ANOVAs yielded no significant differences between the three conditions in age, personal agency, and felt disgust (before the manipulation). Similarly, Chi-square analyses indicated that there were no significant differences in the categorical variables of sex, race, or GPA between the conditions.

To determine whether the videos elicited felt disgust in the participants, a paired-samples t-test was conducted to determine whether felt disgust significantly increased after watching the

\(^4\) State anxiety was also tested as a dependent variable, with trait anxiety as a control. It was non-significant in every analysis, so it is omitted from the rest of manuscript. The results of these analyses are available upon request.
videos. This was significant $t(147) = 15.15, p < .01$ with an average increase of 1.89. Thus, the videos significantly increased the amount of felt disgust in the participants.

See Table 2 for means and standard deviations for emotional discrepancy, emotional exhaustion, and change in heart rate for each condition (suppression, reappraisal, and watch). Also, see Figure 3 for a plot of heart rate change throughout the experiment for each condition.

**Direct Effects (H1-2ab)**

Hypothesis 1 stated that those who used suppression would experience more a) emotional exhaustion and b) physiological arousal than those who were not asked to regulate at all (control group). These hypotheses were analyzed using a one-way MANOVA with emotion regulation strategy as the factor and emotional exhaustion and physiological arousal as the dependent variables. Post-hoc comparisons were then inspected to determine significant differences between suppression and control groups. Hypothesis 1a was not supported for emotional exhaustion. The omnibus significance test was not significant, $F(2, 145) = 1.62, p > .05$. The comparison between suppression and control was also not significant ($d = .31, p > .05$).

Hypothesis 1b was also not supported for physiological arousal, $F(2, 145) = 2.15, p > .05$. The comparison between suppression and control was not significant ($d = -.12, p > .05$).

Hypothesis 2 stated that those who used reappraisal would experience less a) emotional exhaustion and b) physiological arousal than those who were not asked to regulate at all (control group). The same analysis was conducted as in Hypothesis 1, however reappraisal relative to control was the comparison of interest. Hypothesis 2a was not supported as the comparison between reappraisal and control was not significant ($d = .04, p > .05$). Hypothesis 2b, however, was supported as there was a significant difference of 1.78 in physiological arousal ($d = -.41, p < .05$). An inspection of the means showed that the result was in the expected direction, with
reappraisal ($M = -3.22, SD = .55$) showing a greater decrease in arousal than control ($M = -1.91, SD = .45$).

**Indirect Effects (H3-4ab)**

Hypotheses 3 and 4 stated that emotional discrepancy will mediate the relationship between suppression and reappraisal (respectively) and a) emotional exhaustion as well as b) physiological arousal. Although there was only a significant total effect of reappraisal on physiological arousal (and non-significant total effects on the other dependent variables), this does not preclude the possibility of significant indirect effects$^5$ (Hayes, 2009). To test the strength and significance of the indirect effects, the product of coefficients strategy with bootstrapping developed by Preacher and Hayes (2004) was used. The product of coefficients strategy entails regressing the mediator on the exogenous independent variable as well as regressing the dependent variable on the mediator. The product of those regression estimates yields the point estimate of the indirect effect of the independent variable on the dependent variable through the mediator. This estimate can then be used in a z-test with an associated standard error to determine the level of significance or confidence intervals of the indirect effect. One limitation of this method is that the point estimate often violates the assumption of normality inherent in parametric significant tests. For this reason, several researchers advocate bootstrapping when assessing indirect effects, which loosens the restrictions on the shape of the distribution (Preacher & Hayes, 2004; Shrout & Bolger, 2002). Thus, the indirect effect estimate is quantified as the mean product of the bootstrapped estimates of the regression coefficients.

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$^5$ I use the phrase, “indirect effect” here instead of mediation due to the lack of a significant total effect of emotion regulation strategy on the dependent variables (Mathieu & Taylor, 2006). While the terminology used does not affect the inferences made, “indirect effect” is used throughout the rest of the manuscript as it may be a more accurate term and will hopefully eliminate any confusion as to the nature of these relationships.
described above. The estimated standard error is the standard deviation of 5,000 bootstrapped estimates. The analyses for Hypotheses 3 and 4 were conducted using the indirect effect SPSS macro outlined in Preacher and Hayes (2004).

*Hypothesis 3a.* Using the Preacher and Hayes method outlined above, the indirect effect of suppression (relative to the control group) on emotional exhaustion through emotional discrepancy was analyzed. Results from bootstrapping yielded a mean indirect effect of $b = .13$ ($SE = .06$) with a 95% confidence interval ranging from .005 to .262. Because the confidence interval excludes 0, the indirect effect is statistically significant. The sign of the regression estimates indicated that suppression was positively related to emotional discrepancy which, in turn, was positively related to emotional exhaustion. Thus, Hypothesis 3a was supported. See Table 3 for a summary of the regression results.

*Hypothesis 3b.* Next, the indirect effect of suppression (relative to control) on physiological arousal through emotional discrepancy was estimated. Results showed a mean bootstrapped estimate of $b = -1.10$ ($SE = .52$) with a 95% confidence interval ranging from -2.25 to -.15. This indicates a significant indirect effect. The signs of the regression estimates indicated that suppression was positively related to emotional discrepancy and that emotional discrepancy was negatively related to physiological arousal. Because lower scores in physiological arousal indicate less stress (i.e., there is more of a decrease in arousal from baseline), this means that higher levels of emotional discrepancy were related to a greater reduction in physiological arousal.

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6 The independent variable was suppression (with suppression coded as 1 and control coded as 0). Reappraisal (with reappraisal coded as 1 and control coded as 0) was included as a control. This effectively tests differences between suppression and control. All analyses in this study with either suppression or reappraisal as the focal predictor included the other dummy code as a control. This ensures that the reference group is the control group.

7 All bootstrapped confidence intervals are reported as bias-corrected and accelerated as these have been shown to be the most accurate (See Efron, 1987; MacKinnon, Lockwood, & Williams, 2004)
arousal. Although this effect was significant, the effect was in the opposite direction that was hypothesized. Interpretation of this, however, is reserved for the conditional indirect effects analysis where it is in line with the hypothesis. See Table 4 for the regression estimates.

**Hypothesis 4a.** The effects of reappraisal (compared to control) on emotional exhaustion through emotional discrepancy were analyzed. Results from bootstrapping yielded a mean indirect effect of $b = .03 (SE = .02)$ with a 95% confidence interval ranging from -.004 to .096. Because the confidence interval contained 0, the indirect effect was not significant. This indicates that there is not a significant indirect effect of reappraisal on emotional exhaustion through emotional discrepancy. Hypothesis 4a was not supported.

**Hypothesis 4b.** The indirect effect of reappraisal (compared to control) on physiological arousal was assessed. Results showed a mean bootstrapped estimate of $b = -.23 (SE = .20)$ with a 95% confidence interval ranging from -.81 to .04. Because the confidence interval contains 0, the indirect effect is non-significant.

**Conditional Indirect Effects**

Hypotheses 5 and 6 stated that personal agency would moderate the effect of suppression and reappraisal (respectively) on a) physiological arousal and b) emotional exhaustion through emotional discrepancy. Personal agency was hypothesized to moderate the indirect effect at the second stage, that is, the emotional discrepancy-strain relationship. This hypothesis was tested using conditional indirect effects as outlined by Preacher, Rucker, and Hayes (2007). This tests whether the strength of the indirect effect varies as a function of a moderator – namely, personal agency in this case. Because the logic regarding parametric tests discussed above still applies, bootstrapping with confidence intervals at multiple levels of the moderator was used. This allows for the analysis of regions of significance across the range of the moderator. This test was only
conducted for the analyses that included a significant indirect effect, namely, the indirect effects of suppression on emotional exhaustion (H3a), and suppression on physiological arousal (H3b). Thus, Hypotheses 5a and 5b were tested but 6a and 6b were not. These analyses were conducted using the moderated mediation SPSS macro outlined in Preacher, Rucker, and Hayes (2007).

**Hypothesis 5a.** The conditional indirect effect for suppression (versus control) on emotional exhaustion was tested with personal agency as the moderator. In the mediator model, emotional discrepancy was regressed on suppression ($b = 1.51, p < .01$). Next, in the dependent variable model, emotional exhaustion was regressed on emotional discrepancy ($b = -.28, p < .05$), personal agency ($b = -.09, p < .01$), and the emotional discrepancy*personal agency interaction ($b = .02, p < .01$). The interaction term explained an additional 8% of the variance above and beyond the predictors. This indicates that personal agency moderates the indirect effect. An inspection of the plot of the interaction (Figure 4) reveals that low personal agents experience about the same level of exhaustion in high discrepancy situations compared to low discrepancy. High personal agents, however, experience less emotional exhaustion in the low discrepancy situation than the high discrepancy situation.

Significance tests were then conducted to test the hypothesis that the indirect effect was 0 at different levels of the moderator ($M$ and ±1 $SD$). The effect was not significant at the mean ($b = .13, p > .05$) or 1 $SD$ below the mean ($b = -.07, p > .05$), however it was significant at 1 $SD$ above the mean ($b = .32, p < .01$).

To further explore this moderated mediation effect, an extension of the Johnson-Neyman technique was applied to test the significance of the indirect effect across a large range of values of the moderator used (Preacher et al., 2007). Thus, specific cutoff points can then be identified where the indirect effect is no longer statistically significant. As can be seen in Table 5, the
indirect effect appears to be significant when personal agency is greater than 14.65, which is slightly higher than the mean. Also, see Figure 5 for a plot of the indirect effect as a function of personal agency. This pattern of results is consistent with the hypothesis.

Because these results show that the indirect effect is non-significant at low levels of personal agency, an additional analysis was conducted to determine whether suppression had a significant direct effect on emotional exhaustion at those levels. A test of the simple slope (Aiken & West, 1991) for the suppression/emotional exhaustion relationship at a level just below the significance threshold (14.6) was not significant, $t(147) = 1.59, p > .05$. Thus, at low levels of personal agency, suppression (vs. control) does not have a significant effect on stress either directly or indirectly through emotional discrepancy.

Hypothesis 5b. The conditional indirect effect for suppression (versus control) on physiological arousal was tested to determine whether that relationship relied on the level of personal agency. First, emotional discrepancy was regressed on suppression ($b = 1.51, p < .01$). Next, physiological arousal was regressed on emotional discrepancy ($b = -2.09, p < .05$), personal agency ($b = -.32, p = n.s.$), and the emotional discrepancy*personal agency interaction ($b = .09, p = n.s.$). The non-significant interaction term is evidence that personal agency does not significantly moderate the indirect effect.

Although the interaction was not significant, the indirect effect did vary in strength and significance across the range of personal agency. Those results are presented below, though they should be interpreted with some caution. There is no consensus regarding whether they should be interpreted considering the non significant interaction (Andrew Hayes, personal communication, July 23, 2010). However, results are presented here to give some idea of how the nature of the indirect relationship changes at different levels of personal agency. Suppression was negatively
related to physiological arousal through emotional discrepancy at the mean \((b = -1.24, p < .05)\) and 1 SD below the mean \((b = -1.93, p < .01)\), but not at 1 SD above the mean \((b = -0.54, p > .05)\).

This indicates that suppression is negatively related to physiological arousal through emotional discrepancy only for those low on personal agency. In other words, suppression results in less strain through an increase in emotional discrepancy when people are low in personal agency. However, when people are high on personal agency, suppressing emotions does not reduce strain. Thus, although this relationship is different than hypothesized, it is consistent with the logic of trait-behavior congruence. This is because congruence between low personal agency and suppression leads to less strain. High personal agency, however, does not lead to a reduction in physiological strain when suppressing emotions.

An extension of the Johnson-Neyman technique was then used to determine the specific levels of personal agency where the indirect effect was significant. As can be seen in Table 6, the indirect effect is significant only for values of personal agency less than 16, which is about .25 of a standard deviation above the mean. Figure 6 shows the plot of the indirect effect across levels of personal agency. A test of the simple slope of suppression on physiological arousal at a high level of person agency just below the significance threshold (15.95) was not significant, \(t(147) = -0.24, p > .05\). Thus, at high levels of personal agency, suppression is not related to physiological arousal either directly or indirectly.

To summarize, the indirect effect of suppression on physiological arousal was not significantly moderated by personal agency, though the level of personal agency did affect whether the indirect effect was significant. This relationship was such that suppression was negatively related to physiological arousal through emotional discrepancy only when personal
agency was low (at about the mean or lower). At higher levels of personal agency, there was no effect on physiological arousal, either directly or indirectly.
CHAPTER IV. DISCUSSION

Research on emotion regulation has shown that suppression is positively related to a host of negative outcomes including burnout (Brotheridge & Grandey, 2002) and physiological arousal (Gross, 1998b). The mechanism by which these relationships occur, however, remains relatively unknown. Additionally, there has been little research regarding whether some people are better able to perform specific emotion regulation strategies than others (Judge et al., 2009). This study sought to better understand what types of people are best equipped to use suppression and reappraisal as well as test a model that explains why this might be the case.

Results of this study found that emotional discrepancy partially explains the relationship between suppression and emotional exhaustion as well as physiological arousal. More specifically, suppression is related to more emotional discrepancy, which is related to more emotional exhaustion and less decrease in physiological arousal (less positive physiological strain). Although this result for emotional exhaustion is in line with hypotheses, the result for physiological arousal was not. However, the results of the conditional indirect effects analyses discussed next do support our hypotheses regarding both emotional exhaustion and physiological arousal and help to explain this opposite effect.

The conditional indirect effects were consistent with Little's (2000) free trait theory which suggests that engaging in behavior that is incongruent with personality can lead to stress. More specifically, the indirect effect of suppression on emotional exhaustion is stronger for those who are higher on personal agency. Thus, incongruence between suppression and personal agency lead to greater emotional exhaustion. Additionally, results are consistent with trait-behavior congruence theory which suggests that it is beneficial for people when there is congruence between stable individual differences and behavior. These results indicated that the
negative indirect effect of suppression on physiological arousal was only significant for people who were low on personal agency. Thus, even though suppression was negatively related to physiological arousal (which was different than expected), it is consistent with my hypothesis because this relationship was only significant for low personal agents. Thus, the congruence between low personal agency and suppression leads to beneficial strain outcomes, supporting the conditional indirect effect hypothesis for physiological arousal (H5b).

The results of the analyses for reappraisal, however, were less supportive of the hypotheses. Reappraisal did result in a significantly lower decrease in physiological arousal compared to the control group; however, there was no effect for reappraisal on emotional exhaustion. What’s more, emotional discrepancy did not explain a significant amount of variance between the IV and DVs. These effects were probably not significant because the positive effects associated with the low discrepancy in reappraisal were not greater than the positive effects of not having to regulate emotions in the control condition. That is, both the reappraisal and control conditions were related to low emotional discrepancy, thus explaining why this was not a significant mediator. Perhaps there was no significant effect here because of the control condition used. Simply asking participants to watch the videos without any instructions to suppress is not likely to lead to very low levels of strain. Thus, it’s not surprising that no significant effect was found. Perhaps a better control condition would have been one in which emotion regulation was required, but the actual strategy used is at the discretion of the participant. This “autonomous” condition then might have lead to greater strain outcomes than the reappraisal condition which had specific instructions on how to reappraise the situation.
Emotional Labor: Emotion Regulation at Work

Although this study focused on the phenomenon of emotion regulation in general, the ultimate goal of this research was to have implications for emotion regulation at work. This regulation of emotions for a wage is called emotional labor (Hochschild, 1983). My conceptualization of emotional labor is similar to others in defining it as motivated action to reduce the discrepancy between felt emotion and the required emotional display (e.g. Grandey, 2000; Rubin, Tardino, Daus & Munz, 2005). Thus, even though the emotion regulation and emotional labor literatures remain relatively distinct, they are basically interested in the same phenomenon (Grandey, 2000; Gross, 1998a).

There is support in the literature for two types of emotional labor strategies (Grandey, 2000; Hochschild, 1983). The first strategy, *surface acting*, involves faking an emotion that is more in line with the organizational display rule. An example would be a customer service representative who is able to give “service with a smile” to an irate customer even though the customer’s behavior is evoking emotions of anger and resentment in the employee. The second strategy for reducing an emotional discrepancy is *deep acting*. Instead of changing how one appears on the outside, as in surface acting, the deep acting individual actually changes the felt emotion itself. For example, the customer service representative who is being berated by a customer could think of all the bad things that may have happened to the customer during the day. This might lessen the negative emotion that the employee feels when dealing with this person. This concept is different from surface acting where the outward expression of the felt emotion is altered (Gross, 1998a).

These emotional labor strategies (i.e. surface and deep acting) directly map on to the more basic emotion regulation strategies analyzed in this study. Surface acting, like suppression,
occurs after the emotion is already felt and is an attempt to mask or fake the emotional response tendency. Deep acting, like reappraisal, occurs before the emotional response tendency and is an attempt to actually feel the appropriate emotion. Thus, given the similarities between these two literatures, it was appropriate to test my hypotheses in a lab setting, even though my primary concern is emotion regulation as it applies to the workplace. The practical implications discussed in the next section primarily extend the results of these findings to emotional labor in the workplace.

Implications

The results of this study add to our growing knowledge about the nature and consequences of emotion regulation. The finding that emotional discrepancy mediates the emotion regulation-stress relationship is important because it adds to our understanding of the mechanism for this relationship and extends previous work, which has primarily focused on affective mediators (e.g., Judge et al., 2009). It lends support to the use of a control theory perspective in emotion regulation research (Carver & Scheier, 1981; Diefendorff & Gosserand, 2003) by showing that discrepancy between what one ought to feel and what one actually feels leads to emotional exhaustion. Thus, these results indicate that it is not just the emotional "work" that is taxing on emotional resources, but the prolonged maintenance of discrepancy, as predicted by control theory.

This result also has implications for practice. For example, employers could provide training to employees to help them reduce the emotional discrepancy they feel during emotion regulation. One way to do this would be to train employees how to better use antecedent-focused emotion regulation strategies like reappraisal. Alternatively, allowing employees time during the day to talk about the emotions they experienced could prove beneficial. In fact,
Daniels et al. (2010) found support for this where people low in neuroticism experienced less stress after talking about and expressing previously suppressed emotions. Though not tested directly, this is possibly the result of a temporary reduction in discrepancy that replenishes personal resources.

Also, the findings regarding personal agency extend our theoretical understanding of the consequences of emotion regulation strategies. Particularly, these results show that suppression (compared to control) can be more harmful to people high vs. low on personal agency through emotional discrepancy. This is likely due to the fact that low personal agents ascribe less self-focused meaning to their tasks and are better able to handle the high discrepancy associated with suppression. Thus, the nature of their personal agency primes them to better handle suppression, consistent with trait-behavior congruence theory.

The finding that low personal agents using suppression have less stress outcomes than high personal agents could inform how organizations select people for jobs with high emotional demands. Vallacher and Wegner (1989) found that high personal agents are better able to become proficient at a wide variety of tasks and view tasks as less difficult than low personal agents. This suggests that, on average, organizations might value employees with a high level of personal agency. However, the results of this study suggest that in some jobs, choosing high personal agents is likely to result in a more stressed workforce which leads to less job satisfaction and more turnover (e.g., Kemery, Mossholder, & Bedeian, 1987). These jobs might include those where the need for emotion regulation comes about suddenly, which doesn’t give the person much warning or time to use antecedent-focused emotion regulation. This could include a customer service position where the employee occasionally deals with an irate customer.
Limitations and Future Directions

Although this study has important implications for both theory and practice, it is not without limitations. First, although significant indirect and conditional indirect effects were found outlining meaningful relationships, the direct effects (Hypotheses 1 and 2) were not significant except for the effect of reappraisal on physiological arousal (Hypothesis 1a). Thus, even though I found a mediator and moderator that both help us understand the emotion regulation process, results should be interpreted with some caution. Future research (perhaps with more power) should seek to replicate the indirect and conditional indirect findings as well as find significant direct effects of emotion regulation strategy on strain. Also, considering the fact that there were no significant effects for the reappraisal condition (except a direct effect for physiological arousal), future research could attempt to strengthen the reappraisal manipulation. For example, instead of simply telling the participants to think of the situation a different way, they could be put through a short training. Thus, giving them the chance to practice reappraisal might increase their abilities to actually do it during the videos and this might lead to more significant effects regarding emotional discrepancy and outcomes of interest.

Also, this study tested the effect of regulating the negative emotion of disgust. This emotion was chosen because it has almost universally been considered a basic emotion (Rozin, Haidt, & McCauley, 1993). It is also an emotion associated with strong expressive impulses, which is useful to tease apart differences in outcomes for different emotion regulation strategies. Finally, disgust can be easily induced in a lab setting. Other emotions like sadness or anger are not as easily invoked because those emotions are usually tied to something more personally meaningful and thus not easily accomplished in a lab. However, future research could test whether these effects hold with other emotions that are more commonly experienced in the work
setting. Additionally, looking at the effects of regulating positive emotions like amusement could prove interesting.

Also, suppression may not have negative effects on well-being for low personal agents, however, this research does not address other outcomes associated with suppression. It is likely that low personal agents are comfortable using suppression; however, this “faking in bad-faith” might still lead to low levels of affective delivery (Grandey, 2003), regardless of personal agency. Thus, future research could test this model with other outcomes other than stress.

Regarding the study design, some might argue that this study lacks ecological validity because it was conducted in a lab setting with a student sample. However, I think this concern is minimized because the main thrust of this study was to test the effect of a general model of emotion regulation. Some researchers have argued that the sample tested does not necessarily affect the inferences made regarding the theory that is being tested (see Highhouse, 2009; Highhouse & Gillespie, 2009). There is no reason to believe that students regulating the emotion of disgust in a lab yields different theoretical inferences than workers in a call center regulating anger or frustration. Also, to maintain student attention and motivation, they were told that if they followed the directions of the experimenter (i.e., suppress, reappraise, or watch), they would be entered into a drawing for a monetary incentive.

With that said, it is possible that future research could take advantage of a field setting. For example, event-level data could be measured throughout the day to determine whether fluctuations in emotional demands effect stress in different ways for different people. It would be interesting to see if the high discrepancy that low personal agents endure while suppressing becomes more stressful over longer periods of time than the few minutes that they are suppressing in the lab. The effects of suppressing positive emotions as well as negative emotions
could then be tested. This would expand on the current findings as the effects of only suppressing negative emotions was tested here. The emergence of low-cost and minimally invasive ambulatory blood pressure cuffs even make testing physiological arousal during the work day possible. Finally, a field study would allow the researcher to probe which emotion regulation strategies employees are naturally using. It would be interesting to see whether low personal agents are more likely to use suppression on their own and if high personal agents are more likely to use reappraisal on their own.

Another potential limitation in this study involves the emotional discrepancy measure. This was administered after the emotion regulation task and required participants to recall the level of discrepancy they experienced during the task. However, it is possible that participants could not accurately recall the discrepancy they experienced during the actual task. This is especially true for those in the reappraisal condition because if they were able to successfully change the emotion, they may not remember feeling much of a discrepancy at all, even if they did sense such a discrepancy at the beginning of the task. Future research on this topic could include the measure of perceived emotional discrepancy at the beginning of the task rather than at the end so that responses are more accurate.

**Conclusion**

There has been an explosion of emotion regulation research as it relates to the workplace recently. Organizational scholars have begun to understand the processes by which we regulate our emotions and the outcomes that emotion regulation has on performance, well-being, and a host of other organizationally relevant outcomes. This study extends our knowledge in this area by showing that some people are better suited to use certain emotion-regulation strategies than
others and that this has important implications for employee well-being, an important outcome in the world of emotion work.
REFERENCES


APPENDIX A. PERSONAL AGENCY

Any behavior can be identified in many ways. For example, one person might describe a behavior as "typing a paper," while another might describe the behavior as "pushing keys" Yet another person might describe the behavior as "expressing thoughts." We are interested in your personal preferences for how a number of different behaviors should be described. Below you will find several different behaviors listed. After each behavior will be two choices of different ways in which the behavior might be identified. Here is an example:

1. Attending class
   ___a. sitting in a chair
   ___b. looking at the blackboard

Your task is to choose the identification, a or b, that best describes the behavior for you. **Simply place a check mark in the space beside the identification statement that you pick. Please mark only one alternative for each pair.** Of course, there are no right or wrong answers. People simply differ in their preferences for the different behavior descriptions, and we are interested in your personal preferences. Be sure to mark your choice for each behavior. Remember, choose the description that you personally believe is more appropriate in each pair.

1. Making a list
   ___ a. Getting organized
   ___ b. Writing things down

2. Chopping down a tree
   ___ a. Wielding an axe
   ___ b. Getting firewood

3. Reading
   ___ a. Following lines of print
   ___ b. Gaining knowledge

4. Measuring a room for carpeting
   ___ a. Getting ready to remodel
   ___ b. Using a yardstick

5. Joining the Army
   ___ a. Helping the Nation's defense
   ___ b. Signing up

6. Cleaning the house
   ___ a. Showing one's cleanliness
   ___ b. Vacuuming the floor

7. Washing clothes
   ___ a. Removing odors from clothes
   ___ b. Putting clothes into the machine

8. Painting a room
   ___ a. Applying brush strokes
   ___ b. Making the room look fresh

9. Picking an apple
   ___ a. Getting something to eat
   ___ b. Pulling an apple off a branch

10. Paying the rent
    ___ a. Maintaining a place to live
    ___ b. Writing a check
11. Caring for houseplants
   ___ a. Watering plants
   ___ b. Making the room look nice

13. Locking a door
   ___ a. Putting a key in the lock
   ___ b. Securing the house

15. Voting
   ___ a. Influencing the election
   ___ b. Marking a ballot

17. Climbing a tree
   ___ a. Getting a good view
   ___ b. Holding on to branches

19. Filling out a personality test
   ___ a. Answering questions
   ___ b. Revealing what you're like

21. Toothbrushing
   ___ a. Preventing tooth decay
   ___ b. Moving a brush around in one's mouth

23. Taking a test
   ___ a. Answering questions
   ___ b. Showing one's knowledge

25. Greeting someone
   ___ a. Saying hello
   ___ b. Showing friendliness

12. Resisting temptation
   ___ a. Saying "no"
   ___ b. Showing moral courage

14. Eating
   ___ a. Getting nutrition
   ___ b. Chewing and swallowing

16. Growing a garden
   ___ a. Planting seeds
   ___ b. Getting fresh vegetables

18. Traveling by car
   ___ a. Following a map
   ___ b. Seeing countryside

20. Having a cavity filled
   ___ a. Protecting your teeth
   ___ b. Going to the dentist

22. Talking to a child
   ___ a. Teaching a child something
   ___ b. Using simple words

24. Pushing a doorbell
   ___ a. Moving a finger
   ___ b. Seeing if someone's home
APPENDIX B. FELT EMOTION

Please rate the extent to which you currently feel the following emotions:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Slightly Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Slightly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Frustration</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2) Anger</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3) Contentment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4) Sadness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5) Disgust</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6) Happiness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7) Anxiety</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
APPENDIX C. EMOTIONAL DISCREPANCY

Please use the following scale to answer the questions below:

1 2 3 4 5
Strongly Disagree Disagree Neither Agree nor Strongly Agree
Disagree

1. There is a difference between what I “felt” and what I “showed” in this experiment.  
   ______

2. I showed the same feelings during this experiment that I felt inside.  
   ______

3. The emotions I showed during the experiment matched what I truly felt.  
   ______

4. It was ok for me to show my true emotions in this experiment.  
   ______

5. The feelings I showed in this experiment were the same as what I felt on the inside.  
   ______

6. In this experiment, the way I felt on the inside was the emotion I showed.  
   ______
APPENDIX D. EMOTIONAL EXHAUSTION

Please rate the extent to which these statements describe how you feel right now. Use the following rating scale to record your answers.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very slightly or not at all</td>
<td>A little</td>
<td>Somewhat</td>
<td>Quite a bit</td>
<td>Very much</td>
</tr>
</tbody>
</table>

1.) I feel emotionally used up. ____

2.) I feel fatigued. ____

3.) Watching these movies was really an emotional strain for me. ____

4.) I feel burned out from this experiment. ____

5.) I feel frustrated by this experiment. ____

6.) I feel like I worked too hard in this experiment. ____

7.) I feel like I’m at the end of my rope. ____
Table 1

Descriptive Statistics and Correlations of Study Variables

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Personal Agency</td>
<td>2.00</td>
<td>25.00</td>
<td>14.50</td>
<td>5.28</td>
<td>(.83)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Emotional Discrepancy</td>
<td>1.00</td>
<td>5.00</td>
<td>3.05</td>
<td>1.23</td>
<td>.10</td>
<td>(.96)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Emotional Exhaustion</td>
<td>1.00</td>
<td>4.43</td>
<td>1.49</td>
<td>.56</td>
<td>-.01</td>
<td>.22**</td>
<td>(.82)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: N = 153; Reliabilities are indicated on the diagonal; ** p< .01; *p<.05; Physiological arousal is difference between baseline and emotion videos, thus positive numbers mean increase and negative numbers mean decrease; Survey response format was 5-po
Table 2

Means and Standard Deviations of Outcomes by Condition

<table>
<thead>
<tr>
<th></th>
<th>Suppression</th>
<th>Reappraisal</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Emotional Discrepancy</td>
<td>3.94</td>
<td>1.03</td>
<td>2.73</td>
</tr>
<tr>
<td>Emotional Exhaustion</td>
<td>1.61</td>
<td>0.68</td>
<td>1.44</td>
</tr>
<tr>
<td>Change in Heart Rate</td>
<td>-2.11</td>
<td>4.32</td>
<td>-3.33</td>
</tr>
</tbody>
</table>

*Note: Change in heart rate is the change from resting baseline.*
Table 3

Regression Results for the Indirect Effect of Suppression on Emotional Exhaustion through Emotional Discrepancy

<table>
<thead>
<tr>
<th></th>
<th>Emotional Discrepancy</th>
<th>Emotional Exhaustion</th>
<th>Emotional Discrepancy</th>
<th>Emotional Exhaustion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>R²</td>
<td>B</td>
</tr>
<tr>
<td>Suppression</td>
<td>1.52**</td>
<td>0.21</td>
<td>.29**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emotional Discrepancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>R²</td>
<td></td>
</tr>
<tr>
<td>Emotion Discrancy</td>
<td>0.09*</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suppression</td>
<td>0.05</td>
<td>0.13</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suppression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>R²</td>
<td></td>
</tr>
<tr>
<td>Emotion Discrancy</td>
<td>0.18</td>
<td>0.11</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
N=149; *P<.05, **p<.01

Note: Reappraisal is included as a control throughout so that suppression is being compared against the control group.
Table 4

Regression Results for the Indirect Effect of Suppression on Physiological Arousal through Emotional Discrepancy

<table>
<thead>
<tr>
<th></th>
<th>Emotional Discrepancy</th>
<th>Physiological Arousal</th>
<th>Physiological Arousal</th>
<th>Physiological Arousal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>R²</td>
<td>B</td>
</tr>
<tr>
<td>Suppression</td>
<td>1.52**</td>
<td>0.21</td>
<td>.29**</td>
<td>-0.73*</td>
</tr>
</tbody>
</table>

N=149; *P<.05, **p<.01

Note: Reappraisal is included as a control throughout so that suppression is being compared against the control group.
Table 5

Conditional Indirect Effect at Values of Personal Agency for Emotional Exhaustion

<table>
<thead>
<tr>
<th>Value of Moderator</th>
<th>Indirect Effect</th>
<th>SE</th>
<th>p</th>
<th>LL 95%</th>
<th>UL 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>-0.35</td>
<td>0.19</td>
<td>0.07</td>
<td>-0.84</td>
<td>-0.05</td>
</tr>
<tr>
<td>3.15</td>
<td>-0.31</td>
<td>0.18</td>
<td>0.09</td>
<td>-0.76</td>
<td>-0.02</td>
</tr>
<tr>
<td>4.30</td>
<td>-0.26</td>
<td>0.16</td>
<td>0.11</td>
<td>-0.69</td>
<td>-0.01</td>
</tr>
<tr>
<td>5.45</td>
<td>-0.22</td>
<td>0.15</td>
<td>0.14</td>
<td>-0.61</td>
<td>0.01</td>
</tr>
<tr>
<td>6.60</td>
<td>-0.18</td>
<td>0.14</td>
<td>0.20</td>
<td>-0.52</td>
<td>0.04</td>
</tr>
<tr>
<td>7.75</td>
<td>-0.12</td>
<td>0.12</td>
<td>0.28</td>
<td>-0.44</td>
<td>0.06</td>
</tr>
<tr>
<td>8.90</td>
<td>-0.09</td>
<td>0.11</td>
<td>0.42</td>
<td>-0.38</td>
<td>0.08</td>
</tr>
<tr>
<td>10.05</td>
<td>-0.05</td>
<td>0.10</td>
<td>0.64</td>
<td>-0.29</td>
<td>0.11</td>
</tr>
<tr>
<td>11.20</td>
<td>0.00</td>
<td>0.09</td>
<td>0.97</td>
<td>-0.20</td>
<td>0.14</td>
</tr>
<tr>
<td>12.35</td>
<td>0.04</td>
<td>0.08</td>
<td>0.60</td>
<td>-0.15</td>
<td>0.17</td>
</tr>
<tr>
<td>13.50</td>
<td>0.08</td>
<td>0.07</td>
<td>0.23</td>
<td>-0.07</td>
<td>0.20</td>
</tr>
<tr>
<td>14.65</td>
<td>0.13</td>
<td>0.06</td>
<td>0.05</td>
<td>-0.002</td>
<td>0.26</td>
</tr>
<tr>
<td>15.80</td>
<td>0.17</td>
<td>0.06</td>
<td>0.01</td>
<td>0.05</td>
<td>0.29</td>
</tr>
<tr>
<td>16.95</td>
<td>0.21</td>
<td>0.07</td>
<td>0.00</td>
<td>0.10</td>
<td>0.35</td>
</tr>
<tr>
<td>18.10</td>
<td>0.26</td>
<td>0.07</td>
<td>0.00</td>
<td>0.13</td>
<td>0.42</td>
</tr>
<tr>
<td>19.25</td>
<td>0.30</td>
<td>0.08</td>
<td>0.00</td>
<td>0.16</td>
<td>0.48</td>
</tr>
<tr>
<td>20.40</td>
<td>0.34</td>
<td>0.09</td>
<td>0.00</td>
<td>0.19</td>
<td>0.54</td>
</tr>
<tr>
<td>21.55</td>
<td>0.39</td>
<td>0.10</td>
<td>0.00</td>
<td>0.22</td>
<td>0.61</td>
</tr>
<tr>
<td>22.70</td>
<td>0.43</td>
<td>0.11</td>
<td>0.00</td>
<td>0.24</td>
<td>0.69</td>
</tr>
<tr>
<td>23.85</td>
<td>0.47</td>
<td>0.13</td>
<td>0.00</td>
<td>0.26</td>
<td>0.76</td>
</tr>
<tr>
<td>25.00</td>
<td>0.52</td>
<td>0.14</td>
<td>0.00</td>
<td>0.28</td>
<td>0.85</td>
</tr>
</tbody>
</table>

Note: 95% confidence intervals are bias-corrected and accelerated
Table 6

Conditional Indirect Effect at Values of Personal Agency for Physiological Arousal

<table>
<thead>
<tr>
<th>Value of Moderator</th>
<th>Indirect Effect</th>
<th>SE</th>
<th>p</th>
<th>LL 95%</th>
<th>UL 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>-2.93</td>
<td>1.25</td>
<td>0.02</td>
<td>-5.55</td>
<td>-0.62</td>
</tr>
<tr>
<td>3.15</td>
<td>-2.77</td>
<td>1.16</td>
<td>0.02</td>
<td>-5.16</td>
<td>-0.57</td>
</tr>
<tr>
<td>4.30</td>
<td>-2.62</td>
<td>1.07</td>
<td>0.01</td>
<td>-4.78</td>
<td>-0.64</td>
</tr>
<tr>
<td>5.45</td>
<td>-2.46</td>
<td>0.98</td>
<td>0.01</td>
<td>-4.44</td>
<td>-0.67</td>
</tr>
<tr>
<td>6.60</td>
<td>-2.31</td>
<td>0.89</td>
<td>0.01</td>
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<td>-0.70</td>
</tr>
<tr>
<td>7.75</td>
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<td>0.01</td>
<td>-3.85</td>
<td>-0.65</td>
</tr>
<tr>
<td>8.90</td>
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<td>0.73</td>
<td>0.01</td>
<td>-3.54</td>
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<td>10.05</td>
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<td>0.67</td>
<td>0.01</td>
<td>-3.30</td>
<td>-0.62</td>
</tr>
<tr>
<td>11.20</td>
<td>-1.69</td>
<td>0.61</td>
<td>0.01</td>
<td>-2.92</td>
<td>-0.53</td>
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<td>0.01</td>
<td>-2.79</td>
<td>-0.51</td>
</tr>
<tr>
<td>13.50</td>
<td>-1.38</td>
<td>0.53</td>
<td>0.01</td>
<td>-2.59</td>
<td>-0.43</td>
</tr>
<tr>
<td>14.65</td>
<td>-1.23</td>
<td>0.52</td>
<td>0.02</td>
<td>-2.430</td>
<td>-0.27</td>
</tr>
<tr>
<td>15.80</td>
<td>-1.08</td>
<td>0.53</td>
<td>0.04</td>
<td>-2.25</td>
<td>-0.08</td>
</tr>
<tr>
<td>16.95</td>
<td>-0.92</td>
<td>0.56</td>
<td>0.10</td>
<td>-2.15</td>
<td>0.12</td>
</tr>
<tr>
<td>18.10</td>
<td>-0.77</td>
<td>0.61</td>
<td>0.21</td>
<td>-2.10</td>
<td>0.40</td>
</tr>
<tr>
<td>19.25</td>
<td>-0.61</td>
<td>0.67</td>
<td>0.36</td>
<td>-1.92</td>
<td>0.78</td>
</tr>
<tr>
<td>20.40</td>
<td>-0.46</td>
<td>0.73</td>
<td>0.53</td>
<td>-1.95</td>
<td>1.04</td>
</tr>
<tr>
<td>21.55</td>
<td>-0.30</td>
<td>0.81</td>
<td>0.71</td>
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<td>1.37</td>
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<td>0.87</td>
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<td>1.67</td>
</tr>
<tr>
<td>23.85</td>
<td>0.01</td>
<td>0.98</td>
<td>1.00</td>
<td>-1.89</td>
<td>2.04</td>
</tr>
<tr>
<td>25.00</td>
<td>0.16</td>
<td>0.98</td>
<td>1.00</td>
<td>-1.89</td>
<td>2.37</td>
</tr>
</tbody>
</table>

*Note: 95% confidence intervals are bias-corrected and accelerated.*
Figure 1

A Process Model of Emotion Regulation (From Gross, 1998)

Emotional Cues → Emotional Response Tendencies
  • Behavioral
  • Experiential
  • Physiological

Emotional Responses

Antecedent-Focused Emotion Regulation (e.g. reappraisal)

Response-Focused Emotion Regulation (e.g. suppression)
Figure 2

Current Proposed Model

Emotional Labor Strategy
- Antecedent-focused
- Response-focused

Perceived Emotional Discrepancy

Stress
- Physiological arousal
- Emotional exhaustion

Personal Agency

H1, H2

H3, H4

H5, H6
Figure 3
Change in Heart Rate by Condition
Figure 4

The Interaction between Emotional Discrepancy and Personal Agency on Emotional Exhaustion
Figure 5

Plot of the Indirect Effect of Suppression on Emotional Exhaustion through Emotional Discrepancy across Levels of Personal Agency.

Note: The indirect effect is significant (at 95% confidence) to the right of the bolded vertical line.
Figure 6

Indirect Effect of Suppression on Physiological Arousal through Emotional Discrepancy across Levels of Personal Agency

Note: The indirect effect is significant (at 95% confidence) to the right of the bolded vertical line.