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**PHYSIOLOGICAL, EXPERIENTIAL, & COGNITIVE
CONSEQUENCES OF SUPPRESSION, REAPPRAISAL,
& ACCEPTANCE DURING EMOTIONAL AROUSAL:
A COMPARATIVE ANALYSIS**

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Abstract

This study investigated the experiential, physiological, and memory effects of three emotion regulation strategies: acceptance, suppression, and reappraisal. Eighty female university students were exposed to a two minute standardised film designed to evoke feelings of sadness, while under instructions to either (a) push away emotions that arose (suppression), (b) view the film in an objective detached way (reappraisal), (c) accept emotions that arose without judgement (acceptance), or (d) simply watch the film (control group). Participants rated the intensity of emotions experienced both prior to and during the film. Heart rate and skin conductance were measured prior to, during, and following the film, and participants' incidental recognition memory (visual and verbal) and subjective confidence in memory were assessed post film. No significant differences were found between the mean scores of the four instructional conditions for any of the main dependent variables (possibilities regarding why this was so are discussed in this thesis). However, analysis of mean and effect size revealed trends that were supportive of several hypotheses. None of the emotion regulation strategies were found to be effective for alleviating either physiological or subjective responses to the film. However, reappraisal and acceptance participants did rate the emotive stimulus as more positive/pleasant than control participants. Clear differences also emerged with respect to incidental verbal recognition memory. Acceptance participants were the only group to achieve higher scores than control participants on this measure. These findings suggest different emotion regulation strategies may have different adaptive consequences depending on their emphasis on emotional control.

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Preface

Emotion regulation, defined as the strategies individuals use to “influence which emotions they have, when they have them, and how these emotions are experienced and expressed” (Gross, 1998b, p. 275), is a regular human activity that can result in a variety of consequences, some positive, others negative. Over the last decade increasing attention has been focused on emotion regulation as a common factor in a variety of physical and psychological disorders. Indeed, problems of emotion regulation and dysregulation have been implicated in more than half the DSM-IV-TR clinical disorders and all the personality disorders (American Psychiatric Association, 2000; Gross & Levenson, 1997). For instance, Major Depressive Disorder involves an excess of negative emotion, often accompanied by a decrease in positive emotion (Gross & Levenson, 1997; Sadock & Sadock, 2003), and Borderline Personality Disorder is characterised by a heightened sensitivity to emotional stimuli and a protracted emotional recovery period (Bateman, 2004; Jennings, 2004; Putnam & Silk, 2005). A growing body of literature also illustrates a relationship between disorders characterised by deficits in emotion regulation and medical conditions like chronic pain disorder (Von Korff et al., 2005) and coronary artery disease (Barrick, 1999). These findings highlight a need for research examining the advantages and disadvantages of different forms of emotion regulation (Gross, 1998b; Jackson, Malmstadt, Larsen, & Davidson, 2000; Wong, 2005). Conducting such research may help elucidate the mechanisms operating within the relationship between emotion regulation and mental and/or physical health conditions.

Clinical practice, psychological theory, and traditional wisdom have at times expressed divergent ideas regarding how humans should regulate their emotions. A central argument concerns the degree to which emotions should be avoided or controlled (Gross, 1998a). Some theorists argue that avoidance and control are potentially harmful and can lead to physical and psychological disturbances and even impair cognitive processes (i.e. Blackledge & Hayes, 2001; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Others maintain that control-based techniques have been used successfully in the treatment of psychological problems for decades, and that

failure to control emotion can lead to disruptive, dangerous, and socially inappropriate behaviour (i.e., Beck, Rush, Shaw, & Emery, 1979).

In an effort to evaluate the relative validity of these arguments, psychological research has begun to investigate the consequences of emotion regulation strategies that vary in the nature or level of control they impose. Much of this research has explored the consequences of *suppression*, an avoidance-based strategy that attempts to alter emotional responses as they arise, and *reappraisal*, a less avoidant (but still control-based) approach that aims to alter the trajectory of emotion.

Research indicates these strategies possess divergent consequences across physiological, experiential, and cognitive domains (Gross, 1998a; Richards, 2004). For instance, reappraisal has been demonstrated to be effective in reducing emotional distress, without impinging on memory or physiology (Gross, 1998a; Richards & Gross, 2000), whereas suppression has detrimental consequences for physiology and memory, but fails to reduce emotional distress (Gross & Levenson, 1997; Richards & Gross, 2000). These findings suggest not all methods of controlling emotion are created equal, with some incurring greater costs than others. However, they fail to answer one fundamental question – what would the consequences be if individuals were encouraged to accept and experience their emotions, rather than avoid or control them?

This question is currently of particular relevance due to the increasing number of therapies emerging that incorporate acceptance-based strategies for dealing with emotions. Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999) and Dialectical Behaviour Therapy (Linehan, 1993) are two examples. These therapies are based on the rationale that it is not the experience of emotion per se or an inability to control it which causes harm, instead, harm results as a consequence of unhealthy attempts to control thoughts, feelings, and physical sensations. Rather than avoiding internal expressions of emotion, these therapies teach clients to simply notice and accept their emotions without judging them (Hayes, Follette, & Linehan, 2004).

Despite the growing number of acceptance-based therapies, relatively few controlled studies have compared acceptance techniques with other forms of emotion regulation. Furthermore, the implications of current findings are difficult to decipher due to (a) the narrow range of emotional states explored; (b) inconsistent findings pertaining to physiological effects; (c) a tendency to solely focus on physiological and self reported markers of functioning at the expense of other important domains (such as cognition); and (d) the absence of research comparing acceptance to multiple strategies that vary in the level of control they impose. The present study was designed to address these issues by experimentally comparing the impact of acceptance, suppression, and reappraisal on physiology, memory, and subjective emotional experience.

Studying the consequences of strategies that vary in the degree to which they promote avoidance or control of emotions may provide clues as to the degree to which emotional control is adaptive or maladaptive. It may also help explain the development and maintenance of disorders characterized by emotion dysregulation, and identify the components of current therapeutic modalities that are most effective in treating and/or preventing these disorders. From a physical health perspective, assessing the physiological consequences of emotion regulation may highlight the mediating mechanisms operating within the relationship between emotion regulation and physical health (Gross, 1998b). It may even identify which psychological adjuncts could be added to current medical treatment approaches to assist in the maintenance and prevention of health problems for which emotion regulation plays a role (i.e., the provision psychological services for individuals identified to be at risk for coronary artery disease). Finally, exploring the specific costs and benefits of each strategy across multiple dependent variables may highlight the contexts and individuals for which certain strategies are likely to be most adaptive within both clinical and non-clinical populations (Gross & Levenson, 1997).