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## **Emotion Regulation in Everyday Life**

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Sometimes, our emotions lead us to do the oddest things. Grown men pull over so they can brawl over which driver is the bigger idiot. Parents lose their cool and bark hateful things at their children that they later regret. Adolescents who were best friends before a jealous spat vow never to speak again. And children tantrum as if on cue at the supermarket candy display.

Moments such as these are reminders of the fundamental role that emotion regulation plays in civilized life. Emotions can be helpful, providing crucial information about the state of our interactions with the world (Clore, 1994) or speeding our responses in life-threatening situations (Frijda, 1986). However, we frequently experience strong emotions that need to be managed if we are to keep our appointments, careers, and friendships. Indeed, successful emotion regulation is a prerequisite for adaptive functioning. To get along with others, we must be able to regulate which emotions we have and how we experience and express these emotions.

Over the past two decades, emotion regulation has become the focus of intense research activity in both child (e.g., Thompson, 1991) and adult (e.g., Gross, 1998) literatures, as demonstrated by the chapters in this volume. What is not yet clear, however, is (a) how to best conceptualize the potentially overwhelming array of emotion regulatory processes, and (b) how people actually regulate their emotions in everyday life. In this chapter, we first discuss how we are using the slippery terms “emotion” and “emotion regulation.” Next, we present a process model of emotion regulation, and review experimental and individual-difference data relevant to two important forms of emotion regulation. Then, we examine the question of how people regulate their emotions in everyday life, presenting new data from studies that represent three major empirical approaches to this issue. We conclude by considering what these findings might tell us about the larger issues related to emotion regulation as it occurs in everyday life.

### CONCEPTUAL, THEORETICAL, AND METHODOLOGICAL ISSUES

Our starting point is a conception of emotion that is shared with a number of prior theorists (e.g., Ekman, 1972; Frijda, 1986). On this conception, the emotion-generative process begins when an external or internal event signals to the individual that something important may be at stake. When attended to and evaluated in certain ways, these emotion cues trigger a coordinated set of response tendencies that involve experiential, behavioral, and central and peripheral physiological systems. Once these emotion response tendencies arise, they may be modulated in various ways, thereby shaping the individual's observable responses.

*Emotion regulation* refers to attempts individuals make to influence which emotions they have, when they have them, and how these emotions are experienced and expressed. Such efforts may be relatively automatic or controlled, conscious or unconscious, and it has been asserted (but not empirically demonstrated) that emotion regulation may involve the up- or down-regulation of various aspects of negative or positive emotions (Parrott, 1993). Thus conceived, and as shown in Figure 1, emotion regulation is one of several forms of affect regulation, all of which involve attempts to alter some aspect of the interplay between the individual and the environment that is coded by the individual in a valenced (good/bad) manner. Emotion regulation may be distinguished from three other forms of affect regulation: coping, mood regulation and psychological defenses (for a more detailed exposition of these differences, see Gross, 1998).

*Coping* refers to the organism's efforts to manage its relations with an environment that taxes its ability to respond (Lazarus & Folkman, 1984). Coping and emotion regulation overlap, but coping includes nonemotional actions taken to achieve nonemotional goals (e.g., studying hard to pass an important exam), while emotion regulation is concerned with emotions in

whatever context they may arise. *Mood regulation* refers to attempts to alter a second important class of affective responses, which, compared to emotions, are typically of longer duration, lesser intensity, and are less likely to involve responses to specific “objects” (Parkinson et al., 1996). Thus, the focus in mood regulation research is typically the activities people engage in to reduce negative mood states (e.g., running, sleeping well, etc.). A third type of affect regulation is *psychological defense*, long a focus of psychodynamic theorizing and research. As with coping, the domain of psychological defenses overlaps with the domain of emotion regulation, but defenses typically refer to relatively stable characteristics of an individual that operate outside of awareness to decrease the subjective experience of anxiety and other negative affect. Studies of emotion regulation, by contrast, have as their focus the full range of emotions, and consider both stable individual differences and the basic processes that operate across individuals.

### **A Process Model of Emotion Regulation**

If emotions are seen as involving a coordinated set of responses that arise during an organism-environment interaction, emotion-regulation strategies may be differentiated along the timeline of the unfolding emotional responses (Gross, 1998, 1999, 2001; John & Gross, 2004). That is, emotion regulation strategies may be distinguished in terms of when they have their primary impact on the emotion-generative process. We have proposed a process model of emotion regulation that embodies this approach, shown in Figure 2.

At the broadest level, this model distinguishes between antecedent-focused and response-focused emotion regulation strategies. Antecedent-focused strategies refer to things we do before the emotion response tendencies have become fully activated and have changed our behavior and our peripheral physiological responding. The focus of such antecedent-focused strategies is the

modification of future emotional responses. For example, upon hearing a noxious comment from an acquaintance, we might cognitively re-evaluate the comment (e.g., as a sign of their insecurity) and thereby alter the entire emotion trajectory, feeling pity for the acquaintance rather than anger. By contrast, response-focused strategies refer to things we do once an emotion is already underway, after the response tendencies have already been generated. The focus of such response-focused strategies is the management of existing emotions. For example, we might try to appear unfazed by a noxious comment despite underlying feelings of anger.

As shown in Figure 2, five families of more specific strategies can be located along the timeline of the emotion process (Gross, 1998, 2001). Situation selection is denoted in Figure 2 by the solid line toward one situation (S1) rather than another (S2), and refers to approaching or avoiding certain people, places, or activities so as to regulate emotion. Once selected, situation modification acts on the situation itself (e.g., S1) so as to modify its emotional impact, creating different situations (S1x, S1y, or S1z in the figure). Third, situations have many different aspects (e.g., a1, a2, etc.), and attentional deployment can be used to pick which aspects to focus on. Once focused on a particular aspect of the situation, cognitive change refers to constructing one of the many possible meanings (e.g., m1, m2, m3) that may be attached to that aspect. Finally, response modulation refers to attempts to influence emotion response tendencies once they already have been elicited. Response modulation is illustrated in Figure 2 by decreasing (-) rather than increasing (+) expressive behavior, but may also involve altering experience or physiology.

### **Two Specific Strategies: Cognitive Reappraisal and Expressive Suppression**

Rather than studying all types of emotion regulation at once, our research strategy has been to focus on a smaller number of well-defined strategies. We considered three factors when

selecting which strategies to study: (a) strategies should be used commonly in everyday life; (b) strategies should lend themselves to both experimental manipulation and individual-difference analyses; and (c) because the distinction between antecedent-focused and response-focused strategies is so central to our model, we wanted to include one exemplar of each in our studies. Two specific strategies met these criteria: cognitive reappraisal and expressive suppression.

Cognitive reappraisal is a form of cognitive change that involves construing a potentially emotion-eliciting situation in a way that changes its emotional impact. This form of emotion regulation was the subject of early work by Lazarus and colleagues, who showed that leading participants to view a potentially upsetting surgical procedure in more analytical and detached terms decreased their subjective and physiological responses (Lazarus & Alfert, 1962).

Cognitive reappraisal also was implicated in Mischel's early work on delay of gratification, which showed that leading children to think about food treats in ways that made them more abstract (e.g., putting a mental "picture-frame" around a cookie) decreased children's impulse to eat the cookie, allowing them to obtain a preferred but delayed reward (Mischel & Moore, 1973).

Expressive suppression is a form of response modulation that involves inhibiting ongoing emotion-expressive behavior (Gross & Levenson, 1993). It has been observed repeatedly that outwardly inexpressive individuals are often more physiologically responsive than their more expressive counterparts (e.g., Jones, 1950). Along similar lines, behavioral inhibition associated with interpersonal deception leads to heightened physiological responses (DePaulo et al., 1996). Until recently, however, few studies have experimentally manipulated expressive suppression and observed how suppression actually affects the components of the unfolding emotional response.

### **Affective, Cognitive, and Social Consequences of Reappraisal and Suppression**

Because reappraisal occurs early in the emotion-generative process, we hypothesized that it should be able to modify the entire emotional sequence before emotion response tendencies have been fully generated. This suggests that reappraisal may lead to reductions in negative emotion experience and expression, require relatively few additional cognitive resources to implement, and produce interpersonal behavior that is appropriately focused on the interaction partner and is perceived by such partners as emotionally engaging and responsive. Suppression, by contrast, comes relatively late in the emotion-generative process, and primarily modifies the behavioral aspect of the emotion response tendencies, without reducing the experience of negative emotion. Because suppression comes late in the emotion-generative process, it requires the individual to effortfully manage emotion response tendencies as they continually arise. These repeated efforts should consume cognitive resources that could otherwise be used for optimal performance in the social contexts in which the emotions arise. Moreover, suppression may create a sense of discrepancy between inner experience and outer expression, leading to feelings of inauthenticity and impeding the development of emotionally close relationships.

In a series of experimental and individual-difference studies, we have tested these hypotheses regarding the affective, cognitive, and social consequences of reappraisal and suppression (for a review of these studies, see Gross, 2002; Gross & John, 2003; John & Gross, 2004). Across experiments, we have found that reappraisal effectively decreases emotion experience and expressive behavior in negative-emotion eliciting contexts, and does so without appreciable cognitive, physiological, or interpersonal costs. In individual-difference studies, we have found evidence that individuals who make more frequent use of reappraisal show enhanced functioning in the domains of emotion and interpersonal functioning, without any detectable cognitive or social costs.

Suppression, by contrast, is effective in down-regulating expressive behavior but fails to provide subjective relief in the context of negative emotions. Moreover, suppression has substantial physiological and cognitive costs. Specifically, experiments show that suppression leads to increased sympathetic activation of the cardiovascular system, worse memory for social information such as names or facts about individuals seen on slides (Richards & Gross, 2000), and social interactions that are less satisfying for both suppressors and their interaction partners. Over the longer term, individuals who make more frequent use of suppression show worse functioning in emotional, interpersonal, and well-being domains. In addition, suppressors show worse memory for conversations, as well as for emotion-eliciting events previously described in a daily diary.

#### **EMPIRICAL FOUNDATIONS: EMOTION REGULATION IN EVERYDAY LIFE**

These studies demonstrate the divergent impact of differing forms of emotion regulation such as reappraisal and suppression. Now what is needed is a broader understanding of when and how individuals actually regulate their emotions in everyday life. A number of pressing questions need to be addressed. First, which emotions are actually the target of regulation? Intuitively, negative emotions such as anger seem likely candidates. Parrott (1993) has suggested that positive emotions also are regulated, although the evidence for this proposition is not yet in. Second, given that emotions have many aspects (e.g., behavioral, experiential, physiological), which aspects are typically targeted? Hedonic accounts suggest that people generally want to feel good, not bad. These accounts suggest that people want to change the inner experience of emotion. Ekman's (1972) notion of "display rules" highlights another important target for regulation, namely expressive behavior. Third, what strategies are actually employed to regulate emotion in everyday life? We have focused on two particular forms of regulation but we do not

yet know how frequently these and related strategies are used in everyday life. To illustrate how such questions might be addressed, we describe recent work that represents three complementary approaches to studying emotion regulation.

### **Approach One: The Semi-Structured Interview**

One approach to studying emotion regulation is to ask people about their emotion-regulatory efforts. To illustrate this approach, we present a study based on semi-structured interviews in which young adults described a time in the past two weeks when they regulated their emotions. This approach is attractive for several reasons. First, although emotion regulation includes non-conscious aspects, its conscious aspects are salient and important (Gross, 1999), and an interview format provides insight into people's regulatory goals and activities. Second, using a relatively recent time-frame makes it possible to capture events while they are still fresh. Third, a semi-structured interview format permits participants to describe events in their own words, but also makes it possible to cover roughly the same ground with each participant. Our questions were: (1) Would each participant recall an emotion regulatory episode? (2) If so, which emotions would be selected for regulation? (3) Which aspects of these emotions would be targeted, and would participants be trying to up- or down-regulate? (4) Which emotion regulation strategies would be used? and (5) Would these emotion regulatory efforts vary by social context?

To answer these questions, we interviewed 91 participants (70 women), using the prompt: "I would like you to think of a time in the past week or two when you tried to alter your emotions. Go ahead and take a few moments to think of time when you tried to alter your emotions. When you're ready, I'd like you to describe this time to me in as much detail as you can." Participants were videotaped as they described the episode in their own words. Interviews

typically lasted about 15 minutes. Prompts were used as needed to ensure that our core questions were answered.

Transcripts of the interviews were coded independently by two trained raters. Coding categories included: (a) the primary target emotion (e.g., anger, amusement); (b) the response system primarily targeted (e.g., behavioral, experiential, physiological) and the direction of regulation (up- or down-regulation); and (c) the strategy employed. In addition, coders rated the social context (social or non-social), and, for social emotion regulation episodes, coders indicated who was with the participant (e.g., stranger, friend, etc.). Target emotions were subsequently coded independently by the first two authors. In a first step, the total of 35 target emotions generated by the participants were combined into 24 distinct emotions by combining highly overlapping terms (e.g., anger included mad, irritated, and angry). In a second step, emotions were coded as negatively valenced, positively valenced, or neither.

Our first question was whether participants would be able to describe recent emotion regulation episodes. Indeed, we found that every one of our 91 participants was able to describe a time in the past two weeks when they had tried to regulate their emotions.

#### *Regulation Episodes and Target Emotions*

The episodes described by participants varied substantially. Some participants described episodes in which they changed their thinking in order to decrease negative emotion:

*Yesterday I was life guarding...and...I fell into the pool wearing all my clothes...[I] could've gotten really mad but I just decided to laugh it off...I suppose [I] altered my anger into amusement. [I was trying to change] my response to the situation. Changing my outlook on what happened throughout the day when I could've been angry about everything. But I decided to laugh about it---just kind of blow it off. So basically I thought about it and put it in perspective.*

Other participants described episodes involving positive emotions. For example, one participant concentrated his efforts on changing his expressive behavior:

*We had a paper that was given back in my class and my roommate actually is in that class also. And we got very conflicting grades. He got a very bad grade, and I got a very good grade... I didn't work very hard on this paper, so...I was surprised. My roommate actually did some work and didn't get a good grade, so he was very, very down about it. So I kind of had to cover my emotions. Instead of acting happy and surprised, I...had to kind of cover up---I was very happy inside, but at the same time, I didn't want [that] to show up [to] my roommate because he's my friend too. So I kind of put on my depressed face and you know, my academic sad face and said, "Oh well, I didn't do well either." I guess I was trying to [change] my expressions on my face more than anything.*

Across the 91 respondents' regulation episodes, 24 types of emotion were represented. The three most common were anger (23%), sadness (22%), and anxiety (10%). Together, these accounted for more than half of the emotion regulation episodes. The majority of the episodes described concerned negative emotions (81%). However, as predicted by Parrott (1993), there were also instances of regulating positive emotions (9%), including three instances of regulating happiness, two instances each of regulating romantic attraction and excitement, and one of regulating interest, as well as a number of episodes involving the regulation of less clearly valenced emotional states (10%), with two instances each of regulating surprise, tiredness, and apathy, as well as one instance each of boredom, confusion, and shock.

#### *Emotion Response Systems and the Direction of Regulation*

Emotions involve changes across multiple systems, including behavioral, experiential, and physiological response systems (Lang, Greenwald, Bradley, & Hamm, 1993). It is not clear, however, which aspects of the emotional response people typically regulate. Our findings show that regulation efforts focused almost equally on expressive behavior and subjective experience. Forty-eight percent of episodes involved changes to expressive behavior (37% involved nonverbal behavior alone, 1% involved verbal behavior alone, and 10% involved changes to both nonverbal and verbal behavior). Fifty-three percent of episodes involved changes to subjective experience. Only 2% of episodes involved changes to physiological responses. These

percentages total more than 100% because some episodes involved changes to more than one response system. In terms of the direction of change, all but one instance of emotion regulation (which involved behavioral regulation) primarily involved emotion down-regulation.

### *Emotion Regulation Strategies*

Our process model of emotion regulation (Figure 2) suggests that emotion regulatory processes can be categorized based on when a given emotion regulation strategy has its primary impact on the emotion-generative process (Gross, 2001). Within the broader rubric of antecedent-focused and response-focused emotion regulation we have argued that five more specific families of emotion regulation strategies may be discerned.

How frequently are these five emotion regulation strategies used in everyday life? We found that whereas situation selection and situation modification were rare, each represented by only one exemplar, the other three types of regulation were much more common. Attention deployment was used in 39% of episodes. Cognitive change was used in 33% of episodes, and a full 83% of these involved cognitive reappraisal (25/30), including the first example given above. Finally, response modulation was used in 53% of episodes, and 40% of these (19/48) involved expressive suppression, including the second example given above. While situation selection and modification may be less prototypic, or may occur outside of awareness, these findings nonetheless provide strong evidence for the common use of three major families of emotion regulation (attentional deployment, cognitive change, response modulation) in everyday life.

### *Social Context*

Emotion researchers have long emphasized the social embeddedness of emotional responding (Scherer, Summerfield, & Wallbott, 1983). Consistent with this view, we found that

98% of the emotion regulation episodes took place in the presence of other people, and in only 2% of episodes were the respondents clearly alone. Furthermore, episodes that occurred in a social context appeared to follow a “closeness gradient.” Regulation episodes that were described by participants in the interviews most commonly involved friends (19%), romantic interests (14%), roommates (11%) or family members (10%), and were least likely to involve mere acquaintances (3%) or disliked others (2%).

### **Approach Two: The Survey**

The interview data derived from our first approach suggest that emotion regulation in everyday life predominantly involves negative emotions (e.g., anger, anxiety, sadness), whose behavioral and experiential aspects participants try to down-regulate. However, there were also instances of the up-regulation of emotion and the regulation of positive emotion. The richness of the emotion regulation episodes captured by these interviews suggests the need to cast a very broad net indeed when examining emotion regulation in everyday life, even when one focuses – as we have done here -- primarily on consciously accessible emotion regulation processes.

One limitation of our interview-based approach, however, is that we did not standardize the emotions we asked participants to consider when selecting their emotion regulation episode. A second limitation is that we cannot be sure how representative these episodes are, given that our strategy was to ask participants to describe the most salient episode of emotion regulation during the past two weeks. A third limitation of the interview based approach is that it typically limits samples to relatively small sizes. Because conducting, transcribing, and coding interviews is terribly time-consuming, interview-based studies often use such small samples that robust tests of group differences (e.g., sex, ethnicity) are not possible.

To address these issues, we next used survey methods to present a standardized set of potential targets of emotion regulation to 500 undergraduates (305 women) in a mixed-ethnic sample (4% African American, 35% Asian American, 39% Caucasian, 13% Latino, and 9% Other). We asked participants to describe not a single emotion regulation episode, but rather if and how they generally regulate the experience and expression of 15 discrete emotions in everyday life. Finally, we examined the role played by sex, ethnicity, and social context.

To assess *frequency of emotion regulation*, we asked participants how frequently they regulated their emotions each week: "At times, people try to alter their emotions by influencing which emotions they have, when they have them, or how these emotions are experienced or expressed. How often do you try to alter your emotions (number of times per week)?"

To examine the role of *social context*, we asked participants how frequently they regulated emotion in each of four types of social contexts: "With people I don't know," "With friends," "With family," and "When I'm by myself," rated on a scale where 1 = Not at all, 2 = A little bit, 3 = Sometimes, 4 = Most of the time, and 5 = All of the time.

To determine the *valence of the emotion being regulated*, we asked participants whether they tried to regulate positive or negative emotions more frequently. Specifically, we asked: "Which do you try to alter more often, positive or negative emotions?"

Given our interest in the *use of reappraisal and suppression*, we asked participants how much they used these strategies in the past two weeks on a scale where 1 = Not at all and 7 = A great deal. The following definitions were offered. *Reappraisal* is "when you try to think about a situation differently in order to change your emotions. An example of reappraising is recalling that air travel is statistically safer than driving in order to reduce your anxiety about being on an airplane. Another example is thinking that a friend's weak compliment is probably the nicest

thing he's ever said to anyone." *Suppression* is "when you try **not** to show on the outside an emotion you feel on the inside. An example... is biting your tongue and not letting your feelings show when someone insults you. Another example is concealing your happiness with a "poker face" after being dealt an unbeatable hand of cards." For both reappraisal and suppression, separate ratings were made for "negative emotions" and "positive emotions."

We also wished to learn about the *specific emotions* that were being regulated and *which of the components* (experience and expression) of each emotion was targeted for regulation. We did this by asking: "To what extent do you generally try to alter the experience of the following emotions?" This was followed by a list of the 15 emotions. Then participants were asked "To what extent do you generally try to alter the expression of the following emotions?" This was followed by the same 15 emotions presented in a different order. Both the regulate-experience and regulate-expression items were rated on seven-point scales (0 = Not at all to 6 = A great deal). We focused on these two aspects of emotional responding (experience and expression) because our first approach had previously shown that these two components were overwhelmingly favored as targets for emotion regulation.

#### *Frequency of Emotion Regulation*

How frequently did participants report regulating their emotions? The mean frequency of emotion regulation was 6.6 times per week, that is, almost once a day. However, there was considerable variability in responses, as reflected in a standard deviation of 12.5, and a range of 0-100. Nonetheless, most participants reported at least some use of emotion regulation; only 4% of participants reported that they did not regulate their emotions at all (regulation of zero times per week). Given this substantial variability, we also computed measures of central tendency less

sensitive to outliers, including the 5% trimmed mean (4.6 times per week) and the median (3.5 per week).

### *Social Context for Regulating Emotion*

We found that the frequency of emotion regulation varied by context, with frequency ratings of 3.1 for strangers, 2.5 for friends, 2.3 for family, and 1.7 for alone. One noteworthy finding is that these survey data indicated that emotion regulation was more frequent with strangers than with better known partners. This finding is at odds with the “closeness gradient” described in the interview approach, which found that emotion regulation episodes were more likely to be reported in the context of close relationships than in more distant relationships. One possible explanation for this discrepancy is that emotions may be more frequent and intense in close than in distant relationships, leading to a larger absolute number of effortful and salient regulation episodes in close than distant relationships (interview approach). However, when expressed as a fraction of the total number of emotions experienced, as in the survey approach, emotion regulation may be more likely to occur in distant than in close relationships.

### *Valence of the Emotion Being Regulated*

We expected participants to regulate negative emotions more frequently than positive emotions. Indeed, 84% of participants said they tried to alter negative emotions more frequently than positive emotions, and only 16% indicated greater regulation of positive emotions.

### *Use of Reappraisal and Suppression*

Both reappraisal and suppression were used quite frequently, with mean ratings of 3.8 for each. Consistent with participants’ general reports of greater regulation of negative than positive emotions, negative regulation was more frequent than positive regulation for both reappraisal

(mean negative reappraisal = 4.2, mean positive = 3.3) and for suppression (mean negative suppression = 4.6, mean positive = 3.0).

*Specific Emotions Being Regulated, Separately for Experience and Expression*

Participants indicated the extent to which they regulated the experience and expression of 15 specific emotions. Table 1 shows the mean ratings of control of experience and Table 2 shows the means for expression. The most striking finding was the difference between negative and positive emotions: even the most-regulated positive emotion (pride) was regulated to a lesser extent than the least-regulated negative emotion (disgust). A second finding is that the survey approach replicated the results of the interview approach for the specific emotions most often targeted for regulation. The top five regulated emotions were sadness, anger, embarrassment, anxiety, and fear. Among the positive emotions, the two most regulated were pride and love. A third noteworthy finding is how closely ratings of regulating emotion experience and emotion expression traveled together. Mean levels of control of experience and control of expression differed in only two of 15 instances, with expressive behavior being regulated more tightly than experience in each case.

*Group Differences: Sex and Ethnicity*

Sex and ethnicity are both factors that have been associated with differences in emotional responding in prior research (Gross & John, 2003). To examine the impact of ethnicity on emotion regulation, we selected the two largest ethnic groups (Asian-American and European-American), and revisited each of the aspects of emotion regulation described in the previous section.

We found no effect of sex or ethnicity for overall *frequency of emotion regulation*. With respect to the *social context for regulating emotion*, we found that with strangers, Asian-

Americans ( $M = 3.0$ ,  $SD = 1.4$ ) reported similar levels of emotion regulation as European-Americans ( $M = 3.2$ ,  $SD = 1.1$ ). For the other three social contexts, however, Asian-Americans reported significantly greater emotion regulation than European-Americans with friends ( $M = 2.7$ ,  $SD = 1.1$  versus  $M = 2.3$ ,  $SD = 0.9$ ), family ( $M = 2.6$ ,  $SD = 1.1$  versus  $M = 2.1$ ,  $SD = 1.0$ ), and alone ( $M = 1.9$ ,  $SD = 1.3$  versus  $M = 1.5$ ,  $SD = 0.8$ ). There were no sex effects.

We also considered whether sex and ethnicity affected the valence of the emotion being regulated. We found no sex differences: 82% of men and 85% of women reported controlling negative emotions to a greater extent than positive emotions. However, we did find ethnic differences: 90% of European-Americans reported controlling negative emotions more than positive emotions, whereas only 76% of Asian-American participants did so. That is, only 10% of European-Americans reported controlling positive emotions more than negative emotions, versus 24% of Asian-Americans. In terms of the specific emotion regulation strategies that participants used, we found no sex differences, but Asian Americans did make greater use of suppression (3.3) than European Americans (2.7) for positive emotions.

For control of emotion experience, Asian-Americans reported significantly greater control of five of the six positive emotions (all except pride, which showed the same trend toward greater control by Asian-Americans). There were no ethnic differences for the negative emotions. As shown in Table 1, there was only one sex difference: women reported less control of amusement experience than men. For control of emotion expression, ethnic effects paralleled those found in the experience domain: Asian-Americans again reported greater control of five of the six positive emotions (all except pride, which showed the same trend toward greater control by Asian-Americans). There were no ethnic differences for the negative emotions. As shown in Table 2, sex differences were more pronounced: women reported less control of amusement

expression than men, but greater control of anger, contempt, and sadness expression. This general pattern of women exerting less control over positive emotions than men is born out by the significant difference in mean control of positive emotion, which is 2.1 for women and 2.4 for men. The tendency for women to report more control of negative emotions than men was not significant, reflected in an overall mean difference of 3.2 for women and 3.0 for men.

### **Approach Three: The Laboratory Experiment**

Our survey approach suggested that in everyday life Asian Americans regulate positive emotions to a greater degree than European Americans. These findings jibe nicely with previous research (Tsai et al., 2002) showing that Asian Americans express less positive emotion than do European Americans. Given that Asian Americans seem to regulate their positive emotions more frequently than European Americans (e.g., by hiding their positive emotion-expressive behavior), we might expect Asian Americans to show a practice effect when asked to suppress their emotion-expressive behavior under controlled conditions. By dint of their prior accumulated experience with suppressing positive emotions, Asian Americans should find it less difficult to inhibit positive emotions than European Americans. Given that ethnic differences only seem to be evident for positive emotions, no such differences in emotion regulation difficulty should emerge in other emotional contexts (e.g., in negative or neutral emotional contexts).

To test this hypothesis, an experimental approach is needed. To illustrate this method, we present secondary analyses on a data set examined earlier by Gross and Levenson (1997), focusing on a subset of 127 women who were either European American (58) or Asian American (69). In this study, participants had watched films drawn from a set of standardized film stimuli (Gross & Levenson, 1995) in individual experimental sessions. One film elicited a relatively

neutral affective state, whereas the other films elicited either amusement (a stand-up comedy routine) or sadness (a funeral scene). Of interest here is the viewing condition in which participants had been told to “watch the film carefully” and also told “if you have any feelings as you watch the film clip, please try your best not to let those feelings show” (the Suppression condition). After each film, participants rated how difficult it had been to suppress their behavioral responses: “On a scale from 1 to 10, where 1 is not at all difficult and 10 is very difficult, how difficult was it for you to hide your feelings during the film clip you just saw?”

Using these suppression difficulty ratings, we now tested whether, relative to European American participants, Asian Americans would find it easier to suppress their emotions during a positive-emotion eliciting film, but not in the negative or neutral film contexts (reflecting a practice effect due to prior experience suppressing positive emotions). As predicted, we found that for the positive film, Asian Americans indeed reported less difficulty ( $M = 6.0, SD = 3.1$ ) than European Americans ( $M = 8.0, SD = 2.0$ ). Importantly, this effect of ethnicity was specific to the positive emotion condition: there were no ethnic differences for either the Neutral film ( $M = 2.6, SD = 2.4$  versus  $M = 2.8, SD = 2.3$ ), or the Sadness film ( $M = 4.0, SD = 2.9$  versus  $M = 4.9, SD = 2.8$ ). These findings are consistent with the hypothesis that everyday practice in regulating positive emotion makes it easier for Asian Americans to regulate a positive emotion such as amusement when called upon to do so in a specific situation.

### **FUTURE DIRECTIONS AND POLICY IMPLICATIONS**

Considered together, these three studies illustrate how multiple methods (interview, survey, and experiment) are needed to achieve a more complete understanding of emotion regulation. Our findings converged in showing that in general people try to regulate negative emotions (especially anger, sadness, and anxiety) much more frequently than positive emotions,

with a particular focus on regulating both experiential and behavioral, but not physiological, aspects of emotion. Although a large number of emotion regulation strategies may be discerned, two of the most common ones are cognitive reappraisal and expressive suppression. Results from these three studies also showed that emotion regulation efforts vary by context (occurring more frequently in close than distant relationship contexts) and by ethnicity (with greater regulation of positive emotions in Asian-Americans than European Americans). While these studies represent an initial step toward elucidating the ways emotions are regulated by young adults in everyday life, they nonetheless have several limitations. In the sections that follow, we consider these limitations and suggest directions for future research and implications for policy.

### **Implications for Health and Dysfunction**

One notable limitation of the present studies is that we asked participants to recall a single recent emotion regulation episode (Approach 1), to make general ratings concerning their typical emotion regulation (Approach 2), or to regulate on command in a specific laboratory context (Approach 3). One direction for future research will be to employ other methods to better characterize emotion regulation in everyday life. This will make it possible to address the important question as to what health implications chronic use of particular emotion regulation strategies might have. In a series of individual-difference studies (Gross & John, 2003), we have begun to link use of reappraisal and suppression to various indicators of health and dysfunction, including emotion, social support, depression, life satisfaction, and well-being.

Our findings suggest that everyday use of reappraisal is related to greater experience of positive emotion and lesser experience of negative emotion. Reappraisers also have closer relationships with their friends and are better liked than individuals using reappraisal less frequently. In terms of maladaptive symptoms, individuals who habitually use reappraisal show

fewer symptoms of depression. They are also more satisfied with their lives and more optimistic. In terms of Ryff's (1989) domains of psychological health, reappraisers have higher levels of environmental mastery, personal growth, self-acceptance, a clearer purpose in life, a greater sense of autonomy and better relations with others.

By contrast, everyday use of suppression is related to lesser experience of positive emotion and greater experience of negative emotion. These elevations in negative emotion appear to be due to suppressors' greater feelings of inauthenticity. Greater use of suppression is also linked to lesser social support in general, and to lesser emotional support in particular. In terms of symptoms, suppression is related to elevated levels of depressive symptoms.

Suppressors have lower levels of satisfaction and well-being as one would expect from their keen awareness of their inauthenticity, less life satisfaction, and a less optimistic attitude about the future, consistent with their avoidance and lack of close social relationships and support. In terms of Ryff's (1989) six domains of psychological health, suppressors showed lower levels of well-being across the board, with the biggest effect for positive relations with others. Overall, this pattern of findings shows that the use of reappraisal is associated with multiple indicators of healthy functioning, and that the use of suppression is associated with multiple indicators of unhealthy functioning. What is needed now, however, are prospective studies in which initial patterns in emotion regulation use are employed to predict subsequent functioning across multiple life domains.

### **Development: Stability and Change**

A second important direction for future research is to examine stability and change in emotion regulation processes. There is growing evidence that emotion regulation varies over the course of childhood (e.g., Eisenberg & Morris, 2002) and adulthood (e.g., John & Gross, 2004),

and that there are both individual and group differences (e.g., Gross & John, 2003; Tsai et al., 2002) in emotion regulation. The present studies focused on normative variation in emotion regulation in a particular age-group, namely college-aged adults. However, our work on individual differences suggests that, even within the normal range of functioning, individuals vary greatly in how much they use emotion regulation strategies such as reappraisal and suppression.

Thus, although we sometimes summarize our findings by referring to “reappraisers” and “suppressors”, we do not conceive of these patterns of typical emotion regulation as fixed. Indeed, in our college samples, the 3-month test-retest stability of Reappraisal and Suppression is about .70 (Gross & John, 2003), which suggests substantial room for change, especially over longer periods of time. If nothing else, increasing life experience and wisdom regarding the relative costs and benefits of different forms of emotion regulation suggest that changes will take place with age (Gross & John, 2002). In particular, as individuals mature and gain in life experience, they might increasingly learn to make greater use of healthy emotion regulation strategies (such as reappraisal) and lesser use of less healthy emotion regulation strategies (such as suppression).

This speculation is broadly consistent with the fact that emotionally, older individuals fare surprisingly well in later years, despite a host of undesirable changes to physical health and social networks (Carstensen, Gross, & Fung, 1998). This hypothesis is also consistent with data that suggest that relative to younger adults, older adults report considerably less negative emotion (e.g., Helson & Klohnen, 1998), and with cross-sectional research showing that older individuals report greater emotional control than younger adults (Gross et al., 1997).

In a recent test of the idea that there is a normative shift toward healthier emotion regulation in later adulthood, we used retrospective and cross-sectional designs to examine individual differences in reappraisal and suppression (John & Gross, 2004). Using a retrospective design, the same older adults rated their use of reappraisal and suppression twice, once with respect to how they were now (early 60s), and once with respect to how they had been in their early 20s. We found that use of reappraisal increased from the 20s to the 60s, whereas use of suppression decreased from the 20s to the 60s. Using a cross-sectional design, we replicated these effects by comparing use of reappraisal and suppression in this older-adult sample to individuals now in their 20s. Here, too, we found that compared to younger participants, older participants reported greater use of reappraisal and lesser use of suppression. Together, these findings are consistent with the idea that, with age, individuals make increasing use of reappraisal as an emotion regulation strategy and decreasing use of suppression; that is, they show an increasingly healthy pattern of emotion regulation. What is needed now are longitudinal studies in which emotion regulation use is assessed at multiple time points using the same instruments.

### **Interventions and Policy Implications**

A third important direction is applying our emerging understanding of emotion regulation to relieve existing human suffering (Gross & Munoz, 1995). For it is one thing to make the claim that many forms of psychopathology are characterized by emotion dysregulation, and quite another thing to actually work out the precise nature of the deficits (Rottenberg & Gross, 2003). The challenge is to describe how these conditions develop, clarify the underlying mechanisms, and use this knowledge to fashion better interventions to help those in need of assistance.

In particular, if natural changes in typical use of different emotion regulation strategies can be documented in adulthood, then we ought to be able to harness these same change processes in targeted interventions. One crucial early point of intervention may be influencing how parents shape their children's early emotion regulation. For example, parents differ in their meta-emotion philosophies, defined as "an organized set of feelings and thoughts about one's own emotions and one's children's emotions" (Gottman, Katz, & Hooven, 1996, p. 243). The emotion-coaching philosophy is held by parents who attend to and positively evaluate emotions, and discuss explicitly with their children how to best manage one's emotions. This parental philosophy, we predict, should encourage children to rely more on reappraisal to regulate their emotions. The dismissing philosophy, by contrast, is held by parents who view emotions as dangerous, and focus on avoiding and minimizing them. Here we suggest a link to using suppression as the habitual regulation strategy. The finding that emotion coaching by parents was related to children showing less stress during emotionally challenging situation is consistent with our findings regarding the well-being and health consequences of using reappraisal rather than suppression (Gottman et al., 1996).

In the context of our studies of young adults, we have found that for many young adults, thinking explicitly about their own emotion regulation goals and the strategies they employ to achieve these goals was a novel experience. This observation suggests that one simple form of preventive intervention would be to increase awareness and offer information about emotion regulation. For example, using contemporary research on emotion regulation to inform and enrich curricula in high school and college that typically do not include information on emotion and emotion regulation. Analogous to Writing One, Mathematics One, and Psychology One, it

may be time to offer Emotion One – an introductory course on the nature and regulation of emotion.

Individuals who are at elevated risk for undesirable well-being and health outcomes might benefit from targeted emotion-regulation intervention studies. For example, interventions could be designed that teach individuals to increase their use of reappraisal or decrease their reliance on suppression. Such interventions could be modeled after a study (Giese-Davis et al., 2002) that randomly assigned breast cancer patients to either a control group or a group that encouraged the expression of emotions, and then followed patients to assess subsequent outcomes. Through such interventions – whether during early childhood in the family, or during later childhood or adulthood at school, or in support groups at the clinic – it may be possible to shape individuals' emotion-regulatory tendencies in ways that powerfully and beneficially affect their subsequent mental and physical health.

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Table 1

*Approach Two: Mean Control of Emotion Experience (Standard Deviation) by Sex and by Ethnicity*

	Sex		Ethnicity		All Participants
	Male	Female	Asian-Am	European-Am	
Positive emotions					
Pride	2.34 (1.81)	2.46 (1.64)	2.60 (1.64)	2.32 (1.64)	2.42 (1.71)
Love	2.45 (1.93)	2.35 (1.96)	2.72 <sup>c</sup> (2.04)	2.31 <sup>d</sup> (1.93)	2.39 (1.94)
Interest	2.35 (1.79)	2.04 (1.73)	2.54 <sup>c</sup> (1.77)	1.83 <sup>d</sup> (1.70)	2.16 (1.76)
Joy	2.20 (1.78)	1.87 (1.75)	2.37 <sup>c</sup> (1.80)	1.61 <sup>d</sup> (1.61)	2.00 (1.77)
Surprise	1.99 (1.64)	1.86 (1.68)	2.32 <sup>c</sup> (1.76)	1.68 <sup>d</sup> (1.56)	1.91 (1.66)
Amusement	2.15 <sup>a</sup> (1.88)	1.70 <sup>b</sup> (1.65)	2.17 <sup>c</sup> (1.73)	1.75 <sup>d</sup> (1.83)	1.88 (1.75)
<i>Mean</i>	2.25 (1.39)	2.04 (1.29)	2.45 <sup>c</sup> (1.38)	1.85 <sup>d</sup> (1.23)	2.12 (1.33)
Negative emotions					
Sadness	3.22 (1.71)	3.51 (1.63)	3.29 (1.69)	3.45 (1.62)	3.40 (1.67)
Anger	3.12 (1.65)	3.40 (1.53)	3.40 (1.53)	3.23 (1.50)	3.29 (1.58)
Embarrassment	3.07 (1.75)	3.31 (1.67)	3.13 (1.71)	3.27 (1.70)	3.21 (1.71)
Anxiety	3.03 (1.60)	3.16 (1.52)	2.95 (1.47)	3.17 (1.61)	3.11 (1.55)
Fear	2.88 (1.75)	3.22 (1.66)	2.96 (1.68)	3.07 (1.66)	3.09 (1.70)
Shame	2.96 (1.72)	3.01 (1.77)	3.08 (1.70)	2.87 (1.74)	2.99 (1.75)
Contempt	2.68 (1.62)	3.01 (1.74)	2.79 (1.61)	2.91 (1.73)	2.88 (1.70)
Guilt	2.80 (1.81)	2.83 (1.83)	2.88 (1.76)	2.90 (1.78)	2.82 (1.82)
Disgust	2.67 (1.71)	2.79 (1.67)	2.81 (1.59)	2.76 (1.62)	2.74 (1.68)
<i>Mean</i>	2.93 (1.23)	3.14 (1.17)	3.03 (1.19)	3.07 (1.10)	3.06 (1.20)

Note. Different superscripts denote significant differences (a versus b = sex difference; c versus d = ethnic difference).

Table 2

*Approach Two: Mean Control of Emotion Expression (Standard Deviation) by Sex and by Ethnicity*

	Sex		Ethnicity		All Participants
	Male	Female	Asian-Am	European-Am	
Positive emotions					
Pride	2.59 (1.83)	2.77 (1.81)	2.77 (1.74)	2.66 (1.81)	2.70 (1.82)
Love	2.73 (1.97)	2.37 (1.96)	3.02 <sup>c</sup> (2.04)	1.92 <sup>d</sup> (1.74)	2.51 (1.97)
Interest	2.38 (1.79)	2.04 (1.74)	2.57 <sup>c</sup> (1.85)	1.89 <sup>d</sup> (1.64)	2.18 (1.76)
Joy	2.29 (1.83)	1.90 (1.83)	2.48 <sup>c</sup> (1.85)	1.60 <sup>d</sup> (1.63)	2.05 (1.84)
Surprise	2.18 (1.64)	1.94 (1.67)	2.44 <sup>c</sup> (1.76)	1.76 <sup>d</sup> (1.50)	2.03 (1.66)
Amusement	2.11 <sup>a</sup> (1.77)	1.71 <sup>b</sup> (1.60)	2.14 <sup>c</sup> (1.72)	1.68 <sup>d</sup> (1.69)	1.87 (1.68)
<i>Mean</i>	2.38 <sup>a</sup> (1.40)	2.12 <sup>b</sup> (1.27)	2.57 <sup>c</sup> (1.37)	1.92 <sup>d</sup> (1.20)	2.22 (1.33)
Negative emotions					
Sadness	3.21 <sup>a</sup> (1.72)	3.55 <sup>b</sup> (1.48)	3.36 (1.60)	3.33 (1.63)	3.42 (1.59)
Anger	3.12 <sup>a</sup> (1.76)	3.57 <sup>b</sup> (1.65)	3.32 (1.64)	3.45 (1.69)	3.39 (1.70)
Embarrassment	3.18 (1.82)	3.38 (1.67)	3.16 (1.74)	3.41 (1.73)	3.30 (1.73)
Fear	3.14 (1.83)	3.25 (1.67)	3.11 (1.75)	3.21 (1.68)	3.21 (1.74)
Anxiety	3.01 (1.72)	3.29 (1.58)	3.04 (1.64)	3.28 (1.63)	3.18 (1.64)
Shame	3.09 (1.80)	3.17 (1.77)	3.10 (1.76)	3.87 (1.80)	3.14 (1.78)
Contempt	2.83 <sup>a</sup> (1.66)	3.15 <sup>b</sup> (1.69)	2.84 (1.54)	3.18 (1.75)	3.03 (1.68)
Guilt	2.97 (1.77)	2.97 (1.85)	2.99 (1.76)	2.99 (1.85)	2.97 (1.82)
Disgust	2.75 (1.60)	2.91 (1.74)	2.80 (1.66)	2.93 (1.68)	2.85 (1.69)
<i>Mean</i>	3.03 (1.31)	3.24 (1.19)	3.08 (1.24)	3.07 (1.20)	3.16 (1.24)

Note. Different superscripts denote significant differences (a versus b = sex difference; c versus d = ethnic difference).

Figure Captions

Figure 1. A hierarchical conception of affect regulation (from Gross, 1998).

Figure 2. A process model of emotion regulation (adapted from Gross, 2001).

Figure 1

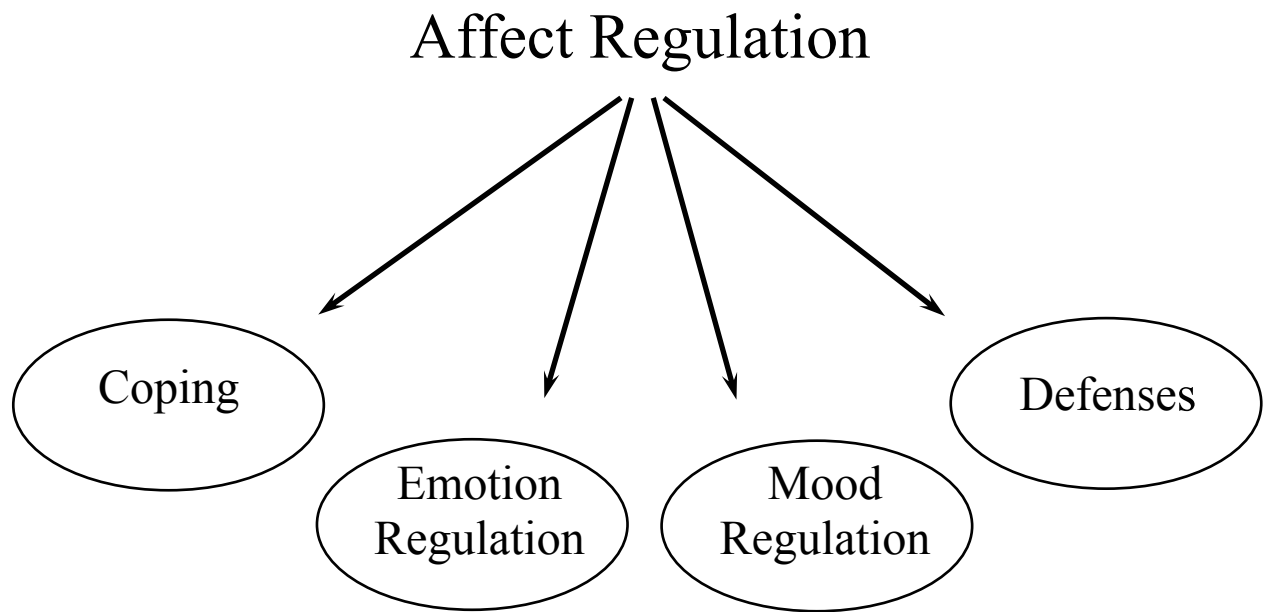


Figure 2

