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# Individual Differences in Two Emotion Regulation Processes: Implications for Affect, Relationships, and Well-Being

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Five studies tested two general hypotheses: Individuals differ in their use of emotion regulation strategies such as *reappraisal* and *suppression*, and these individual differences have implications for affect, well-being, and social relationships. Study 1 presents new measures of the habitual use of reappraisal and suppression. Study 2 examines convergent and discriminant validity. Study 3 shows that reappraisers experience and express greater positive emotion and lesser negative emotion, whereas suppressors experience and express lesser positive emotion, yet experience greater negative emotion. Study 4 indicates that using reappraisal is associated with better interpersonal functioning, whereas using suppression is associated with worse interpersonal functioning. Study 5 shows that using reappraisal is related positively to well-being, whereas using suppression is related negatively.

Emotions have long been viewed as passions that come and go, more or less of their own accord (Solomon, 1976). However, there is a growing appreciation that individuals exert considerable control over their emotions, using a wide range of strategies to influence which emotions they have and when they have them (Gross, 1998). Do individuals differ systematically in their use of particular emotion regulation strategies? If so, do these individual differences have important implications for adaptation?

In this article, we describe five studies that examine individual differences in the use of two common emotion regulation strategies—cognitive reappraisal and expressive suppression. In Study 1, we present brief scales to measure individual differences in the chronic use of these two strategies, and address psychometric issues as well as gender and ethnicity effects. In Study 2, we link our new emotion regulation constructs to conceptually related individual differences and address potential confounds. Studies 3–5 examine the consequences of these emotion regulation strategies in three important domains of adaptation: experience and expression of emotion, interpersonal functioning, and personal well-being.

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## Theoretical Background: A Process Model of Emotion Regulation

We begin with the premise that specific emotion regulation strategies can be differentiated along the timeline of the unfolding emotional response (Gross, 2001). Underlying this model is a conception of the emotion-generative process found in the work of a number of prior emotion theorists. This conception holds that an emotion begins with an evaluation of emotion cues. When attended to and evaluated in certain ways, emotion cues trigger a coordinated set of response tendencies that involve experiential, behavioral, and physiological systems. Once these response tendencies arise, they may be modulated in various ways. Because emotion unfolds over time, emotion regulation strategies can be distinguished in terms of when they have their primary impact on the emotion-generative process.

At the broadest level, we distinguish 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 peripheral physiological responding. Response-focused strategies refer to things we do once an emotion is already underway, after the response tendencies have already been generated. As shown in Figure 1, five families of more specific strategies can be located along the timeline of the emotion process (for elaboration, see Gross, 2001). (We use the term *strategy* here with some reservation because it might be taken to imply that these emotion regulation processes are executed consciously. We believe these processes may be executed consciously, but are often executed automatically, without much conscious awareness or deliberation.)

Rather than studying all of the many emotion regulation strategies at once, we decided to focus in our experimental work and in this article on a smaller number of well-defined strategies. To select strategies for study, we considered several criteria. First, the strategies should be ones that people use commonly in everyday life. Second, they should be strategies we could both manipulate in

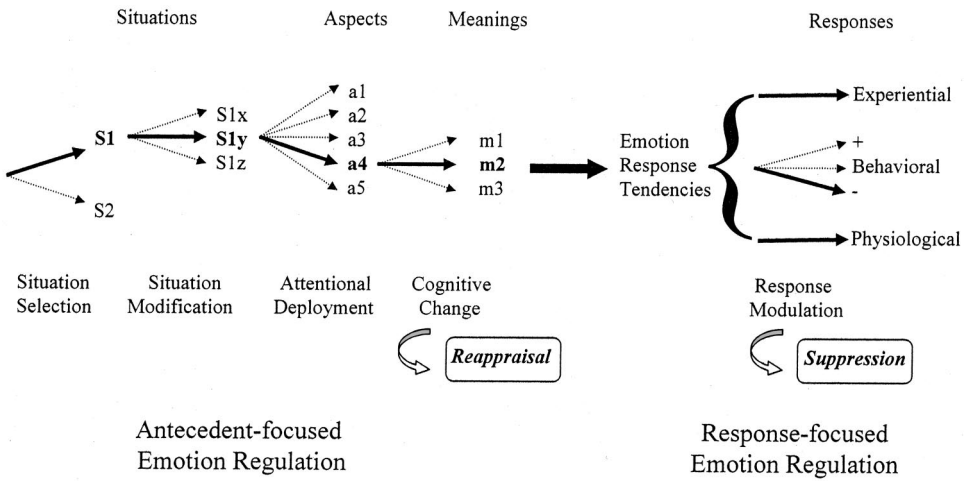


*Figure 1.* A process model of emotion regulation. According to this model, emotion may be regulated at five points in the emotion generative process: (1) selection of the situation, (2) modification of the situation, (3) deployment of attention, (4) change of cognitions, and (5) modulation of experiential, behavioral, or physiological responses. The first four of these processes are antecedent-focused, whereas the fifth is response-focused. The number of response options shown at each of these five points in the illustration is arbitrary, and the heavy lines indicate a particular option that might be selected. Our particular focus is reappraisal and suppression. Reprinted from "Emotion Regulation in Adulthood: Timing Is Everything," by J. J. Gross, 2001, *Current Directions in Psychological Sciences, 10,* p. 215. Copyright 2001 by Blackwell Publishers. Reprinted with permission.

the laboratory and define in terms of individual differences. Third, because the distinction between antecedent-focused and response-focused strategies is so central to our theory, 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 (Lazarus & Alfert, 1964). For example, during an admissions interview, one might view the give and take as an opportunity to find out how much one likes the school, rather than as a test of one's worth. *Expressive suppression* is a form of response modulation that involves inhibiting ongoing emotion-expressive behavior (Gross, 1998). For example, one might keep a poker face while holding a great hand during a card game.

Should the reappraisal and suppression strategies differ in their consequences? Reappraisal is an antecedent-focused strategy: it occurs early, and intervenes before the emotion response tendencies have been fully generated. This means that reappraisal can thus efficiently alter the entire subsequent emotion trajectory. More specifically, when used to down-regulate negative emotion, reappraisal should successfully reduce the experiential and behavioral components of negative emotion. By contrast, suppression is a response-focused strategy: it comes relatively late in the emotion-generative process, and primarily modifies the behavioral aspect of the emotion response tendencies. Suppression should thus be effective in decreasing the behavioral expression of negative emotion, but might have the unintended side effect of also clamping down on the expression of positive emotion. At the same time, suppression will not be helpful in reducing the experience of negative emotion, which is not directly targeted by suppression and may thus continue to linger and accumulate unresolved. In addition, 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 may consume cognitive resources that could otherwise be used for optimal performance in the social contexts in which the emotions arise. Moreover, suppression creates in the individual a sense of incongruence, or discrepancy, between inner experience and outer expression (Rogers, 1951). This sense of not being true to oneself, of being inauthentic rather than honest with others (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997), may well lead to negative feelings about the self and alienate the individual not only from the self but also from others.

## Experimental Findings Regarding Reappraisal and Suppression

Some of the model's predictions have been tested experimentally. For example, in one study, participants assigned to the suppression condition were told to hide emotional reactions to a negative emotion-eliciting film so that an observer could not see what they were feeling, whereas participants assigned to the reappraisal condition were told to think about the film they are watching so that they would not respond emotionally (Gross, 1998). Although participants who suppressed showed much less expressive behavior, they experienced as much negative emotion as participants who just watched. By contrast, reappraisal decreased both the experience and the behavioral expression of negative emotion. One intriguing point of asymmetry has emerged in this area: whereas suppressing negative emotions left intact the experience of negative emotion, suppressing positive emotions decreased the experience of these emotions (Gross & Levenson, 1997; Stepper & Strack, 1993; Strack, Martin, & Stepper, 1988).

The cognitive demands of suppression have been demonstrated in studies of social memory (e.g., names or facts about individuals

seen on slides) while either reappraising or suppressing (Richards & Gross, 2000). Suppression—but not reappraisal—led to memory impairment for social information presented while the individual was regulating emotions. This replicated finding suggests that using suppression as a regulation strategy is cognitively taxing in a way that reappraisal is not. Might these cognitive costs of suppression give rise to social costs as well, as the suppressor fails to absorb information needed to respond appropriately to others, appearing avoidant, seemingly not in tune with the subtle ebb and flow of the interaction? To test this prediction experimentally, unacquainted pairs of participants watched an upsetting film together and then discussed their reactions (Butler et al., 2003). Unbeknownst to the other, one member of each dyad had been asked to either suppress, reappraise, or interact naturally with the conversation partner. Interacting with a partner using suppression was more stressful than interacting with a partner using reappraisal, as indexed by increases in blood pressure. These findings suggest that by disrupting the give and take of emotional communication, suppression has the potential to undermine social functioning to a much greater extent than reappraisal.

## The Present Studies

The research reviewed so far has relied on the experimental manipulation of reappraisal and suppression, and on the analysis of short-term consequences for affect, cognition, and social interaction. Such studies provide powerful research designs: by manipulating emotion regulatory processes directly, they can demonstrate causal effects of particular strategies on dependent variables of interest. However, such experiments are limited to testing effects that are fairly immediate. Because longer term consequences cannot necessarily be extrapolated from short-term consequences, a second, and complementary, approach is needed. The approach taken in this article relies on measuring individual differences in the use of reappraisal and suppression, and analyzing the longer term consequences that accumulate as individuals use these emotion regulation strategies day-in and day-out. These correlational studies do not address causal claims or the specific temporal ordering of reappraisal and suppression postulated by our model. These claims have been, and will continue to be, addressed experimentally. Instead, the present studies examine the real-life and longer term outcomes associated with these regulatory processes.

On the basis of our model and prior experimental work, Table 1 summarizes hypotheses about the consequences of individual differences in the use of reappraisal and suppression, focusing on three domains. Compared with individuals who rarely use reappraisal, individuals who habitually use reappraisal should experience and express more positive, and less negative, emotion, have closer relationships with others, and have higher levels of personal well-being. By contrast, compared with individuals who rarely use suppression, individuals who chronically use suppression should experience and express less positive emotion, express less negative emotion behaviorally yet experience similar or even greater levels of negative emotion, have relationships that are less emotionally close, and have lower levels of well-being. To test these hypotheses, we report a series of studies, each with multiple samples, linking individual differences in the use of emotion regulation strategies to affective, social, and well-being outcomes.

Table 1
*Hypothesized Implications of Individual Differences in Use of Reappraisal and of Suppression in Three Domains of Adaptation*

| | Emotion regulation strategy | |
|---|---|---|
| Hypothesis domain | Reappraisal | Suppression |
| Affective functioning | | |
| Emotion experience | | |
| Positive | Greater | Lesser |
| Negative | Lesser | No impact or greater |
| Emotion expression | | |
| Positive | Greater | Lesser |
| Negative | Lesser | Lesser |
| Interpersonal functioning | Greater | Lesser |
| Well-being | Greater | Lesser |

## Study 1: Psychometrics and Group Differences

Experimental studies cannot address whether individuals differ systematically in their use of emotion regulation strategies, whether the use of one strategy is correlated with the use of another strategy, and whether there are gender or ethnic differences in strategy use. Study 1 addresses these issues. In terms of gender differences, Western norms suggest that men use suppression to a greater degree than women. Although norms differ somewhat across specific emotions, expressing emotions is generally "viewed as 'unmanly'" (Brody, 2000, p. 26); parents report teaching sons greater emotional control than daughters, and boys report that they are expected to inhibit their emotional expressions to a greater extent than girls (Underwood, Coie, & Herbsman, 1992). In terms of ethnic differences, in the United States, European Americans still tend to have more power and social status than ethnic minorities. When interacting with higher status (majority) individuals, lower status (minority) individuals should carefully monitor and control the expression of their emotions to reduce the risk of upsetting powerful others who control valuable resources (Keltner, Gruenfeld, & Anderson, 2003). This led us to expect members of ethnic minority groups to use suppression more frequently than European Americans.

### *Method*

#### *Participants*

Participants in Study 1 were drawn from four undergraduate samples. Sample characteristics for each of these four samples are summarized in Table 2.

#### *Emotion Regulation Questionnaire (ERQ)*

We derived the ERQ items rationally, indicating clearly in each item the emotion regulatory process we intended to measure, such as "I control my emotions *by changing the way I think* about the situation I'm in" (reappraisal) and "I control my emotions *by not expressing them*" (suppression). In addition to these general-emotion items, the Reappraisal scale and the Suppression scale both included at least one item asking about regulating negative emotion (illustrated for the participants by giving *sadness* and *anger* as examples) and one item about regulating positive emotion (exemplified by *joy* and *amusement*). Moreover, care was taken to limit the

Table 2
*Sample Characteristics, Varimax Rotated Factor Loadings for the 10 Items on the Emotion Regulation Questionnaire (ERQ), Alpha Reliability, and Scale Intercorrelations in Four Samples (Study 1)*

| | Sample | | | |
|---|---|---|---|---|
| | A | B | C | D |
| Sample characteristics | | | | |
| Sample size | 791 | 336 | 240 | 116 |
| Mean age (years) | 20 | 20 | 20 | 18 |
| % women | 67 | 63 | 50 | 64 |
| % African American | 05 | 04 | 02 | 03 |
| % Asian American | 41 | 40 | 24 | 26 |
| % European American | 28 | 33 | 56 | 55 |
| % Latino | 09 | 16 | 15 | 09 |
| Reappraisal factor | | | | |
| 1. I control my emotions by changing the way I think about the situation I'm in. | .66 | .76 | .73 | .82 |
| 2. When I want to feel less negative emotion, I change the way I'm thinking about the situation. | .83 | .73 | .82 | .85 |
| 3. When I want to feel more positive emotion, I change the way I'm thinking about the situation. | .83 | .77 | .80 | .84 |
| 4. When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about. | .71 | .75 | .55 | .49 |
| 5. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about. | .68 | .76 | .62 | .67 |
| 6. When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm. | .55 | .32 | .48 | .71 |
| **Highest of all cross loadings (absolute values)** | **.14** | **.14** | **.15** | **.13** |
| **Internal consistency (alpha)** | **.80** | **.77** | **.75** | **.82** |
| Suppression factor | | | | |
| 7. I control my emotions by not expressing them. | .83 | .78 | .85 | .89 |
| 8. When I am feeling negative emotions, I make sure not to express them. | .76 | .73 | .73 | .69 |
| 9. I keep my emotions to myself. | .81 | .77 | .84 | .87 |
| 10. When I am feeling positive emotions, I am careful not to express them. | .54 | .56 | .54 | .57 |
| **Highest of all cross loadings (absolute values)** | **.18** | **.12** | **.20** | **.23** |
| **Internal consistency (alpha)** | **.73** | **.68** | **.75** | **.76** |
| Scale intercorrelation | .06 | .01 | −.04 | −.06 |

*Note.* Items copyright 1998 by James J. Gross and Oliver P. John. To obtain the most recent ERQ, see author note.

item content to the intended emotion regulatory strategy, and to avoid any potential confounding by mentioning any positive or negative consequences for affect, social functioning, or well-being. The final 10 items are shown in Table 2 and were rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

## Results and Discussion

### Factor Structure and Scale Intercorrelations

Results from exploratory factor analyses are summarized in Table 2, which gives the varimax-rotated loadings in each sample. There was no evidence for a single, general factor; instead, the scree test always suggested two factors. The first factor was defined by the reappraisal items, including the key item "I control my emotions by changing the way I think about the situation I'm in." The second factor was defined by the suppression items, including the key item "I control my emotions by not expressing them." These two factors accounted for more than 50% of the variance in each sample. In each case, the intended loadings were all substantially higher than even the highest of all cross-loadings (mean cross-loading = .16). Both positive-emotion and negative-emotion regulation items loaded together on the Reappraisal and Suppression factors; there was no indication of a positive-emotion factor or a negative-emotion factor. Moreover, the six-item Reappraisal and the four-item Suppression scales were independent in each sample (mean $r = -.01$; see Table 2). That is, individuals who frequently use reappraisal were no more (or less) likely to use suppression than individuals who use reappraisal infrequently.

A series of confirmatory factor analyses (CFA) tested these conclusions more stringently. We used LISREL (Jöreskog & Sörbom, 1989) in the combined data set ($N = 1{,}483$) to compare four models: (a) general-factor model of emotion regulation; (b) hierarchical model (two factors forming two facets of emotion regulation correlating .50), which posits that some individuals regulate a lot using both strategies, whereas other individuals regulate very little, using neither regulatory strategy; (c) specialist model (two factors correlating −.50), which posits that individuals specialize in their preferred form of regulation, using one strategy but not the other; and (d) independence model (two factors correlating zero). Across all standard fit indexes, the general-factor model provided the worst fit, the independence model the best fit, and both the hierarchical and the specialist models fell in between. The fit of these models can be compared statistically with the least parsimonious or augmented model, namely a two-factor model with the factor intercorrelation freely estimated. The general-factor, hierarchical, and specialist models all fit significantly worse than the augmented model, all $\chi^2(1, N = 1{,}483) > 252$, all $ps < .001$, but not the independence model, $\chi^2(1, N = 1{,}483) = 0.3$, *ns*. An additional CFA model comparison confirmed that men and women did not differ in their factor structure; a model specifying identical factor loadings and intercorrelations for men and women did not

decrease fit compared with the augmented model, $\chi^2(11, N = 1{,}483) = 17$, *ns*. In sum, only the independence model provided as good a fit as the optimal model freely estimated by LISREL and was thus the best-fitting model for both women and men.

### *Reliability, Gender Differences, and Ethnic Differences*

Table 2 presents alpha reliabilities, which averaged .79 for Reappraisal and .73 for Suppression. Test–retest reliability across 3 months was .69 for both scales. Figure 2 shows gender differences on the Suppression scale. As predicted, men scored higher than women. This difference was significant in every sample (all four *t*s $> 3.0$, all *p*s $< .01$), and effect sizes were similar, averaging about one-half of a standard deviation (Cohen's $d = .47$). Overall means were 3.64 ($SD = 1.11$) for men and 3.14 ($SD = 1.18$) for women. For Reappraisal, there were no consistent gender differences ($M = 4.60$ [$SD = 0.94$] for men and 4.61 [$SD = 1.02$] for women). Ethnicity effects were tested in our two largest samples (A and B), using one-factorial analyses of variance (ANOVAs) with ethnicity as a between-participants variable. Figure 3 shows that in both samples, European Americans showed the least use of suppression as an emotion regulation strategy. The ANOVAs were significant in both Sample A, $F(3, 652) = 3.0$, $p = .03$, and Sample B, $F(3, 303) = 5.2$, $p = .01$, as were the planned contrasts (European American vs. ethnic minority), $t(654) = 3.0$, $p = .003$ and $t(305) = 3.3$, $p = .001$, respectively. The three minority groups did not differ from each other, as indicated by ANOVAs comparing the three minority groups in Sample A, $F(2, 433) = 0.2$, *ns*, and Sample B, $F(2, 194) = 0.4$, *ns*. In short, results replicated closely across samples and were consistent with our hypothesis that minority status is associated with greater use of suppression to regulate emotion. There were no ethnic differences in Reappraisal, in either Sample A or Sample B (both *F*s $< 1.0$).

## Study 2: Establishing a Nomological Net—Relations to Other Constructs

One important task when evaluating measures of new constructs is to establish a nomological net by assessing convergent and discriminant relations with conceptually relevant constructs. We consider perceived emotion regulation success, inauthenticity, as well as coping and mood regulation.

Both reappraisal and suppression are strategies that allow individuals to modify their emotions; thus, frequent users of each strategy should perceive themselves as more successful at emotion regulation than less frequent users of that strategy. However, suppressors rely on a regulation strategy that does not allow them to express the emotions they are really feeling, which should lead to a profound sense of incongruence between self and behavior. Authenticity is the extent to which individuals behave in ways that are congruent with their own inner feelings, attitudes, and beliefs, rather than engaging in knowingly false self-presentations (Sheldon et al., 1997). Frequent use of suppression as a regulatory strategy should thus relate to inauthenticity, that is, the tendency to present oneself in ways that are discrepant from one's inner self to avoid disapproval or social rejection (see Gross & John, 1998).

Research on stress has identified numerous individual differences in the ways individuals deal with adversity (e.g., Lazarus & Folkman, 1984). The two coping styles conceptually most related to reappraisal and suppression are reinterpretation and venting, as defined by Carver, Scheier, and Weintraub (1989). Reinterpretation involves looking for the silver lining in stressful situations and trying to learn from difficult experiences. Venting involves being

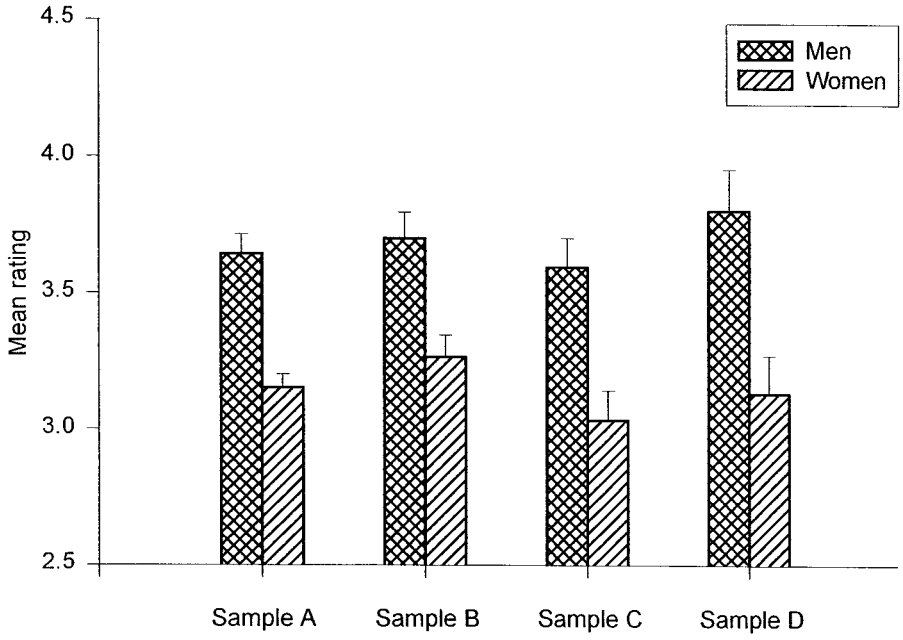


*Figure 2.* Men suppress more than women. Mean suppression scores (and standard errors of the mean shown by error bars) for men and women in four samples.

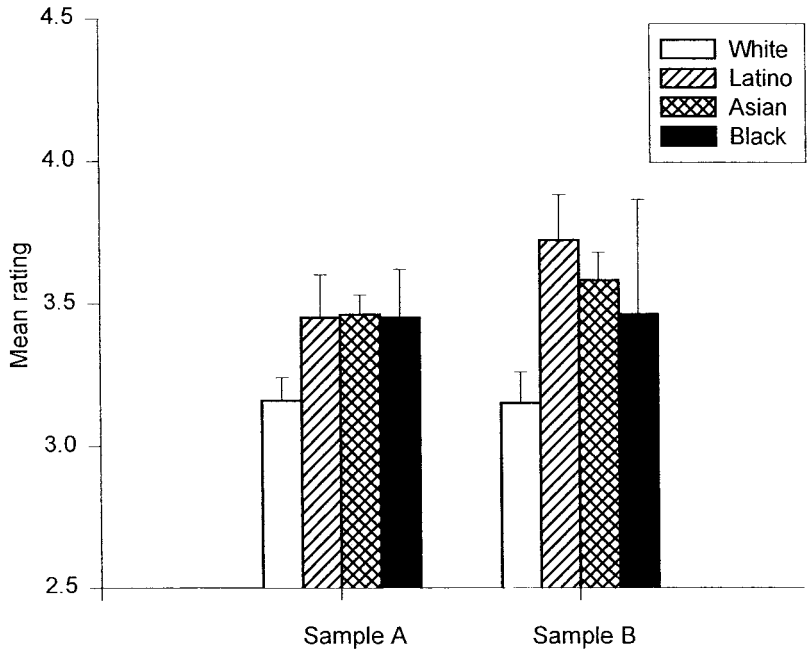


*Figure 3.* European Americans suppress less than ethnic minorities. Mean suppression scores (and standard errors of the mean shown by error bars) for European American, Latino, Asian American, and African American participants in two samples.

aware of one's upset and distress and "letting it out." The conceptual similarities with emotion regulation strategies are apparent but there are also differences. On the one hand, the coping styles are defined more narrowly, focusing solely on stressful situations and experiences. On the other hand, they tap a broader set of underlying processes: Reinterpretation measures optimism as well as learning from experience, and venting measures both experience and expression of negative emotion. Thus, we expected moderate correlations; when faced with a stressful event, individuals who use reappraisal as an emotion regulation strategy should be more likely to report coping through reappraisal (but not venting) whereas use of the suppression strategy should be correlated negatively with coping through venting (but not with reinterpretation).

Four other relevant constructs relate to mood management. Three of these are measured by Salovey, Mayer, Golman, Turvey, and Palfai's (1995) Trait Meta-Mood scales. The Repair scale assesses optimistic attitude and use of distraction to improve negative mood; the Attention scale refers to awareness and positive valuation of emotions; and the Clarity scale assesses clarity about and comfort with one's feelings. We expected reappraisal to be positively related to mood repair because reappraisal is defined as trying to think differently about the situation, thus permitting early efforts at mood repair. In contrast, the use of suppression, coming late in the emotion-generative process, holds little promise for early repair efforts, and the recurrent effort required by suppression would seem to interfere with increasing awareness, clarity, and comfort regarding the very emotions the individual is trying to suppress. Thus, frequent users of suppression should have less understanding of their moods, view them less favorably, and modify them less successfully. A fourth relevant construct is negative mood regulation expectancy (Catanzaro & Mearns, 1990), which refers to generalized beliefs about one's ability to regulate negative moods. We expected reappraisal to relate to mood regulation expectancies positively, and suppression negatively.

How should reappraisal and suppression relate to rumination? Nolen-Hoeksema (1987) has defined rumination as responding to depressed mood by focusing on one's symptoms, one's self, and the causes and consequences of one's depressed mood. In principle, one would think that suppressors would try to avoid the emotions they are trying to suppress, suggesting the opposite of rumination. However, emotion expressions constitute a powerful means of changing troubling situations. Without the option of expressing emotions, and also without a cognitive repair mechanism at hand, we expected that suppressors should not achieve the same resolution to the situations that precipitated their emotions as individuals not using suppression, making it more rather than less likely they would ruminate. Although reappraisers do think about the situation, they should not dwell about it endlessly, either, but rather come to some alternative construal of the situation. Thus, we did not expect reappraisal to relate to rumination.

To locate individual differences in reappraisal and suppression within the context of broader personality, we examined relations with the Big Five (see John & Srivastava, 1999). These personality dimensions are conceptualized at a much broader level of abstraction than our measures of specific emotion regulation processes, suggesting that associations should not be very large in size. Neuroticism and Extraversion are of particular interest because they are consistently associated with proneness to experiencing negative and positive affect, respectively (Larsen & Ketelaar, 1991).

Another broad personality construct is the generalized tendency to control impulses and think before acting, rather than acting impulsively and giving in to distracting stimuli. We assessed impulse control (vs. impulsivity; see Block & Kremen, 1996) to test whether reappraisal and suppression reflect broader self-regulation and impulse control processes or whether they are, as intended, distinct and specific to the regulation of emotion. Finally, the general thrust of our hypotheses is that we expect reappraisal to have more favorable implications for adjustment than suppression. Thus, it is important to ascertain whether any such effects may be due to other factors, such as cognitive ability or desirability.

## Method

### Participants

Participants were drawn from Samples A, B, C, and D as described in Study 1 (see Table 2); Sample E consisted of 145 undergraduates (73% women; mean age = 20 years).

### Convergent Measures: Regulation Success, Inauthenticity, Coping, and Mood Regulation

In addition to the ERQ, participants completed several other measures. Perceived emotion regulation success was assessed by asking the following: "Overall, how successful would you say you are at altering your emotions, using a scale from 1 to 10, where 1 = *not at all successful*, and 10 = *very successful*?" The 13-item Inauthenticity scale was based on a factor identified by Gross and John (1998); it measures attempts to mask the expression of one's true inner self because of concerns about self-presentation (see Snyder, 1987). An example item is "I'm not always the person I appear to be" ($\alpha$ = .78). To measure coping styles, we used the four-item Reinterpretation and Venting scales from the COPE (Carver et al., 1989). To measure mood management, we used the three scales from the Trait Meta-Mood questionnaire (Salovey et al., 1995): the six-item Mood Repair scale ($\alpha$ = .83), the 13-item Attention scale ($\alpha$ = .86), and the 11-item Clarity scale ($\alpha$ = .84). The 30-item Negative Mood Regulation scale (Catanzaro & Mearns, 1990) uses the same stem for all items: "When I'm upset, I believe that. . ." An example item is "I can usually find a way to cheer myself up" ($\alpha$ = .88). Individual differences in rumination were assessed using the 10-item scale ($\alpha$ = .86) developed by Nolen-Hoeksema and Morrow (1991) and a six-item version ($\alpha$ = .83) of the scale developed by Trapnell and Campbell (1999).

### Discriminant Measures: Broad Personality, Impulse Control, Cognitive Ability, and Desirability

The Big Five personality dimensions were measured using the 44-item Big Five Inventory (see John & Srivastava, 1999); alphas for the five scales ranged from .76 to .88. Impulse control (versus impulsivity) was measured with the 33-item Ego Control scale (Block & Kremen, 1996; $\alpha$ = .75). Cognitive ability was measured with verbal and quantitative Scholastic Aptitude Test scores as well as with the Wonderlic (1977) Intelligence Test (Form IV), administered in two 25-item segments ($r$ = .94). Social desirability was measured with Crowne and Marlowe's (1960) 33-item true–false questionnaire ($\alpha$ = .77).

## Results and Discussion

### Preliminary Analyses of Interaction Effects

In Study 1, Reappraisal and Suppression were not related. However, they might nonetheless interact in their effects on other variables. To test this possibility, we conducted moderated multiple regression analyses (cf. Aiken & West, 1991), testing the effects of Reappraisal and Suppression as main effects as well as their interaction on each dependent variable in each study. Results showed that the effects of using the two emotion regulation strategies were additive, rather than interactive, and we therefore report in all subsequent tables only the main effect betas for Reappraisal and Suppression, as obtained in regressions without the interaction effects. Study 1 had also shown replicated differences between men and women and between European Americans and ethnic-minority members in mean levels of the ERQ Suppression scale. We therefore also tested whether gender and ethnicity might moderate our findings for Suppression as well as for Reappraisal in moderated multiple regression analyses. Neither gender nor ethnicity had any consistent moderator effects in any of our studies.

### Convergent Relations With Regulation Success, Inauthenticity, Coping, and Mood Regulation

Individuals use particular regulation strategies because they think they help them achieve their emotion regulation goals. Indeed, as the betas in Table 3 show, both reappraisal and suppression use were correlated positively with perceiving one's emotion regulation efforts as successful. Although these associations were modest, they are important because they show that any differences in the correlates of reappraisal and suppression are not simply due to differences in the perceived success of these two regulation strategies. As predicted, suppression was related to Inauthenticity ($\beta$ = .47) but reappraisal was not. This finding shows that individuals who chronically use suppression are keenly aware of their lack of authenticity, and knowingly deceive others about their true inner feelings, attitudes, and beliefs. They do so, they report, because they are concerned with being accepted and liked by others, suggesting that suppression is used particularly often in relationships the individual cares about and fears losing.

In terms of coping, reappraisal was related to coping through reinterpretation ($\beta$ = .43), and suppression was related to coping through venting ($\beta$ = −.43). This means that individuals who typically use reappraisal to regulate their emotions are more likely to cope by looking for something good during stressful events; suppressors are less likely to be clearly aware of and to express their upset than those who use suppression less frequently. It should be noted that although these betas in Table 3 suggest appropriate convergence between each pair of measures, they are not so high as to suggest redundancy. In terms of the three Trait Meta-Mood scales, reappraisal was related to greater use of mood repair. Suppression was negatively related to all three Meta-Mood scales, suggesting that suppression involves "shutting down" emotions in a way that interferes with attention to the emotion, leading to less awareness, less clarity, and, of course, no repair efforts. Consistent with the mood findings, efficacy of negative mood regulation was related positively to reappraisal but negatively to suppression. The small but replicated relation between suppression and rumination indicates that individuals who chronically suppress ruminate more about their negative mood and the self. Expressing emotions can change the social environment; thus, suppressing emotions makes it less likely that situations that upset the individual will change for the better. Instead of taking action, suppression leads the individual to ruminate, which in turn increases the risk

Table 3
*The Nomological Net of Reappraisal and Suppression: Convergent and Discriminant Relations to Other Constructs (Study 2)*

| | Emotion regulation strategy | |
|---|---|---|
| | Reappraisal | Suppression |
| **Convergent validity** | | |
| Perceived regulation success[E] | .20* | .18* |
| Inauthenticity[E] | −.05 | .47* |
| Dispositional coping (COPE)[C] | | |
| Reinterpretation | .43* | −.13* |
| Venting | −.01 | −.43* |
| Trait Meta-Mood[E] | | |
| Attention | .03 | −.41* |
| Clarity | −.04 | −.30* |
| Repair | .36* | −.26* |
| Negative mood regulation[B] | .30* | −.22* |
| Rumination | | |
| Nolen-Hoeksema and Morrow[B] | −.03 | .18* |
| Trapnell and Campbell[D] | −.29* | .19* |
| **Discriminant validity** | | |
| Big Five personality dimensions[A] | | |
| Neuroticism | −.20* | .03 |
| Extraversion | .11* | −.41* |
| Openness | .15* | −.18* |
| Agreeableness | .14* | −.11* |
| Conscientiousness | .13* | −.14* |
| Block ego control[E] | −.03 | −.06 |
| Cognitive ability[E] | | |
| Wonderlic (part A) | .01 | .10 |
| Wonderlic (part B) | −.09 | .17 |
| SAT verbal | .17 | −.03 |
| SAT quantitative | −.02 | .05 |
| *M* | .02 | .09 |
| Social desirability[E] | .11 | −.09 |

*Note.* Standardized beta coefficients. Capital superscripts (e.g., A, C) indicate which sample was used. SAT = Scholastic Aptitude Test.
* $p < .05$.

for prolonged periods of negative emotion and depressive symptoms (Nolen-Hoeksema, Morrow, & Fredrickson, 1993).

### *Discriminant Relations With Broad Personality, Impulse Control, Cognitive Ability, and Desirability*

As shown in Table 3, reappraisal was negatively related to Neuroticism, whereas suppression was negatively related to Extraversion. Of importance, associations with the Big Five were modest in size (with the two largest betas being −.20 for reappraisal and −.41 for suppression), indicating that our new measures converged with, but did not duplicate, these broader personality dimensions. Neither reappraisal nor suppression were related to ego control, indicating that they are not simply manifestations of a broader tendency to tightly control all manner of impulses. Reappraisal and suppression also were not related to any of the measures of cognitive ability; that is, individual differences in cognitive ability cannot explain the considerable variability in the typical use of reappraisal and suppression in these college students. Social desirability also did not play a major role in reports of reappraisal and suppression.

Together, these convergent and discriminant validity findings indicate that reappraisers cope with stress by using reinterpretation, have a well-developed capacity for negative mood repair, and show a sense of their capacity for negative mood regulation. Suppressors, by contrast, cope with adversity by "battening the hatches," and feel inauthentic, rather than venting their true feelings. Suppressors tend to evaluate their emotions in negative terms, and their lack of clarity about their emotions is associated with a lesser facility at mood repair, lower estimates of their own ability to regulate negative moods, and increased rumination. These findings are consistent with our model and support our prediction that reappraisal and suppression should have rather different affective consequences.

## Study 3: Implications for Affective Responding

Our hypotheses about emotion experience and emotion expression are summarized in Table 1. For reappraisal, theory and prior experimental studies both suggest greater experience and expression of positive emotion, and less experience and expression of negative emotion.

By contrast, hypotheses for frequent use of suppression are quite different. For positive emotion, suppression should relate to less experience and less expression of positive emotion. For negative emotion, two competing predictions can be made (see Table 1). According to experiments on momentary instances of emotion regulation, suppression does not reduce negative emotion experience; that is, suppression leaves intact whatever level of negative emotion the individual happens to experience. Thus, everything else being equal, individuals who typically suppress should experience the same levels of negative affect as nonsuppressors. However, findings from Study 2 suggest that everything else is not equal, and that the chronic use of suppression in everyday life may itself lead to greater negative experience. In particular, people who frequently use suppression were acutely aware of their lack of authenticity, experiencing incongruence between self and experience; such incongruence has been linked to distress and depressive symptoms (Sheldon et al., 1997). Thus, using suppression in everyday life may have another undesirable consequence, namely greater negative emotion experience.

How should using suppression influence the behavioral expression of negative emotion? According to the experimental research, when individuals suppress in a particular emotional context, they show less emotion-expressive behavior. This suggests that individuals who typically suppress should show less emotion-expressive behavior than nonsuppressors (see Table 1). However, if frequent use of suppression itself leads to increased levels of negative emotion experience, repeated use of suppression might only partially offset the chronic experience of negative emotion, leading to modest or even no absolute differences between suppressors and nonsuppressors in negative emotion-expressive behavior.

In Study 3, we related ERQ Reappraisal and Suppression to self-reports of emotion experience, and to self- and peer-reports of emotion expression. Our use of peer-reports of emotion expression is based on the premise that many instances of emotion expression not only take place in social situations, but are in fact triggered by them. Thus, social interactions naturally give rise to opportunities for others to observe individual differences in emotion-expressive behavior (Gross, John, & Richards, 2000). Because peers can observe an individual in a wide range of emotion-eliciting circumstances, they provide an important perspective on the individual's expressive behavior—one that reflects behavior across time and across naturally occurring, personally relevant situations. In short, close acquaintances should be able to provide an adequate behavioral sample of the individual's typical emotional expressions, particularly if multiple informants are used. Finally, we included single-item markers for reappraisal and suppression (rated by the peers) to test whether peers can in fact observe use of these strategies. Because suppression involves overt expressive behavior, we expected that peers could more easily discern and accurately rate use of suppression than use of reappraisal, which involves covert cognitive processing.

## Method

### Participants

We tested these hypotheses in Sample E (see Study 2), focusing on those participants whose expressive behavior had been rated by peers: 49 were target participants (73% female) for whom ratings of emotion expression were available from three peers and 147 were peers (69% female) who had been nominated by the targets and knew them well (mean acquaintance = 2.5 years).

### Measures

*Emotion experience: Dimensional and discrete measures.* The dimensional measure was the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) administered in the "general" format ($\alpha$ = .87 for positive affect, $\alpha$ = .85 for negative affect). For the discrete emotions measure, participants indicated how much they generally experienced six positive emotional states (e.g., *joy*, *love*) and six negative states (e.g., *sadness*, *anger*; $\alpha$ = .86 for both scales).

*Emotion expression: Self-reports and peer-reports.* To assess the expression of discrete emotions, participants indicated the extent to which they generally expressed their emotions, using the same positive and negative emotions described above ($\alpha$ = .81 and .74, respectively). Peers rated the extent to which targets typically expressed emotions in interactions with others, using the same positive and negative emotions ($\alpha$ = .88 and .81, respectively).

*Emotion regulation: Peer-reports.* Peer ratings of targets' use of reappraisal and suppression were measured with brief single-item indices. Peers rated the degree to which the target (a) "controls his/her emotions by not expressing them" (suppression) and (b) "changes the way he/she is thinking about the situation" when the target wants to feel less negative emotion (reappraisal). The interjudge agreement (across the three peers) for these single-item indices was moderate ($\alpha$ = .44 and .49, respectively).

*Inauthenticity.* To test whether individuals high in suppression experience more negative emotion because they feel bad about being inauthentic, we used the Inauthenticity scale (see Study 2).

## Results and Discussion

### Reappraisal Effects

As expected, reappraisal was related to greater experience of positive emotion; this effect held for both dimensional and discrete measures. Reappraisal was also related to greater expression of positive emotion in self-reported and peer-reported measures. With respect to negative emotion, reappraisal was related to less negative-emotion experience, again for both measures. Reappraisal was also related to less negative-emotion expression, in both self- and peer-rated measures. These findings suggest an enviable affective profile: reappraisers experience and express more positive emotion, and they also experience and express less negative emotions than individuals who use the reappraisal strategy less frequently.

### Suppression Effects

For positive emotions, suppression showed the predicted negative link to emotion experience: Individuals frequently using suppression experienced less positive emotion, both on the dimensional and on the discrete measures. With regard to expression, they also expressed less positive emotions, and again this effect held for both self- and peer-ratings.

What about negative emotions? Here our findings differed from the previous experimental work but were consistent with the hypothesis that feeling bad about inauthentic self-presentation is a secondary cost of using suppression in everyday life. In particular, individuals using suppression were more likely to experience

negative emotions than were nonsuppressors, in both the dimensional and discrete measures. To test whether this effect was due to the suppressor's inauthenticity (i.e., a distressing awareness of discrepancy between inner experience and outer behavior), we controlled for the effect of inauthenticity using multiple regression. Indeed, when inauthenticity was entered first, the effect of suppression was no longer significant, with betas reduced to .01 (*ns*) for the discrete measure of negative emotion experience and to .03 (*ns*) for the dimensional measure. These findings are consistent with the idea that the greater negative affect the suppressors experienced was due to their painful awareness of their own inauthenticity.

How was suppression related to the expression of negative emotion? As shown in Table 4, there was no relation, and this was true for both self-reports and peer-reports; that is, when the absolute amount of negative emotion expression was considered, suppressors did not differ from nonsuppressors. It should be noted, however, that suppressors differed from nonsuppressors in that they experienced more negative emotion than did nonsuppressors. Therefore, one may ask whether the suppressors expressed less of the negative emotion they actually experienced than did nonsuppressors. Thus, we computed a difference score (negative expression minus negative experience) where positive values indicate expressing more than one feels and negative values indicate expressing less than one feels. If suppressors indeed expressed less of the negative emotion they felt than did nonsuppressors, then the Suppression scale should correlate negatively with that index. Indeed, the correlation was negative and significant, and this was true when the index used the dimensional measure of negative emotion experience ($r = -.47$ for self-reported expression and $r = -.32$ for peer-reported expression, both $p$s $< .05$), or the discrete measure of negative emotion experience ($r = -.40$ for self-reported expression and $r = -.32$ for peer-reported expression, both $p$s $< .05$).

Although these findings are theoretically consistent and replicated across multiple measures and data sources, difference scores are complex and provide only indirect evidence for the construct validity of the Suppression scale. To further address this issue, we examined the peer-rated single-item indices for suppression and for reappraisal. The ERQ Suppression scale correlated .53 ($p < .001$) with the peer-rated suppression index, providing encouraging evidence for construct validity with an independent data source. Additional evidence for the construct validity of the Suppression scale is provided by the finding that high scorers showed worse memory for social information than low scorers, establishing another direct parallel between experimental and individual difference findings (Richards & Gross, 2000). As expected, reappraisal was more difficult for peers to rate than suppression; the ERQ Reappraisal scale correlated only .24 ($p = .05$) with the peer-rated reappraisal index. However, given the modest reliability of these single-item peer ratings, these correlations may be lower bound estimates of the real effect sizes.

To summarize, then, suppressors felt more negative emotions than nonsuppressors, but that difference was not manifest in their expressive behavior, as reported both by their peers and by themselves. Nonetheless, direct peer ratings of suppression indicated that peers were able to detect when individuals used suppression to regulate their emotions. This peer finding is particularly noteworthy given that suppressors were apparently successful in their attempts to suppress the considerable negative emotion they felt, so that compared with nonsuppressors, they expressed less emotion than they actually felt. In marked contrast to reappraisers, then, suppressors showed a rather troubling affective profile: they both experience and express less positive emotion than nonsuppressors, and they feel more negative emotions. Although suppressors' efforts to suppress these negative emotions do seem to succeed to the point that they express no more negative emotion in their behavior than individuals who rarely use suppression, their peers nonetheless detect their suppression efforts.

Table 4
*Affective Implications of Reappraisal and Suppression for Emotion Experience and Expression (Study 3)*

| | Emotion regulation strategy | |
|---|---|---|
| | Reappraisal | Suppression |
| Positive emotion | | |
| Experience | | |
| Mood (PANAS) | .42* | −.33* |
| Discrete emotions | .35* | −.58* |
| Expression | | |
| Self-reported | .37* | −.62* |
| Peer-rated | .44* | −.30* |
| Negative emotion | | |
| Experience | | |
| Mood (PANAS) | −.51* | .39* |
| Discrete emotions | −.47* | .36* |
| Expression | | |
| Self-reported | −.59* | .12 |
| Peer-rated | −.29* | −.05 |

*Note.* Standardized beta coefficients. Sample E was used for these analyses. PANAS = Positive and Negative Affect Schedule.
* $p < .05$.

## Study 4: Implications for Social Functioning

Interactions with others are potent triggers for emotions, and individuals often regulate their emotions to achieve their social goals and maintain good relations with significant others. Thus, the chronic use of suppression and reappraisal should have important, but rather different, consequences for interpersonal functioning. Suppressors should be less likely to share their actual emotional experiences, both negative and positive, with others (Rime, Philippot, Boca, & Mesquita, 1992). This prediction is also consistent with the suppressors' negative evaluation of their own emotions (i.e., Trait Meta-Mood scale of Attention; see Table 3). Emotionally close relationships often give rise both to strong emotions and to calls to share these emotions. Thus, if suppressors are indeed reluctant to share their emotions, they should be uncomfortable with and actively avoid close relationships. Over time, the cumulative effect of avoiding closeness would likely be an impoverished social network and the erosion of the individual's social support, particularly in terms of its socioemotional aspects. Of importance, this erosion of social support may not be due entirely to the avoidant behavior of the suppressors. Potential friends may well sense their reluctance to open up emotionally and enter into close relationships, noticing their efforts to suppress what they really feel (cf. the peer ratings in Study 3). This may lead them to

distance themselves from the suppressors as they feel less close to them than to individuals who do not chronically use suppression.

In sharp contrast to these deleterious effects of chronic suppression, we expected the habitual use of reappraisal to generally benefit social functioning. As shown in Table 4, reappraisers have and express more positive emotions, and in combination with their positive take on challenging situations, this seems likely to make them sought after as friends and associates. Socially, it is also advantageous that reappraisers experience and express less negative emotions. This suggests reappraisers should feel free to share their emotions, both positive and negative, with others, and this sharing should facilitate closer relationships with their friends and lead them to be liked better. Again, social consequences may be codetermined by both the reappraiser and the social environment that responds to this form of emotion regulation: friends and partners of reappraisers may feel sure of where they stand with them, as they can read and understand their feelings clearly, and find them appropriately aware and socially attuned, given that their regulation strategy does not unduly sap cognitive resources.

## Method

### Participants

Participants were drawn from Samples B, C, D, and E described previously. In Sample D, ratings of relationship closeness were available from three peers for 80 participants; these 240 peers (56% female) were acquaintances who were nominated by the targets and knew them fairly well (mean acquaintance = 6 months). It should be noted that this is a different peer sample from that in Sample E (see Study 3).

### Measures

Following Rime et al. (1992), *social sharing of emotion* was defined as follows:

> Sharing feelings is when you talk about your feelings with others in order to change how you are feeling. An example of sharing feelings is telling your partner how irritated you are at someone else to calm yourself down. Another example is sharing good news with friends in order to sustain or increase your positive feelings.

Participants rated their sharing of both negative and positive emotions, which correlated .40.

Two measures of *avoidance of attachment* were used. The 18-item Attachment Avoidance scale (Brennan, Clark, & Shaver, 1998) focuses on how participants generally feel in romantic relationships (e.g., "I get uncomfortable when a romantic partner wants to be very close"; $\alpha = .95$). The second measure was based on Bartholomew and Horowitz's (1991) questionnaire, which asks participants to rate the extent to which four prototypical paragraphs describe their feelings and attitudes about close relationships; avoidance is scored by adding participants' ratings of the dismissing and the fearful paragraph (both avoidant) and subtracting the ratings of the secure and preoccupied paragraphs (both closeness-seeking). Attachment avoidance reflects a "negative-other" working model of attachment, indicating the individual does not trust others to be accepting of his or her needs and feelings.

To assess *relationship closeness*, in Sample E, peers rated the statement: "X has close relationships with others."

Two indices of *social support* came from the COPE (Carver et al., 1989). The four-item Emotional Support scale measures whether one has people to turn to when one wishes to discuss emotional problems and seek emotional solace ($\alpha = .91$). The four-item Instrumental Support scale measures whether there are people to whom one can turn for practical assistance ($\alpha = .78$). Participants also completed the 12-item Interpersonal Support Evaluation List (Cohen, Mermelstein, Kamarck, & Hoberman, 1985; $\alpha = .82$).

To assess *peer liking*, peers in Sample E indicated the extent to which they agreed with two statements regarding the target: "X is the kind of person almost everyone likes" and "X is someone people really enjoy spending time with" ($r = .74$); they were averaged into a single index of peer liking.

### Results and Discussion

As predicted, reappraisal was related positively to sharing emotions, both positive and negative (see Table 5). It should be noted that social sharing of emotions is not equivalent to directing emotion-expressive behavior toward a social partner: One can socially share emotions with a social partner without expressing those emotions directly to the partner. Conversely, one can express emotions behaviorally without social sharing. This distinction is important, as it may be that sharing negative emotions without directing them toward the partner is an important element of the reappraisers' social success. As shown in Table 5, reappraisal was not related to either measure of attachment avoidance, nor to any of the three measures of social support, suggesting that individuals using reappraisal were no more likely than nonreappraisers to actively seek out or avoid attachment relationships and social support. However, reappraisers had closer relationships (as rated by peers) and were also better liked by their peers.

Table 5 shows that suppression had a quite different pattern of social consequences. Individuals habitually using suppression were less likely to share with others not only their negative but also their positive emotions. They also reported substantially more avoidance (discomfort with closeness and sharing) in close relationships, and this finding held for both attachment measures. This lack of emotional closeness with others was also evident in independent peer reports. Although their emotional distance was clearly noticed by their peers, the suppressors were not generally

Table 5
*Longer Term Implications of Reappraisal and Suppression for Interpersonal Functioning (Study 4)*

| | Emotion regulation strategy | |
|---|---|---|
| | Reappraisal | Suppression |
| Sharing emotions with others[B] | | |
| Positive | .24* | −.37* |
| Negative | .13* | −.26* |
| Avoidance of attachment[E] | | |
| Questionnaire | −.05 | .47* |
| Paragraph rating | .10 | .41* |
| Has close relationships (peer-rated)[D] | .26* | −.25* |
| Social support[C] | | |
| COPE: Emotional | .02 | −.48* |
| COPE: Instrumental | .10 | −.37* |
| ISEL | .12 | −.26* |
| Likability (peer-rated)[E] | .37* | −.18 |

*Note.* Standardized beta coefficients. Capital superscripts (e.g., C, E) indicate which sample was used. ISEL = Interpersonal Support Evaluation List.
* $p < .05$.

disliked; their peers felt relatively neutral about them. In the domain of social support, however, the cost of using suppression was apparent: lesser social support across all forms of social support. This effect was strongest for emotional support.

## Study 5: Implications for Well-Being

Although laboratory studies can document the acute consequences of regulation, they cannot address whether these transient consequences have a cumulative impact on adaptation. Studies 3 and 4 suggested that individual differences in the use of reappraisal and suppression are meaningfully related to emotion experience and expression, as well as to important interpersonal outcomes. Study 5 tested whether the habitual use of reappraisal and of suppression differ in their longer term cumulative impact on well-being.

On the basis of our model, as well as on our experimental and correlational findings to this point, we expected that reappraisal would promote psychological well-being. After all, one of the key ingredients in reappraisal is diminishing the negative emotional impact of adversity, and to the extent that depressive symptoms are either triggered or exacerbated by overwhelmingly negative responses to challenges or losses, reappraisal should exert a protective effect against depressive symptoms. Furthermore, in light of the positive emotional and social outcomes associated with reappraisal, reappraisers should have greater life satisfaction and higher self-esteem. Given their affective and social successes in the face of emotional challenges, we expected reappraisers to be generally more optimistic and to have a greater sense of efficacy with respect to their immediate environments.

The chronic use of suppression should be associated with more adverse outcomes. In general, self-experience discrepancies that characterize suppressors have been linked to adjustment problems (Sheldon et al., 1997). Suppressors also feel more negative emotion, cope less effectively, ruminate more, and have less social support, all factors known to increase risk for depressive symptoms (Nolen-Hoeksema & Morrow, 1991). We therefore expected suppression to be related to increased levels of depressive symptoms. Suppressors' avoidance and lack of close social relationships also suggests less life satisfaction, lower self-esteem, and a less optimistic attitude about the future. In terms of Ryff's (1989) domains of positive well-being, we expected suppressors to show lower levels of well-being across the board, and, in light of Study 4, we expected particular difficulties in the domain of positive relations with others. Finally, because many different factors influence an individual's adjustment, we expected relations between individual differences in emotion regulation and adjustment to be modest in size.

### *Method*

#### *Participants*

Participants were drawn from Sample C (see Study 1), Sample E (see Study 2), and Sample F, which consisted of 210 undergraduates (73% women; mean age = 21 years).

#### *Measures*

Given the overlap among measures of distress among relatively healthy individuals, we focused on depressive symptoms and prioritized replication across three instruments: the Beck Depression Inventory (BDI; Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961), the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), and the Self-Rating Depression Scale (Zung, 1965). The five-item Satisfaction With Life scale (Diener, Emmons, Larsen & Griffin, 1985) had an alpha of .82. The Rosenberg (1965) Self-Esteem scale includes 10 items ($\alpha$ = .92). Optimism was assessed using the eight-item Life Orientation Test (Scheier & Carver, 1985; $\alpha$ = .85). To assess the six major facets of positive well-being, we used the six scales developed by Ryff and Keyes (1995), all of which include 14 items. Alphas ranged from .82 to .91.

### *Results and Discussion*

As shown in Table 6, individuals who habitually use reappraisal showed fewer symptoms of depression, and this finding held across all three measures. Moreover, reappraisal was correlated positively with every indicator of positive functioning. Thus, reappraisers were more satisfied with their lives, more optimistic, and had better self-esteem. In terms of Ryff's (1989) domains of well-being, they also had higher levels of environmental mastery, personal growth, self-acceptance, and a clearer purpose in life. The relation between reappraisal and environmental mastery ($\beta$ = .41) was the largest of these effects; the way reappraisers take charge of their emotional reactions appears connected to a more global sense that they are in charge of their environments. Notwithstanding their greater sense of autonomy, reappraisers also scored higher on positive relations with others, consistent with findings concerning social functioning from Study 4.

Suppression showed the predicted negative associations with well-being. More specifically, individuals who typically suppress reported more depressive symptoms on all three measures, felt less satisfied with life, had lower self-esteem, and were less optimistic. They also scored lower on each of the Ryff and Keyes (1995) well-being scales. Consistent with Study 4, the link with interpersonal aspects of well-being was particularly strong ($\beta$ = −.46).

Table 6
*Longer Term Implications of Reappraisal and Suppression for Well-Being (Study 5)*

| | Emotion regulation strategy | |
|---|---|---|
| | Reappraisal | Suppression |
| Depression[F] | | |
| BDI | −.23* | .25* |
| CES-D | −.25* | .23* |
| Zung | −.29* | .27* |
| Life satisfaction[E] | .30* | −.34* |
| Self-esteem[E] | .30* | −.39* |
| Optimism[C] | .25* | −.25* |
| Well-being[F] | | |
| Environmental mastery | .41* | −.23* |
| Autonomy | .29* | −.22* |
| Personal growth | .27* | −.28* |
| Purpose in life | .25* | −.34* |
| Self-acceptance | .35* | −.38* |
| Positive relations with others | .23* | −.46* |

*Note.* Standardized beta coefficients. Capital superscripts (e.g., C, E) indicate which sample was used. BDI = Beck Depression Inventory; CES-D = Center for Epidemiological Studies Depression Scale; Zung = Zung Depression Scale.
* $p < .05$.

These findings indicate that individuals who typically use suppression are less satisfied both with themselves and their relationships, more pessimistic about their future, and more prone to depression, indicating a pervasive and fundamentally troubled sense of well-being.

Because well-being relates to high levels of positive emotion and low levels of negative emotion (Diener, 1984), we tested whether the well-being effects in Table 6 were simply due to the differences in emotion experience already documented in Study 3 (see Table 4). This was not the case. In a series of regression analyses, we first entered emotion experience and then entered reappraisal and suppression wherever measures of both emotion experience and well-being were available. The well-being effects for reappraisal and suppression remained even though they were somewhat reduced in size for every measure analyzed. For example, with both positive and negative PANAS scales controlled, the beta for life satisfaction was .22 ($p < .05$) for reappraisal and $-.28$ ($p < .05$) for suppression.

## General Discussion

Findings from these five studies suggest rather divergent implications of individual differences in reappraisal and individual differences in suppression. Reappraisers, we have argued, habitually use an emotion regulation strategy that intervenes early in the emotion-generative process and can thus modify not only what individuals express behaviorally but also what they feel inside and share with close others. Consistent with this general model of the reappraisal process, we found that reappraisers negotiate stressful situations by taking an optimistic attitude, reinterpreting what they find stressful, and making active efforts to repair bad moods. Affectively, reappraisers both experience and express behaviorally more positive emotion and less negative emotion than those who reappraise less frequently. Socially, reappraisers are more likely to share their emotions, both positive and negative, with others, and they have closer relationships with friends; indeed, their friends like them more than they like those who do not use reappraisal frequently. In terms of well-being, reappraisers have fewer depressive symptoms, and greater self-esteem, life satisfaction, and every other type of well-being we measured.

We have argued that suppressors habitually use an emotion regulation strategy that intervenes late in the emotion-generative process and can modify only what individuals express behaviorally, at considerable cost for the individual's functioning. Consistent with this view, we found suppressors experience themselves as inauthentic, misleading others about their true self; compared with individuals not using suppression, they deal with stressful situations by masking their inner feelings and clamping down on their outward displays of emotion. They are less clear about what they are feeling, less successful at mood repair, and view their emotions in a less favorable or accepting light, ruminating about events that make them feel bad. In terms of positive affect, their efforts at suppression leave them with less positive emotion experience and expression. In terms of negative affect, they experience more negative emotions, including painful feelings of inauthenticity, than individuals who use suppression less frequently. Their suppression is partially successful, in that they express less negative emotion than they actually experience; however, in absolute terms, they still express as much as individuals who suppress less frequently. Socially, suppressors seem reluctant to share with others not only their negative but also their positive emotions; in terms of attachment, they report avoiding close relationships. These reports dovetail with peers' reports that suppressors have relationships with others that are less emotionally close. In terms of well-being, finally, suppressors score lowest in the domain of positive relations with others; they also have lower levels of self-esteem, are less satisfied with life, and have more depressive symptoms.

Taken together, these findings extend prior experimental research in two important ways. First, they reveal that individuals differ in their use of suppression and reappraisal, that these individual differences are substantial and meaningful, and that they have systematic effects in naturally occurring (rather than experimentally manipulated) situations. Second, these findings reveal the longer term (rather than acute) consequences of using reappraisal and suppression in everyday life. In general, findings correspond closely to our hypotheses in Table 1, and show good convergence with prior experimental results. However, there are also points of divergence with prior experimental results, particularly with respect to negative emotion experience, which experimental studies had shown to be unaffected by suppression, but which over the longer term may become elevated in individuals who suppress frequently.

Across multiple domains, reappraisal and suppression differ markedly in their outcomes. Findings are not limited to a particular sample or a particular measure; rather, they generalize across multiple samples, multiple conceptually relevant measures, and multiple data sources, including not only well-validated self-report instruments but also independent reports from peers in two separate samples. Nonetheless, as with any set of studies, the present studies have a number of limitations.

The studies we have presented have used relatively homogeneous samples of college-aged research participants. Future studies need to test the generalizability of these findings using samples representing a wider age range, including children and older adults. One role such additional studies will play is to assess the robustness of these findings, to specify boundary conditions, and to test age-related predictions, such as an increase in the use of reappraisal and a decrease in the use of suppression from earlier to later adulthood (Gross et al., 1997). A second important role of such studies will be to help specify the developmental origin and maintenance of these emotion regulation strategies. For example, studies focusing on particular ethnic groups and measuring differences in acculturation and cultural practices will make it possible to fashion more specific hypotheses regarding individual and group differences in the acquisition and use of emotion regulation strategies.

By design, the present scales were focused on the reappraisal and suppression of positive and negative emotion in general. Such a focus has proven extremely productive in the broader literature on emotion experience. Although valuable as a first step, an exclusive focus on the broad categories of positive and negative emotions may eventually limit progress as it obscures potentially important differences among specific emotions. Indeed, even in the literature on emotion experience, there have been calls to broaden studies to include discrete emotions. Thus, one direction for future research is to examine the reappraisal and suppression of specific emotions within the broader valence categories, such as anger and sadness. Emotion-specific scales for reappraisal and

suppression that build on the present findings should provide new insights into the consequences of regulating emotion through reappraisal and suppression, and may permit a refined understanding of the role of display rules in sculpting emotional experience and expression. Specifically, gender and ethnicity effects may be found to be considerably more complex; for example, men may be more likely to suppress sadness but less likely to suppress anger than women.

Our data from self and peers served to illustrate that the effects of these emotion regulation strategies are evident across independent data sources. However, these methods do not permit us to directly assess an individual's use of suppression and reappraisal strategies in the context of specific emotion regulation episodes. In future research, diary and experience sampling methods might be used to examine when and where individual differences in reappraisal and suppression use are most evident, and to map in detail the specific behaviors individuals use in their attempts to use these two strategies.

Although we have studied emotion regulation with experimental approaches and now also with individual differences, we have not yet put the two approaches together. Equipped with our new individual-differences measures, we can now test how individual differences in the use of reappraisal and suppression interact with experimental instructions to reappraise and suppress. The practice-effects model suggests that individuals who frequently use a particular emotion regulation strategy would accrue a practice advantage that would make it easier for them to use that strategy when asked to do so. However, this model applies most obviously to newly acquired behaviors, whereas suppression and reappraisal may represent commonly used and thus highly overlearned behaviors, similar to driving skills among adults who own cars. This overlearned-behavior model suggests that differences due to practice effects should be small and that main effects (rather than interactions) would be evident in most situations. At this point, there is one relevant finding, and it favors the overlearned-behavior model: Despite the gender difference in the use of suppression documented here (men generally higher than women), we found no gender differences either in the ease with which participants suppressed on command or in any of the behavioral, subjective, or autonomic consequences of suppression in a negative emotion context (Gross, 1998).

Finally, our focus on two specific, well-defined processes is predicated on the belief that our understanding of complex emotion regulatory processes is best advanced if we focus intensively on one or two processes at a time. So far, we have found that across the board, reappraisal—with its emphasis on controlling the personal meaning that events have for the individual—has more to recommend it than suppression—with its emphasis on controlling one's behavioral responses to these events. Clearly, there are times when suppression is the best or even the only option. Occasionally, there may not be time to cognitively reevaluate a rapidly developing situation, making reappraisal an unworkable choice. However, in terms of what we do every day to regulate our emotions, reappraisal has more adaptive consequences for affect, relationships, and well-being. We also wish to emphasize that our findings refer only to the regulation of emotions, not the regulation of aggressive, sexual, or other impulses: As shown in Table 3, our emotion regulation scales were not correlated with impulse control. In future research, it will be important to consider other kinds of emotion regulation processes as well. As shown in Figure 1, our own process model proposes three other families of regulatory processes, each with many members. Broadening the research agenda will enable us to determine which differences among emotion regulatory processes are responsible for outcomes, and will help us relate these strategies to other important forms of self-regulation such as coping. An exciting era of research activity lies ahead that will sharpen our understanding of the relative costs and benefits of different forms of self-regulation for different kinds of emotions.

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