

# Context-Dependent Emotion Regulation: Suppression and Reappraisal at the Burning Man Festival

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Do people use different emotion regulation strategies in different social contexts? To answer this question, we compared typical emotion regulation use with emotion regulation use at a temporary annual art festival (Burning Man). We assessed two common emotion regulation strategies: expressive suppression (linked to generally negative outcomes) and cognitive reappraisal (linked to generally positive outcomes). Compared to typical emotion regulation use at home, at Burning Man participants reported decreased suppression use and increased reappraisal use. We consider implications for understanding contextual variation in emotion regulation and discuss the properties of the Burning Man context that may facilitate this more adaptive emotion regulation profile.

The past decade has seen a surge of research investigating the many different strategies that individuals use to regulate emotions (Gross, 2007), but the contextual and social factors governing the use of relatively more (vs. less) effective forms of emotion regulation are not yet clear. To address this issue, we first review the outcomes associated with two forms of regulation and the contexts in which their use is known to change. We then consider the possibility that even a temporary change in social context might influence emotion regulation. In particular, we studied the use of suppression and reappraisal in the social context of the weeklong Burning Man art festival.

One common type of emotion regulation is *expressive suppression*. This strategy involves inhibiting the outward

display of emotion. Experimental evidence indicates that suppression does not reliably reduce negative emotional experience (Gross, 1998; Lam, Dickerson, Zoccola, & Zaldivar, 2009) and can even lead to paradoxical increases in central (Goldin, McRae, Ramel, & Gross, 2009), peripheral (Gross, 1998), and neuroendocrine (Lam et al., 2009) responses thought to index negative emotion. An extension of this work is the investigation of individual differences related to the long-term or habitual use of suppression in everyday life. Those who use suppression more frequently report lesser positive affect, greater negative affect, diminished well-being, and a greater number of depressive symptoms than those who use suppression less frequently (Gross & John, 2003; Nezlek & Kuppens, 2008).

A second common type of emotion regulation is *cognitive reappraisal*, which involves the use of thought to change subsequent emotions. For example, someone can reappraise an academic failure by thinking of it

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instead as an opportunity for growth. Reappraisal differs from suppression in that it targets the emotional appraisals, or interpretations of events, that precede a full-fledged emotional response. Reappraisal has been found to be an effective way to decrease negative emotion, as indexed by emotional experience (Gross, 1998), expressive behavior (Gross, 1998), peripheral physiology (Jackson, Malmstadt, Larson, & Davidson, 2000), and emotion-related neural responses (Hajcak & Nieuwenhuis, 2006; Ochsner & Gross, 2008). Reappraisal appears to have beneficial long-term consequences as well: The frequent use of reappraisal is associated with greater well-being, fewer depressive symptoms, and better interpersonal functioning (Gross & John, 2003).

Because expressive suppression directly targets outward displays of emotion, its use has social consequences, which should vary in different social contexts. Changes in social context could be induced by (a) a transition from one long-term social context to another or (b) a change to a social context that is known to be temporary. The first of these possibilities was recently investigated by a study that assessed suppression use during the transition to college. After arrival at their new college, freshmen used suppression more frequently than they had in the last months of their high school career (Srivastava, Tamir, McGonigal, John, & Gross, 2009). However, suppression use in a social context that is itself temporary remains to be investigated.

In the present study, we measured the use of suppression in a temporary social context that we hypothesized would reduce suppression use. In addition, we measured reappraisal to distinguish general changes in emotion regulation from suppression-specific changes. The context we chose was the Burning Man festival. Burning Man involves the building of a temporary city (Black Rock City) for a week in an otherwise barren Nevada desert. This creates a temporary urban setting with a population of more than 47,000 in 2007 (Burning Man Organization, 2009). Ticket revenue sponsors several large-scale art projects that are featured at the event, and voluntary participant contributions in the form of “gifts” (art, performances, music, food, classes, goods and services) compose the rest of the experience. Burning Man is unlike large music festivals to which it is often compared because no mainstream musicians are hired to perform, and the event is decommercialized—no selling of goods or services is permitted. We predicted reduced suppression at Burning Man because the consensual norms and values regarding emotional expression differ markedly from most Western cities. Participants are explicitly encouraged to engage in “radical self-expression.” Many individuals choose to participate in the festival wearing little or no clothing, decorating their bodies in colorful paint, or donning a

wide variety of costumes. One participant shared this thought on an online Burning Man message board:

One could say that I am free to express myself at any time at any place but the difference is that at [Black Rock City] I can do so in a venue where the others are also primed to receive that gift. So, it has more to do with being in a place where people feel safe expressing themselves allowing that expression to be less inhibited than might be the case at home. (George, 2007)

The practical limitations of this unique social context presented several methodological challenges to collecting data on the use of different emotion regulation strategies. We were restricted to the addition of single-item measures to a survey administered by the Burning Man Organization due to length concerns. Therefore, we identified the most appropriate single items based on previous data collected with the Emotion Regulation Questionnaire (ERQ; Gross & John 2003). Because individuals travel to Burning Man from all over the world, we were unable to obtain an online measure of regulation strategy use in the home context, and so we asked about the use of reappraisal and suppression at home retrospectively.

We predicted that individuals would use suppression less frequently in the Burning Man context. Unlike the explicit display rules relevant to suppression, reappraisal is neither explicitly endorsed by the Burning Man Organization nor an acknowledged aspect of participation, and so we did not have strong a priori hypotheses about differential reappraisal use at and away from Burning Man. This was advantageous for two reasons. First, we had no reason to expect that demand effects would impact reports of reappraisal use, as reappraisal is not thought to be a commonly held value among participants. Second, the pattern of reappraisal use may aid in the interpretation of the hypothesized decreased suppression use. If both suppression and reappraisal are reduced at Burning Man, this is consistent with a *general deregulation* hypothesis: that participants “let loose” globally in this social context. Another possibility is that only expressive suppression is used less frequently at Burning Man than home, or the *suppression specific* hypothesis. This pattern would rule out the general deregulation hypothesis, as well as potential interpretations that consider a reduction of general cognitive processing required for regulation, or the possibility that the results are due to response bias or stereotypes held about generally unregulated behavior at the event. Finally, it is possible that the Burning Man context results in the decrease in the use of a deleterious regulation strategy like suppression, accompanied by an increase in the use of adaptive regulation strategies such as reappraisal, or the *adaptive regulation* hypothesis.

## METHOD

### Participants

Participants were recruited at the Burning Man Festival during the week of August 27 to September 3, 2007. Institutional Review Boards at The University of California, Los Angeles and Stanford University approved the collection and analysis of these data. The final sample comprised 2,558 individuals (54% male,  $M$  age = 36,  $SD$  = 11).

### Measures

To measure suppression use, we used a core item of the ERQ Suppression scale (Gross & John, 2003; "I control my emotions by not expressing them"). In a separate sample ( $N$  = 275), this item achieved a high correlation with the entire Suppression scale, when asked at home and away from home ( $r$ s = .82 and .86, respectively). We reworded it slightly to read, "When I want to control my emotions, I do so by not expressing them." To measure reappraisal use, we used a core item of the ERQ Reappraisal scale ("I control my emotions by changing the way I think about a situation I'm in"). In a separate sample, this item achieved a high correlation with the entire Reappraisal scale when asked at home and away from home ( $r$ s = .75 and .79, respectively). We reworded it slightly to read, "When I want to control my emotions, I do so by changing the way I think about the situation." We were confident that given time and space limitations, these single-item measures would be effective (like other single-item measures; see Gosling, Rentfrow, & Swann, 2003; Robins, Hendin, & Trzesniewski, 2001).

In the present study, participants responded to these items with the following instruction: "To what degree do the following statements describe you at home (in the default world)<sup>1</sup> and then here at Burning Man?" Participants wrote a number from 1 to 9 for each context. The lowest anchor (1) was labeled *Not at all like me*, the mid-point anchor was labeled *Neutral*, and the highest anchor (9) was labeled *Very much like me*. Two response columns were provided side by side, labeled "at home" and "at Burning Man." In multiple previous studies using the full ERQ (Gross & John, 2003; John & Gross 2004) suppression and reappraisal were essentially unrelated, with correlations close to 0 and rarely significantly exceeding .10. We replicated this effect in the present study, with  $r$  = -.07 at Burning Man and  $r$  = -.11 for typical use at home.

### Procedure

Participants attending Burning Man completed surveys voluntarily on their own time and deposited them into

<sup>1</sup>"The default world" is a term known to most Burning Man participants, referring to the world that exists outside Black Rock City.

specially marked collection receptacles in central areas around the festival. The surveys contained questions asked by the Burning Man Organization about demographic information (age, annual income, gender, etc.), as well as questions regarding participant's reasons and habits surrounding the event (how many years they have attended, spending on supplies for the event, etc.) and the research questions reported here. Write-in responses (such as to the questions reported here) were entered by hand.

## ANALYSIS AND RESULTS

Values on individual items were transformed to percent of maximum possible scores, which range from 0 to 100 to facilitate comparison with previous results (Cohen, Cohen, Aiken, & West, 1999). Percent of maximum possible scores for suppression and reappraisal were entered into a repeated measures general linear model (GLM) in SPSS with reappraisal strategy (suppression vs. reappraisal) and context (home vs. Burning Man) as repeated measures and gender as a between-subject factor. Follow-up analyses investigated the effect of context separately for suppression and reappraisal.

The three candidate hypotheses just outlined would result in three distinguishable patterns of results from the repeated-measures GLM. The *general deregulation* hypothesis would be evidenced by a main effect of context but no significant interaction with the strategy being used (lower use of both suppression and reappraisal at Burning Man). A significant interaction between strategy and context would be consistent with both the *suppression specific* hypothesis and the *adaptive regulation* hypothesis: Both predict lower suppression at Burning Man than typical use at home, but the suppression-specific hypothesis predicts no difference in reappraisal use, whereas the adaptive regulation hypothesis predicts greater use of reappraisal at Burning Man than typical use at home.

First, we examined the degree to which reports of suppression and reappraisal use were related across contexts. We observed a strong relationship between reported use of suppression ( $r$  = .78) and reappraisal ( $r$  = .84) at home and at Burning Man.

Next, we examined differences in strategy use in the two contexts. Our repeated measures GLM revealed a significant interaction between strategy use and cultural context,<sup>2</sup>  $F(1, 2556) = 172.90, p < .01$ , Cohen's  $d = .54$ .

<sup>2</sup>As in previous research (e.g., Gross & John, 2003), we observed a main effect of strategy use, with greater reappraisal use reported than suppression use,  $F(1, 2556) = 677.4, p < .001$ , Cohen's  $d = 1.16$ . In addition, strategy use varied by gender,  $F(1, 2556) = 48.6, p < .05$ , Cohen's  $d = .28$ . Men reported greater use of suppression than women,  $F = 21.5, p < .01$ , Cohen's  $d = .18$ , and women reported greater use of reappraisal than men,  $F = 30.6, p < .01$ , Cohen's  $d = .22$ . No interactions involving gender were significant ( $p$ s > .12).

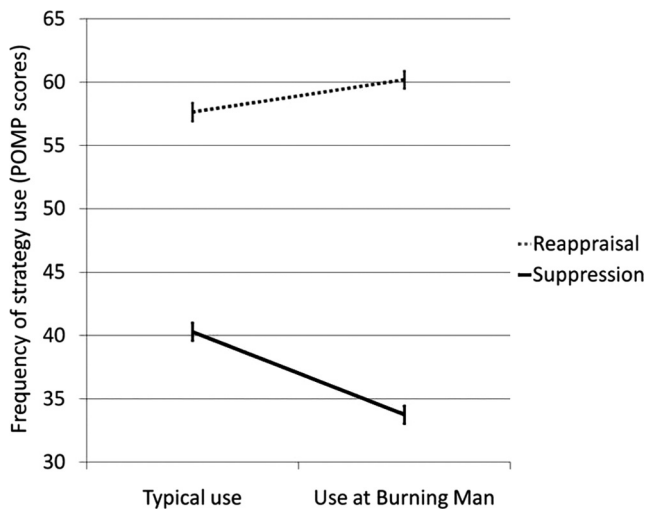


FIGURE 1 Percent of maximum possible scores showing decreased use of suppression (solid) and increased use of reappraisal (dashed) at the Burning Man festival compared with typical use at home. Note. Error bars represent the standard error of the mean.

Follow-up analyses indicated that individuals reported using suppression less frequently at Burning Man than typically at home,  $F(1, 2556) = 146.98$ ,  $p < .01$ , Cohen's  $d = .49$ , but using reappraisal more frequently at Burning Man than typically at home,  $F(1, 2556) = 37.61$ ,  $p < .01$ , Cohen's  $d = .24$ . This pattern of findings disconfirms both the general deregulation hypothesis and the suppression-specific hypothesis and favors the adaptive regulation hypothesis. Figure 1 presents this interaction between strategy use and context.

## DISCUSSION

To examine emotion regulation in context, we measured the use of expressive suppression and cognitive reappraisal in a temporary social context (Burning Man). We found that, compared to their typical use, at Burning Man participants used suppression less frequently and reappraisal more frequently. These results are consistent with a more adaptive emotion regulation profile at Burning Man. This more adaptive pattern is similar to that seen in older adults (John & Gross, 2004) and distinct from the changes observed during the transition to college (Srivastava et al., 2009). Next, we consider the implications and potential mechanisms of this novel observation of more adaptive emotion regulation patterns in a temporary social context.

There is one previous report of a change in emotion regulation, namely, during the transition from one stable context (high school) to another (college) with the goal of developing stability (Srivastava et al., 2009). By contrast, we suggest that Burning Man involves a rapid, drastic, and explicitly temporary shift in social

context that is not usually part of the bridge between two relatively stable contexts. The present investigation is the first to describe a change in emotion regulation habits when individuals temporarily change their social context. The temporary context created at Burning Man is so radically different than most typical home environments, we argue that it might even be appropriately considered a temporary culture.

To our knowledge, this is the first report of a social context in which individuals decrease their use of expressive suppression, which has been associated with a number of negative consequences for well-being and relationships (Gross & John, 2003). Therefore, it is important to understand the mechanisms by which suppression use is decreased at Burning Man. The first, and most direct mechanism, is the presence of explicit display rules that are distributed to all participants—everyone is encouraged to engage in “radical self-expression.” Moreover, the primary purpose of the event is that of an arts festival, which may increase the value of all types of emotional expression, resulting in the decreased use of emotion regulation strategies that reduce expression.

A less obvious path to decreased suppression use may be the unique social structure that exists at Burning Man. Creative attire and a ubiquitous layer of fine dust can obscure many distinctions that exist outside of Burning Man, including class, gender, sexual orientation, ethnicity, and cultural identity. Membership in any social subgroup (camps, volunteer groups) is optional, fluid, playful, and often temporary. In addition, Burning Man is decommercialized, and goods are redistributed within a gift economy. This may have the effect of shifting the emphasis from financial hierarchy to more egalitarian values, such as interdependence within a caring, sharing community (Kozinets & Sherry, 2005). This de-emphasis of traditional, stable, and singular group membership may be a key mechanism for reducing suppression use (Matsumoto et al., 2008), especially when it is not part of the renegotiation of status for new, long-term relationships (as in the case during the college transition). We predict that similar changes in regulation strategy use might be apparent when individuals temporarily visit other cultures (e.g., Westerners visiting an Eastern culture might use suppression more frequently to match display rules).

The specific mechanisms by which reappraisal use is increased at Burning Man are less clear, and we did not have a priori predictions about reappraisal. However, many individuals use the dramatically different environment at Burning Man as an opportunity to reflect upon their lives from a more removed, distanced perspective (Hockett, 2005), a core element of reappraisal. The extreme desert environment is a formidable challenge, and many find the deprivation to be spiritually renewing (Gilmore, 2005). Future investigations

can explore the mediators of increased reappraisal use at Burning Man.

It is important to note that the unique environment at Burning Man may lead to participants being in an altered state of mind, due to sleep deprivation, the severity of the physical environment, the consumption of mind-altering substances, or the novelty of the event. We guarded against that concern by administering the survey in a centralized location that is calm, well trafficked, family friendly, and monitored frequently by research staff (and therefore not a likely destination for those seeking an altered experience). In addition, we replicated several effects from the previous literature on emotion regulation before exploring the novel hypotheses we tested here, and so we have confidence in the validity of our measures. Future work will employ items specifically designed to test the conscientiousness and consistency of participants while completing the survey.

In future work it will be important to capture a broader range of emotion regulation processes in multiple contexts, and the emotions experienced by participants. It is possible that individuals up-regulate and/or down-regulate the expression and/or experience of their positive and/or negative emotions. Future work should also examine potential moderators of change in strategy use, including previous participation in Burning Man, values, beliefs, and ideals about emotion and emotion regulation.

#### ACKNOWLEDGMENTS

We thank the Burning Man Organization, especially Ray Allen, for their support of the Black Rock Census. In addition, Sam Torrisi and Lyn Hartley assisted with data collection. Carlos Fernandez and Alana Glassco helped create the data entry system, in addition to assisting with data cleaning and preparation. Galen McNeil and Ben Edwards helped to clean and reduce the data for analysis. Sanjay Srivastava provided data from a separate data set to aid in the selection the items we report. Finally, we thank the many dedicated volunteers who assisted with data collection and entry.

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