Emotion regulation strategy selection in daily life: The role of social context and goals

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Abstract

Recent studies have begun to document the diversity of ways people regulate their emotions. However, one unanswered question is why people regulate their emotions as they do in everyday life. In the present research, we examined how social context and goals influence strategy selection in daily high points and low points. As expected, suppression was particularly tied to social features of context: it was used more when others were present, especially non-close partners, and when people had instrumental goals, especially more interpersonal ones (e.g., avoid conflict). Distraction and reappraisal were used more when regulating for hedonic reasons (e.g., to feel better), but these strategies were also linked to certain instrumental goals (e.g., getting work done). When contra-hedonic regulation occurred, it primarily took the form of dampening positive emotion during high points. Suppression was more likely to be used for contra-hedonic regulation, whereas reappraisal and distraction were used more for pro-hedonic regulation. Overall, these findings highlight the social nature of emotion regulation and underscore the importance of examining regulation in both positive and negative contexts.

Keywords

Emotion regulation; Emotion; Goals; Motivation; Relationships

Introduction

Experimental research on emotion regulation has made important contributions, such as delineating concomitants and consequences of specific, theoretically defined forms of

emotion regulation (for a review, see Gross 2014). More recently, experience sampling studies have begun to document the frequency with which individuals use various emotion regulation strategies in daily life and the effect these strategies have on emotional experience (e.g., Brans et al. 2013; Heiy and Cheavens 2014; Kashdan et al. in press). What is not yet clear, however, is how individuals decide the way in which to regulate their emotions in daily contexts. The present research addresses this issue using a daily diary approach to examine how people regulate their emotions during high points and low points of the day. Specifically, we test the idea that social aspects of the context (i.e., who is present) and situation-specific regulation goals play an important role in predicting the emotion regulation strategies that people deploy in daily life.

Emotion regulation

Emotion regulation refers to the various ways that we influence which emotions we have, when we have them, and how we experience and express these emotions (Gross 1998). There is a wide array of different strategies that we can use to regulate our emotions. In an effort to make sense of these different forms of regulation, Gross' (1998) process model of emotion regulation distinguishes between groups of regulation strategies based on where they have their primary impact in the emotion generative process. For instance, strategies in the *attentional deployment* and *cognitive change* categories intervene early on by selectively focusing attention on certain aspects of a situation or construing a situation to have a different meaning, respectively. In contrast, strategies in the *response modulation* category occur later on, influencing one's response tendencies once an emotion has been elicited. According to this model, emotion regulation strategies that occur later in the process will be less effective at controlling emotion experience than will strategies that occur earlier on, before an emotion is fully formed. Consistent with this idea, *reappraisal*, a from of cognitive change characterized by modifying the meaning of an emotional stimulus, has been shown to result in greater reductions in negative emotional experience than *suppression*, a form of response modulation characterized by inhibiting the expression of emotion (Gross 1998; Gross and Levenson 1997).

Most experimental research on emotion regulation has instructed people to use a certain strategy in the lab in order to determine the effects of the strategy on various outcomes, such as emotional experience and expression, physiology, cognition, and social interaction quality (e.g., Butler et al. 2003; Gross 1998, Richards and Gross 2000). Only a few studies have begun to examine factors that may influence the way individuals regulate their emotions or the likelihood they will use specific strategies. In these studies, emotion regulation strategy selection has typically been examined by manipulating features of the regulation context (e.g., intensity of the emotional stimulus) then providing participants with different regulation options (e.g., either distraction or reappraisal). Using this type of experimental design, Sheppes et al. (2014) found that individuals are more likely to use reappraisal when there is a high expectation of encountering the stimulus in the future, whereas individuals are more likely to use distraction when they are focused on immediate relief. This kind of controlled, experimental work is crucial for understanding how individuals choose among the various strategies they have at their disposal. However, in order to gain a more complete understanding of factors that influence strategy selection, it is necessary to move outside of

lab settings and examine how individuals regulate their emotions in everyday social contexts.

Some initial studies have begun to shed light on how often individuals use different emotion regulation strategies in daily life. Kashdan et al. (in press) used a daily diary approach focused on one commonly regulated emotion, anger. Individuals reported on their most intense instance of anger each day for 3 weeks, including the cause, experience, and regulation of their anger. Self-soothing (i.e., trying to calm down) was the most common form of anger regulation, but regulation varied somewhat depending on what triggered the anger. For example, suppression was used more when anger was elicited by other people rather than non-social factors (e.g., personal obligations); this was also the case, however, for other strategies, such as self-soothing and confrontation. Brans et al. (2013) used experience sampling to examine how much individuals use various emotion regulation strategies in daily life. Participants reported using distraction and suppression more than reappraisal, and distraction was also used more than social sharing (i.e., telling others about how you are feeling). Notably, most of the variation in strategy use occurred across different situations (within individuals) rather than across individuals, suggesting that strategy selection may be driven more by contextual factors than enduring personality characteristics. Heiy and Cheavens (2014) also assessed strategy use with experience sampling, but they included a broader range of strategies (20 for decreasing negative emotion and 20 for increasing positive emotion). Individuals often reported using multiple strategies in a given regulation episode and they did not necessarily favor strategies that were most effective at improving emotional experience (i.e., reaching pro-hedonic goals). For instance, rumination was one of the most commonly used strategies when trying to reduce the experience of negative emotion. These findings suggest that individuals may consider more than the hedonic benefit of strategies when selecting among the options in their emotion regulation toolbox. This kind of descriptive work delineating the frequency of strategy use in daily life (and the impact it has on emotional experience) is an important initial step in understanding how emotion regulation operates. It is still unclear, however, how features of the regulation context may influence strategy selection.

Emotion regulation in social context

In daily life, emotion regulation often occurs in social contexts (Gross et al. 2006). There is reason to expect that social features of the regulation context may be an important determinant of how individuals will regulate their emotions (English et al. 2013). Attachment theorists have long discussed the central role of social interactions in shaping our emotion regulation patterns (Shaver and Mikulincer 2007). For instance, when we do not trust others to respond appropriately to our emotions, we may be more likely to keep our emotions to ourselves rather than sharing them with others. Consistent with this idea, habitual use of expressive suppression is associated with attachment avoidance (Gross and John 2003) and social anxiety disorder (Blalock et al. 2016). By hiding our emotions, we create psychological distance from our interaction partners in an effort to protect ourselves from the harm that can arise from being vulnerable. More transient social factors can also influence the strategies that individuals use. For instance, suppression use has been shown to increase when people enter an unfamiliar social environment, namely, upon transitioning to

college (Srivastava et al. 2009). Interestingly, not all novel social contexts lead to increases in suppression use: McRae et al. (2011) found that suppression use decreased when people were at Burning Man, a social gathering that encourages creativity and open expression. These findings are consistent with the idea that the extent to which individuals use suppression is in part due to their level of comfort in expressing their emotions in the current social context (i.e., suppression is used in situations where people are more uncomfortable).

Thus, features of the social context may be a trigger of change in emotion regulation patterns, perhaps especially for certain response modulation strategies such as suppression. At the most basic level, suppression may be more likely to be used when others are present rather than when alone because this form of regulation is focused on controlling the emotional response (e.g., behavioral expression), which serves a communication function. Suppression may be particularly common when interacting with strangers or when spending time with someone whom the regulator does not feel comfortable sharing their emotions.

Emotion regulation goals

Goals are thought to play a defining role in emotion regulation, influencing when and how people try to control their emotions (Mauss and Tamir 2013; Gross et al. 2011a). Emotion regulation goals can take many forms. They involve the way in which the person is trying to change their emotions (i.e., amplify or dampen positive or negative emotion) and the specific reason for wanting to regulate (i.e., why the person wants to control their emotions). In terms of the reasons for regulating emotion, Tamir (2009) has proposed a framework that distinguishes between hedonic goals and instrumental goals. Hedonic goals are focused primarily on momentary emotional experience, whereas instrumental goals are focused on other concerns that are expected to be aided by changing the experience or expression of a certain emotion. Instrumental regulation goals can be further delineated into specific subtypes based on the nature of the motivation underlying them (Tamir 2016). For instance, socially motivated instrumental goals are driven by the desire to foster interpersonal relationships (e.g., getting along with others), whereas performance motives are guided by the desire to reach more concrete outcomes (e.g., completing a task).

Although emotion regulation is frequently motivated by short-term pro-hedonic concerns (i.e. desire to feel more positive emotion or less negative emotion; Riediger et al. 2009), it can also be used for other reasons. Specifically, individuals sometimes engage in contra-hedonic regulation (i.e., decreasing positive emotion or increasing negative emotion) or regulation for instrumental purposes (Tamir 2009; Parrott 1993). Instrumental emotion regulation goals may involve attempts to attain other individual goals (e.g., successfully completing a task) or more socially oriented goals (e.g., navigating an interpersonal conflict). One way in which regulation in daily social contexts may differ from regulation that occurs among isolated individuals in lab settings is that people may pursue a wider range of goals in daily life. For instance, daily emotion regulation efforts may be motivated by a desire to appear under control or express what is expected in a given context (display rules; Ekman 1972), or a variety of other instrumental goals that involve interaction partners (e.g., making others feel better, maintaining social harmony).

Given their low hedonic value and disruptive potential in social contexts, negative emotions are often the targets of regulation (e.g., when irritated by a colleague at work). Specifically, people often try to decrease their experience and expression of negative emotion. Perhaps for this reason, most emotion regulation research focuses on regulation of negative emotion. However, in daily life people sometimes try to increase the experience or expression of a positive emotion (e.g., when savoring a child's first birthday party). There may even be times when people try to dampen positive emotion (e.g., when trying to get a bunch of giggling kids to sleep). Therefore, in order to better understand how emotion regulation operates it is important to examine regulation of both negative emotions and positive emotions.

It is currently unknown how often different types of goals are pursued during regulation and whether the nature of the emotion regulation goal being pursued shapes individuals' selection among various potential regulation strategies. For instance, although laboratory environments can be created which elicit contra-hedonic regulation (Tamir 2009), it is unclear how often and in which contexts people actually show these regulation patterns in daily life. It is likely that most daily emotion regulation in adulthood is pro-hedonic (i.e., focused on reducing negative emotion and increasing or maintaining positive emotion; Riediger et al. 2009), but contra-hedonic regulation surely emerges in certain situations. For instance, Kim et al. (2014) found that psychologically healthier individuals were more likely to want to feel angry in daily situations that called for confrontation with others. Functional approaches to emotion suggest that emotion regulation should be used in a way that helps individuals reach their goals (Gross et al. 2011b; Mauss et al. 2007). From this perspective, given that suppression directly targets emotional expression rather than emotional experience (unlike other strategies, such as reappraisal and distraction), individuals would be expected to use suppression more when pursing instrumental goals that can be reached by changing one's emotional expression (e.g., making a good impression, avoiding conflict). Suppression may also be used more for contra-hedonic regulation rather than pro-hedonic regulation given that suppression is typically ineffective at reducing the experience of negative emotion (but may reduce the experience of positive emotion; Gross and Levenson 1997). In contrast, strategies that are more effective at improving emotional experience (i.e., reducing negative or increasing positive), such as reappraisal and distraction, may be used more often for pro-hedonic regulation.

The present research

The present research was focused on emotion regulation strategy selection in daily life. In particular, we tested the role of two factors in predicting strategy use: (1) The social context (i.e., who is present), and (2) the emotion regulation goals being pursed (i.e., hedonic or instrumental goals, pro-hedonic or contra-hedonic regulation). To address these questions, college students were asked to complete daily diaries in which they reported if, why, and how they regulated their emotions. In order to better understand the most emotionally rich moments of daily life, we asked participants to report on the low point and high point of each day for 1 week. Participants also indicated who (if anyone) was present during each of these events.

Social factors were expected to modulate use of suppression given that this strategy is primarily focused on the expression of emotion. Specifically, we predicted that suppression would be used relatively more often when others are present, especially non-close others. Emotion regulation was expected to primarily be pro-hedonic and driven by a desire to change one's own emotions (i.e., hedonic, rather than instrumental goals), focusing on down-regulating negative emotion in low points and up-regulating positive emotion in high points. More importantly, we expected goals would be associated with strategy use. Given that expressive suppression effectively reduces the expression of emotion but does not improve emotional experience (Webb et al. 2012), we predicted that this strategy would be used more when people were regulating for instrumental reasons (particularly when inhibiting expression might be beneficial) and when engaged in contra-hedonic regulation rather than pro-hedonic regulation. In contrast, given that reappraisal and distraction have been shown to be effective in improving emotional experience (McRae et al. 2010; Sheppes and Meiran 2008), we expected these strategies to be used more often when individuals had hedonic goals and were engaged in pro-hedonic regulation.

This study builds on past research in three important ways. First, we provide additional information about how emotion regulation strategy selection varies based on changes in the social environment in daily life (i.e., in a naturalistic setting outside the laboratory). Second, we examine the direction of regulation (i.e., up- or down-regulation) rather than assuming negative emotion is down-regulated and positive emotion is up-regulated. Third, we distinguish between regulation in high points and low points (rather than only examining negative events).

Method

Participants and procedure

Participants were 136 first-year college students (60% female; M_{age} = 18 years) who reported at least three high points and three low points in a 7-day daily experience study. Sixty-four of the initial 200 participants reported less than 3 of 7 diaries (or 43% of entries) and were excluded from analyses because with larger proportions of missing data, the 'missingness' mechanism is less likely to be random (i.e., not missing at random) and often impossible to determine; if this is the case, the full-information maximum likelihood (FIML) estimation procedures (see Data Analyses below) cannot reliably account for missing values and generate biased parameter estimates (Enders 2001; Graham 2009). There was no difference between participants that were included versus excluded in terms of their gender and ethnicity, the importance and social nature of events reported, or their regulation efforts in negative events. The only difference was that in high points excluded participants reported more regulation effort [$t(194) = 5.30$, $p < .01$].

These data were collected as part of a larger study of personality and emotion during college. Participants were diverse in terms of ethnicity (Caucasian 66%, Asian-American 26%, Latino 13%, African American 6%, other 6%). Participants were instructed to complete one online diary each night at bedtime, for 7 consecutive nights. On average they completed 5.2 diaries on time (median 5; range 3–7), as verified by an automatic timestamp.

Measures

Event descriptions and social context variables—Each day participants were asked to describe the most positive event (i.e., high point) and most negative event (i.e., low point) of the day. They indicated the number of other people involved, as well as the nature of their relationship (e.g., family, friend, stranger). For the purpose of analysis, we created three dummy-coded variables indicating whether other people were involved (vs. not), and if so, whether these people were close others (family, friend, roommate; vs. not) or non-close others (teacher, employer, coach, romantic interest, acquaintance, stranger; vs. not). Participants also rated the *importance* of each event on a scale from 1 (*not at all*) to 7 (*very*).

Emotion regulation effort and target—Participants indicated the extent to which they attempted to influence their emotions (1 = *not at all* to 7 = *a great deal*). Events with ratings greater than 1 were considered regulated events (i.e., events where some emotion regulation occurred). The target of emotion regulation was assessed by asking which emotion they were primarily trying to regulate (if any) from a list of 9 positive (happiness, amusement, affection, pride, self-confidence, attraction, interest, hope, connectedness) and 8 negative (anxiety, homesickness, anger/irritation, fatigue, jealousy, loneliness, sadness, feeling put down) emotions.

Emotion regulation goals—Participants indicated the reason(s) for regulating their emotions from a list that included instrumental goals ("To avoid conflict with others," "To keep up appearances," "To make others feel better/happy," "To get work done,") and a purely hedonic goal ("To change mood"). Participants could select all reasons that applied. Dummy-coded variables were created to represent endorsement of any instrumental goals (regardless of whether the hedonic goal was endorsed), the hedonic goal (regardless of whether instrumental goals were endorsed), and each of the specific instrumental goals (vs. not).

Emotion regulation strategies—Participants provided an open-ended description of how they had tried to regulate their emotions. Two raters independently coded the *direction* of regulation as down-regulating (decreasing) or up-regulating (increasing) either positive or negative emotion. Interrater agreement was substantial ($\kappa = .87$), and disagreements were resolved through discussion. Participants also rated the extent to which they regulated their emotions using *distraction* ("I shifted my attention away from what was making me emotional"), *reappraisal* ("I tried to think about a situation differently in order to change my mood"), and *suppression* ("I tried not to show on the outside an emotion I felt on the inside") on a scale from 1 (*not at all*) to 7 (*a great deal*).

Data analyses

The data had a two-level structure, with daily measures (level 1) nested within participant (level 2), and thus warranted the use of multilevel modeling (MLM) procedures.[1] Moderate levels of between-person variability in emotion regulation goals and strategies were

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[1]While these data technically have a 3-level structure (where level 1 = high/low event, level 2 = day, and level 3 = participant), implementing a three-level model requires a minimum of 20–30 clusters at level 2 (Snijders and Bosker, 1999). This was not feasible

indicated by the observed intraclass correlation coefficients (ICCs). During high points, ICCs ranged from 0.21 to 0.46 for goals, and similarly, from 0.16 to 0.30 for strategies. During low points, ICC ranges for goals and strategies were 0.18–0.38, and 0.22–0.32, respectively. These findings suggest that most of the variance in goals and strategies occurred within individuals across events.

To examine the effects of social context and emotion regulation goals on strategy use, we conducted a series of MLM analyses (see Hox 2002; Snijders and Bosker 1999, for details regarding general MLM specification) on each of the three strategies (suppression, reappraisal, distraction). For social context, three dummy variables were used (i.e., alone/ not, close/not, and non-close/not). For emotion regulation goals, dummy variables were used to test effects for pro-hedonic/contra-hedonic, any instrumental goal, and each specific goal (e.g., avoid conflict/not). Participants implemented all three strategies more during low points (suppression: $M = 4.11$, $SD = 2.11$; reappraisal: $M = 4.09$, $SD = 1.98$; distraction: $M = 3.32$, $SD = 1.87$) than high points (suppression: $M = 3.35$, $SD = 1.94$, $\gamma = 0.838$, SE = . 143, $p < .001$, 95% CI [0.557, 1.118]; semi-partial $R^2 = 0.05$; reappraisal: $M = 3.22$, $SD = 2.05$, $\gamma = 0.923$, SE = .139, $p < .001$, 95% CI [0.651, 1.195]; semi-partial $R^2 = 0.06$; distraction: $M = 2.49$, $SD = 1.79$, $\gamma = 0.806$, SE = .132, $p < .001$, 95% CI [0.547, 1.065]; semi-partial $R^2 = 0.05$). Event valence (low/high point), as well as the within-person interaction between valence and context/goal, was therefore included in the models predicting strategy use. Statistically significant interactions were followed by tests of simple effects. Semi-partial R^2 values were computed as estimates of effect size (Edwards et al. 2008). Missing values (7.9% of the data) were handled using full-information maximum likelihood (FIML) estimation procedures, which generate unbiased parameter estimates and standard errors using all available observations (Enders 2001). Multilevel logistic regression analyses were conducted for binary outcomes (event characteristics, goals of regulation, direction of regulation).

A total of 1401 events (705 high points, 696 low points) were reported across all 136 participants. Analyses of regulation targets, goals, and strategies were based on 753 events (286 high points, 467 low points) where participants reported regulating their emotions.

Results

Preliminary analyses

Comparing event characteristics of high versus low points—We first compared high points and low points based on their event characteristics (i.e., event importance and whether others were present). High points were rated as more important ($M = 4.28$, $SD = 1.67$) than low points ($M = 3.58$, $SD = 1.85$; $\gamma = -0.686$, SE = .087, $p < .001$, 95% CI [−0.856, −0.517]; semi-partial $R^2 = 0.05$), and other people were more likely to be present in high points (83%) than low points (60%; odds ratio = 3.42, 95% CI = [2.62, 4.46]). These

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due to the small number of level-2 clusters (i.e., n = 7 days). In addition, when using a subset of regulated events, most variance in goals and strategies was observed at levels 1 and 3, with 0–7% at level 2; this variance distribution further supports collapsing across level 2 units and implementing a two-level analysis.

results are based on all (regulated and non-regulated) events; however, the same pattern emerged when we focused on only events where there was some effort to regulate.

Frequency and degree of emotion regulation—Emotion regulation was reported frequently in both low points (73%) and high points (43%), but, as expected, regulation was more common during low points (odds ratio = 5.08, 95% CI = [3.86, 6.68]). Similarly, the amount of regulation effort was also greater in low points (M = 3.31; SD = 1.92) than high points (M = 2.02; SD = 1.46; γ = 1.299, SE = .088, p < .001, 95% CI [1.125, 1.472]; semi-partial R^2 = 0.15). In low points, individuals exerted more effort to regulate when others were present compared to when they were alone (γ = −0.632, SE = .153, p < .001, 95% CI [−0.932, −0.332]; semi-partial R^2 = 0.03), but this effect was not significant in high points (γ = −0.003, SE = .149, p = .982, 95% CI [−0.297, 0.290]; valence x others-present interaction: γ = −0.667, SE = .219, p < .01, 95% CI [−1.010, −0.240]; semi-partial R^2 = 0.01). Regardless of event valence, there was greater emotion regulation effort reported when non-close others were present (vs. not; γ = 0.323, SE = .157, p < .05, 95% CI [0.014, 0.630]; semi-partial R^2 = 0.005). Regulation effort did not vary based on the presence of close others (γ = −0.042, SE = .179, p = .814, 95% CI [−0.394, 0.309].

Emotions targeted for regulation—Participants reported regulating a variety of positive and negative emotions in both their daily low points and high points. As shown in Fig. 1, in low points, the most frequently regulated emotions were anger/irritation (18% of regulated events), anxiety (12%), and sadness (12%), and the most commonly regulated positive emotion was self-confidence (7%). In high points, the most commonly regulated positive emotions were happiness (12% of regulated events), self-confidence (11%), and connectedness (10%), and the most commonly regulated negative emotions were anxiety (10%) and fatigue (6%). While people typically focused on modifying negative emotions in low points (79%) and positive emotions during high points (65% of regulated events), a sizeable proportion of events involve regulation of emotions with an opposing valence (i.e., targeting positive emotions in 21% of negative events and targeting negative emotions in 35% of positive events). Thus, emotion regulation in daily life was relatively complex and did not follow a simple pattern of trying to reduce negative emotions in low points and increase positive emotion in high points. The same emotions were targeted most frequently in regulated events when other people were present.

Frequency of hedonic and instrumental goals—As shown in Fig. 2, the hedonic goal of wanting "*to change mood*" was the most commonly reported single reason for regulating emotion: it was endorsed in 52% of regulated low points and 36% of regulated high points. However, other types of emotion regulation goals were also quite common. Notably, at least one instrumental goal was reported in 77% of regulated low points and 58% of regulated high points. Although hedonic goals were also specified in a number of these instances of instrumental regulation (36% of regulated low points and 19% of regulated high points), there were also many situations where instrumental goals were endorsed without hedonic goals (41% of regulated low points and 38% of regulated high points). It was relatively rare for participants to report the desire to change their mood as the sole reason for regulating (i.e., with no other goals endorsed): this only occurred in 15% of regulated low

points and 16% of regulated high points. Both types of emotion regulation goals were endorsed more often in low points than high points (hedonic: odds ratio = 2.38, 95% CI = [1.68, 3.36]; instrumental: odds ratio = 3.06, 95% CI = [2.11, 4.45]).

Frequency of pro-hedonic and contra-hedonic regulation—Next, we examined the direction of regulation (i.e., up- or down-regulation of positive or negative emotion). As expected, most regulation attempts were pro-hedonic, and either involved the down-regulation of negative emotion (83% of regulated low points, 34% of regulated high points) or the up-regulation of positive emotion (15% of regulated low points, 48% of regulated high points). When contra-hedonic regulation occurred, it primarily took the form of down-regulating positive emotion (specifically, happiness, amusement, feeling cared about, attraction, and pride) in high points (18%; vs. 1% of regulated low points). As such, down-regulation of positive emotion was more common in high points than low points (odds ratio = 1.50, 95% CI = [1.03, 2.19]). In low points, 99% of all regulation efforts were pro-hedonic.

Does strategy use vary based on the social context and regulation goals?

Finally, we tested whether strategy use varies based on the social context and regulation goals. For the social context, we focused on two features: (1) whether the regulator is alone or not and, (2) if not alone, who was present (i.e., close others/not and non-close others/not). We also focused on two ways of conceptualizing emotion regulation goals: (1) whether people endorsed regulating their emotions for hedonic reasons (i.e., to change their mood) or instrumental reasons (i.e., reasons other than simply wanting to change their mood), and (2) whether people were engaging in pro-hedonic regulation (i.e., up-regulating positive emotion or down-regulating negative emotion) or contra-hedonic regulation (i.e., down-regulating positive emotion or up-regulating negative emotion).

When testing the effects of hedonic and instrumental goals, we compared events where individuals endorsed each goal type (regardless of whether the other goal type was also endorsed) to events where they did not endorse that specific goal type. We also explored the effect of different specific types of instrumental goals (i.e., avoid conflict/not, keep up appearances/not, make others feel better/not, and get work done/not). When examining whether use of specific strategies varied depending on whether the individual was engaging in pro-hedonic or contra-hedonic regulation, the analyses focused on only high points because 99% of regulation efforts in low points were pro-hedonic (i.e., down-regulating negative emotion). The effects are presented in Table 1. For illustrative purposes, strategy use broken down by specific social context (alone, only with close others, only with non-close others, and with both close others and non-close others) and goals (only hedonic, only instrumental, both hedonic and instrumental, and pro-hedonic vs. contra-hedonic) are depicted in Figs. 3 and 4, respectively.

Suppression—As expected, suppression was used less when people were alone (vs. around others; $\gamma = -0.785$, SE = .307, $p < .05$, 95% CI [−1.287, −0.183]; semi-partial $R^2 = 0.01$). When in the company of others, use of suppression was particularly elevated with non-close partners (vs. not; $\gamma = .608$, SE = .292, $p < .05$, 95% CI [0.035, 1.182]; semi-partial

$R^2 = 0.01$). The effects of the social context on suppression use were consistent across high points and low points (i.e. no significant interactions with event valence; see Table 1).

Suppression was used more when instrumental goals were endorsed (vs. not; $\gamma = 0.731$, SE = .231, $p < .01$, 95% CI [0.278, 1.184]; semi-partial $R^2 = 0.01$). In terms of specific instrumental goals, suppression use was linked to the goals of avoiding conflict with others ($\gamma = 1.052$, SE = .377, $p < .01$, 95% CI [0.311, 1.792]; semi-partial $R^2 = 0.01$) and keeping up appearances ($\gamma = 0.993$, SE = .233, $p < .001$, 95% CI [0.536, 1.449]; semi-partial $R^2 = 0.02$). The latter effect depended on event valence, such that the goal of keeping up appearances more strongly predicted suppression use in low points ($\gamma = 1.765$, SE = .175, $p < .001$, 95% CI [1.421, 2.110]; semi-partial $R^2 = 0.18$) than high points ($\gamma = 1.022$, SE = .245, $p < .001$, 95% CI [0.539, 1.505]; semi-partial $R^2 = 0.06$; event valence $\times$ keep up appearances: $\gamma = 0.751$, SE = .288, $p < .01$, 95% CI [0.185, 1.317]; semi-partial $R^2 = 0.01$). Suppression did not significantly vary based on whether individuals were regulating their emotions to try to make others feel better or to get work done (see Table 1). In addition, suppression was used more for contra-hedonic regulation than pro-hedonic regulation ($\gamma = 1.060$, SE = .357, $p < .01$, 95% CI [0.352, 1.767]; semi-partial $R^2 = 0.08$).

Reappraisal—Reappraisal use did not differ depending on whether regulators were alone or not (see Table 1). However, when around others, reappraisal was elevated when non-close partners were present (vs. not; $\gamma = 0.818$, SE = .299, $p < .01$, 95% CI [0.231, 1.404]; semi-partial $R^2 = 0.02$). As with suppression, the effects of the social context on reappraisal use were consistent across high points and low points (i.e. no significant interactions with event valence).

Unlike suppression, reappraisal was used more when hedonic goals were endorsed ($\gamma = 1.594$, SE = .228, $p < .001$, 95% CI [1.147, 2.041]; semi-partial $R^2 = 0.07$), and this effect was weaker in low points ($\gamma = 1.027$, SE = .184, $p < .001$, 95% CI [0.665, 1.390]; semi-partial $R^2 = 0.07$) than high points ($\gamma = 1.615$, SE = .235, $p < .001$, 95% CI [1.151, 2.078]; semi-partial $R^2 = 0.15$; event valence $\times$ hedonic goal: $\gamma = -0.622$, SE = .285, $p < .05$, 95% CI [−1.181, −0.063]; semi-partial $R^2 = 0.01$). Overall, instrumental goal pursuit did not predict reappraisal use. The only specific instrumental goal associated with reappraisal use was regulating in order to get work done ($\gamma = 0.703$, SE = .283, $p < .05$, 95% CI [0.147, 1.260]; semi-partial $R^2 = 0.01$; see Table 1). Finally, in contrast to suppression, reappraisal was used more for pro-hedonic regulation than contra-hedonic regulation ($\gamma = -1.204$, SE = .422, $p < .01$, 95% CI [−2.040, −0.368]; semi-partial $R^2 = 0.07$).

Distraction—Similar levels of distraction were reported regardless of whether the regulator was alone versus around others (see Table 1). However, use of distraction did vary based on who was present. When non-close others were involved (vs. not), individuals used distraction more ($\gamma = 0.571$, SE = .280, $p < .05$, 95% CI [0.021, 1.122]; semi-partial $R^2 = 0.01$). The effect of close others presence on distraction depended on event valence ($\gamma = -0.759$, SE = .372, $p < .05$, 95% CI [−1.489, −0.028]; semi-partial $R^2 = 0.01$): distraction was used somewhat more when close others were present during high points ($\gamma = 0.350$, SE = .290, $p = .229$, 95% CI [−0.222, 0.923]) and it was used somewhat less when close others

were present during low points ($\gamma = -0.343$, SE = .244, $p = .161$, 95% CI [−0.823, 0.138]) but neither of these effects reached significance.

Similar to reappraisal, distraction was used more when hedonic goals were endorsed ($\gamma = 1.158$, SE = .222, $p < .001$, 95% CI [0. 722, 1.594]; semi-partial $R^2 = 0.04$). This effect was stronger in high points ($\gamma = 1.173$, SE = .214, $p < .001$, 95% CI [0.752, 1.594]; semi-partial $R^2 = 0.10$) than low points ($\gamma = 0.530$, SE = .184, $p < .01$, 95% CI [0.169, 0.891]; semi-partial $R^2 = 0.02$; event valence × hedonic goal: $\gamma = -0.579$, SE = .277, $p < .05$, 95% CI [−1.123, −0.035]; semi-partial $R^2 = 0.01$). Overall, distraction was not associated with having an instrumental goal. However, some of the specific instrumental goals were associated with distraction, albeit in different directions. Specifically, distraction was used less when regulating in order to make others feel better ($\gamma = -0.547$, SE = .256, $p < .05$, 95% CI [−1.050, −0.045]; semi-partial $R^2 = 0.01$) and used more when trying to avoid conflict ($\gamma = 0.882$, SE = .383, $p < .05$, 95% CI [0.132, 1.631]; semi-partial $R^2 = 0.01$) or get work done ($\gamma = 0.567$, SE = .267, $p < .05$, 95% CI [0.042, 1.091]; semi-partial $R^2 = 0.01$). In terms of direction of regulation, like reappraisal, distraction was used more for pro-hedonic regulation than contra-hedonic regulation ($\gamma = -0.786$, SE = .387, $p < .05$, 95% CI [−1.553, −0.018]; semi-partial $R^2 = 0.04$).

Discussion

To date, emotion regulation research primarily has focused on the effects of different regulation strategies, either via laboratory demonstrations or via an analysis of individual differences in regulation strategy use. Recently, some experience sampling studies have begun to document the frequency with which individuals use various emotion regulation strategies in everyday life and the impact they have on emotional experience (Brans et al. 2013; Heiy and Cheavens 2014). Building on this past work, we examined how often and under what conditions three specific emotion regulation strategies are employed in daily life. By examining emotion regulation in individuals' natural social environments we were able to detect how everyday interpersonal factors play an important role in emotion regulation, both in terms of regulation goals and the strategies used. As expected, strategy use differed somewhat depending on who was present and why the person was trying to regulate their emotions. These findings can help shed light on how individuals choose among the various strategies in their regulation toolbox.

Emotion regulation is a common phenomenon in everyday life: in the present study, people reported regulating in three-quarters of their daily low points and half of their daily high points. There were particularly high levels of emotion regulation during low points where others were present compared to when alone, and the presence of non-close others was especially predictive of emotion regulation effort. In line with expectations, suppression was used more often when other people were present, whereas this was not the case for antecedent-focused strategies (i.e., reappraisal and distraction) that primarily target emotional experience rather than expression. This finding suggests that social features of the context can play an important role in determining which strategy people use to regulate their emotions in daily life. Studies that examine emotion regulation as it unfolds during interactions with different types of partners (e.g., close friends, romantic partners, work

colleagues, strangers) may provide a more nuanced understanding of how the social context shapes regulation efforts. One way social context may influence regulation is via the goals being pursued. For instance, impression management may be more important in the early phases of a relationship (e.g., dating) or when interacting with a high status partner (e.g., a boss), whereas protecting others' feelings may become more important in later phases of relationships (e.g., among spouses).

Emotion regulation is often assumed to be driven by pro-hedonic concerns, that is, the desire to feel more positively or less negatively. However, Tamir and colleagues (Tamir 2009; Kim et al. 2014) have shown that at times people regulate in a contra-hedonic fashion, such as when they want to maintain or enhance negative emotions (e.g., anger) in order to reach an instrumental goal. Building on this work, findings from the present study highlight the importance of considering a wider range of emotion regulation goals. Not surprisingly, the most commonly mentioned regulation goal was to change one's mood. However, instrumental goals, such as wanting to get work done and avoid conflict, were also reported in many instances. In fact, it was quite uncommon for individuals to report regulating only for the sake of changing their mood. In the majority of cases (over three-quarters of the regulated low points and over half of the regulated high points), participants also reported an instrumental purpose for engaging in emotion regulation (e.g., trying to make others feel better). There was also evidence to suggest regulation goals may be an important determinant of which strategy individuals deploy to control their emotions. Specifically, suppression was more likely to be used when individuals were regulating for instrumental reasons or engaging in contra-hedonic regulation (i.e., dampening positive emotion), whereas antecedent-focused strategies were used more when regulating simply for the sake of changing ones mood or engaging in pro-hedonic regulation (i.e., elevating positive emotion or dampening negative emotion). Notably, suppression was particularly tied to social motives, including wanting to keep up appearances and avoid conflict. Holding a performance-oriented instrumental goal (i.e. get work done) did not predict suppression use.

The pattern of findings from this study may explain why people use suppression even though it is relatively ineffective at changing emotional experience: rather than simply being motivated to feel better, their regulation attempts may be driven by social concerns. The fact that suppression was particularly elevated around non-close others may suggest that this form of regulation is deployed when people do not feel comfortable expressing their emotions around their interaction partners. This explanation is consistent with findings that habitual use of suppression is more common among individuals with an avoidant attachment style (Gross and John 2003). More research is needed to explore the various situational features that may impact emotion regulation strategy use and success. Rather than deeming certain strategies as generally maladaptive (e.g., suppression), it may be more fruitful to focus on understanding the motivations underlying individuals' selection of different form of regulation. Specific strategies may be better suited to reaching certain types of goals than others, suggesting that adaptive regulation involves using the right strategy for reaching your goals in a given context (Aldao et al. 2015; Bonanno and Burton 2013). In order to gain a more nuanced understanding of what factors influence emotion regulation strategy selection, future work should assess a wider range of features of the social context (including both physical and psychological aspects of the situation) and specific regulation goals (Aldao

2013; Tamir 2016). Given that people often reported regulating their emotions for multiple reasons in any given event, it will also be important to consider the interaction of different goals (rather than focusing on single goals in isolation) in determining emotion regulation outcomes.

Findings from the present study highlight the importance of examining regulation of positive emotion and regulation during positive events, rather than focusing exclusively on negative emotion and negative events (as has often been the case in past work on emotion regulation). Although emotion regulation was more common in low points of the day, there was also a substantial amount of emotion regulation reported in high points and regulation efforts differed somewhat depending on the valence of the event. Notably, the only evidence of contra-hedonic regulation was when people down-regulated positive emotion during high points; positive emotions were always up-regulated in negative events. As expected, emotion regulation was largely pro-hedonic, with much of the regulation reported involving either boosting positive emotions or dampening negative emotions. The overwhelming prevalence of pro-hedonic regulation suggests that although contra-hedonic motivation is possible (Tamir 2009), it may not be very common in everyday life. Detecting the relatively rare instances of contra-hedonic regulation (e.g., trying to feel more anger or less joy) might require a different event sampling technique, such as frequent experience sampling or explicitly asking participants whether they tried to increase negative or decrease positive emotion at any point in the day. When examining the direction of regulation, we focused on comparing occasions when emotion was increased versus decreased, but emotion regulation also includes instances when people try to maintain emotion so it may also be fruitful to distinguish between regulation of intensity and duration of emotion (e.g., trying to feel a higher level of happiness vs. trying to feel happy for longer).

With regard to overall strategy use, reappraisal and suppression were reported more frequently than distraction during daily high points and low points. This justifies to some extent the focus on reappraisal and suppression in previous research (e.g., Gross and John 2003). However, measures other than self-report may be needed to adequately capture the use of strategies that primarily rely on manipulating attention. For instance, dot probe or eye tracking methods may be particularly useful for understanding how use of attention deployment may vary based on personal or situational factors. There have been mixed findings in the literature regarding strategy use. In contrast to the present study, a recent experience sampling study (Brans et al. 2013) found that distraction was used most often and reappraisal was used least often, with frequency of suppression use falling in the middle, while another daily diary study (Nezlek and Kuppens 2008) found that suppression was reported less than reappraisal (this study did not examine distraction). The source of these discrepancies is not yet clear, but one promising candidate is the sampling procedure (e.g., multiple random samplings across the day vs. once a day assessments; measuring regulation across the entire day vs. focusing on emotionally salient events). Other studies are needed to clarify which methods are most well-suited to examining daily emotion regulation patterns. As mentioned above, certain strategies may require different types of methods to gain a more accurate estimate of the frequency of their occurrence in daily life. Some research suggests that daily diary methods may be able to capture certain instances of situation selection and situation modification, two relatively understudied strategies (Charles et al.

2009). However, other novel methods may need to be created in order to assess the various forms that emotion regulation can take.

Some limitations should be noted. First, we relied on an undergraduate sample, so other studies are needed to document how emotion regulation operates in older and in less educated samples. For instance, there is some evidence to suggest that older adults may rely more on antecedent-focused regulation strategies, such as structuring their social environment in such a way that they spend less time in unsatisfying interactions and more time with emotionally meaningful partners (English and Carstensen 2014). Second, a relatively high proportion of participants were excluded from analysis because of their low participation rate (i.e., only 1 or 2 days with high and low points reported). The fact that excluded participants were relatively similar to those included in our analysis in terms of demographics and the nature of events reported provides some reassurance about the generalizability of our findings. However, future work is needed to replicate these effects using a design that boosts participation through the use of reminders and incentives. Third, we focused on emotion regulation during only the high and low point of each day. We used this lens in order to capture the most emotionally rich parts of daily life. However, these events do not represent all the daily contexts in which regulation occurs. Future work may benefit from randomly sampling moments throughout the day (Brans et al. 2013). Fourth, we relied on participants' reports of emotion regulation and therefore our findings only speak to explicit forms of regulation. In order to gain a more complete picture and capture aspects of regulation that occur outside the individuals' awareness (Gyurak et al. 2011), future work will benefit from a consideration of other types of measures, such as peer reports and biological assessments (e.g., fMRI, EEG).

Overall, the findings from the present study underscore the importance of considering the social context and regulation goals when studying emotion regulation. Consistent with past work (Brans et al. 2013), we found that most of the variation in strategy use was due to differences across events rather than between individuals (i.e., stable, personality factors). A growing number of researchers are realizing the importance of better understanding how individuals flexibly draw on the broad array of strategies that they have at their disposal in order to best regulate their emotions based on the current situational demands (Aldao 2013; Bonanno and Burton 2013). In order to continue advancing our understanding of how emotion regulation operates (e.g., when specific strategies will be deployed and how these strategies will impact various outcomes), it will be necessary to take into account aspects of the social environment in which regulation naturally occurs rather than only focusing on features that are easily manipulated in lab settings.

Acknowledgments

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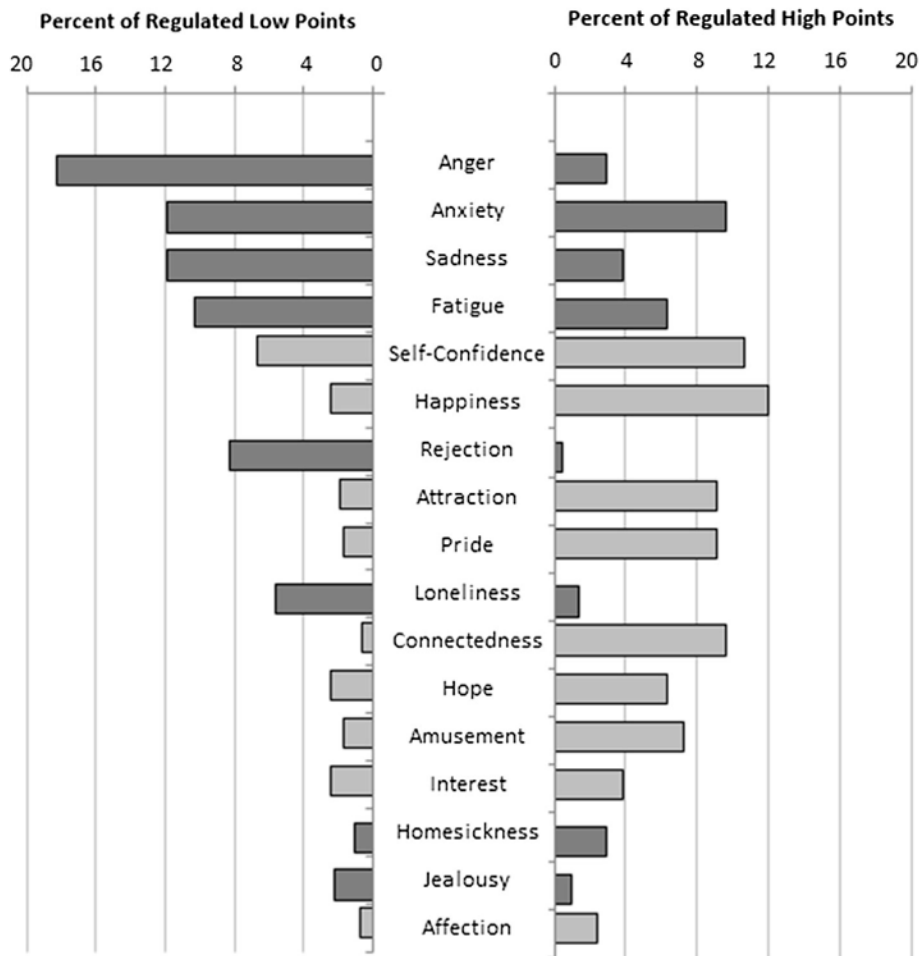
Fig. 1. Frequency in which each positive and negative emotion were targeted for regulation in low points and high points (ordered by overall frequency collapsed across event valence)
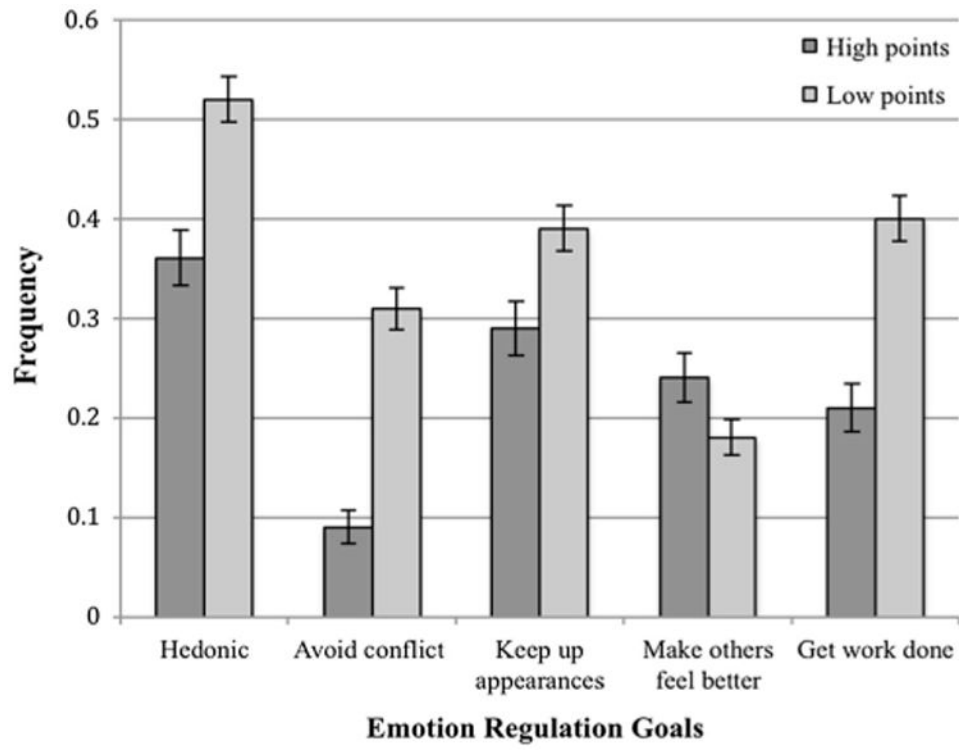
Fig. 2. Frequency in which each type of emotion regulation goal was endorsed in low points and high points
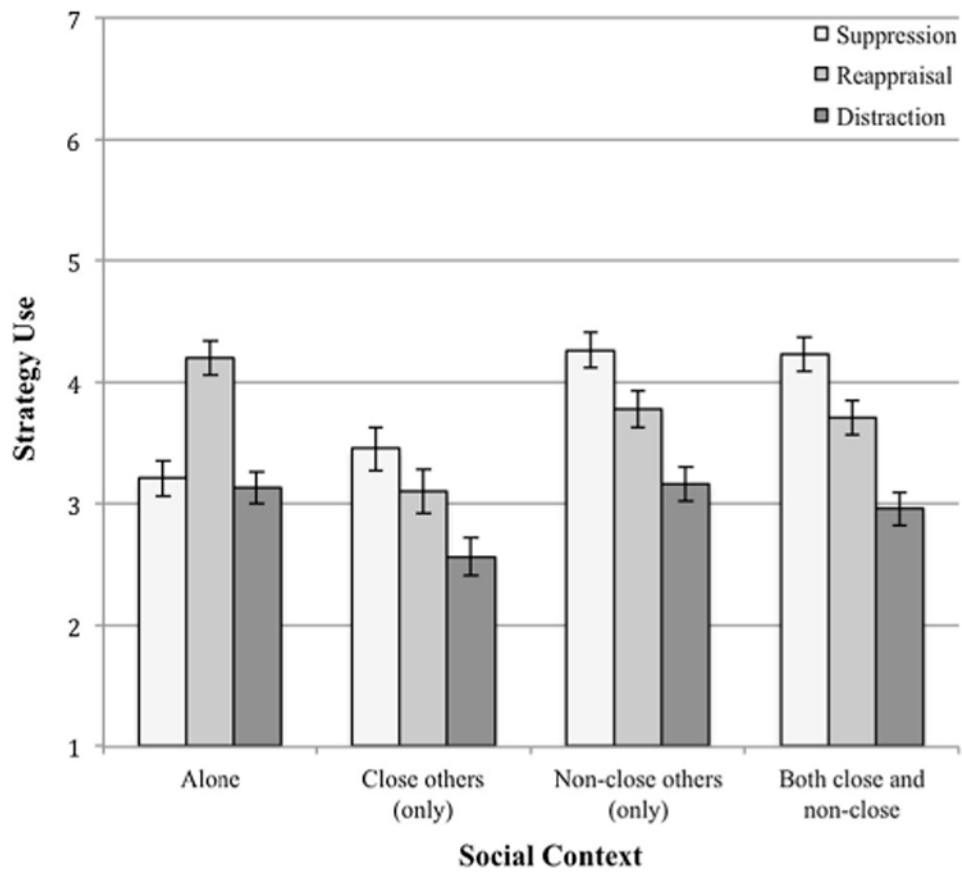
Fig. 3. Emotion regulation strategy use broken down by social context, including when alone, with only close others, with only non-close others, and with both close others and non-close others
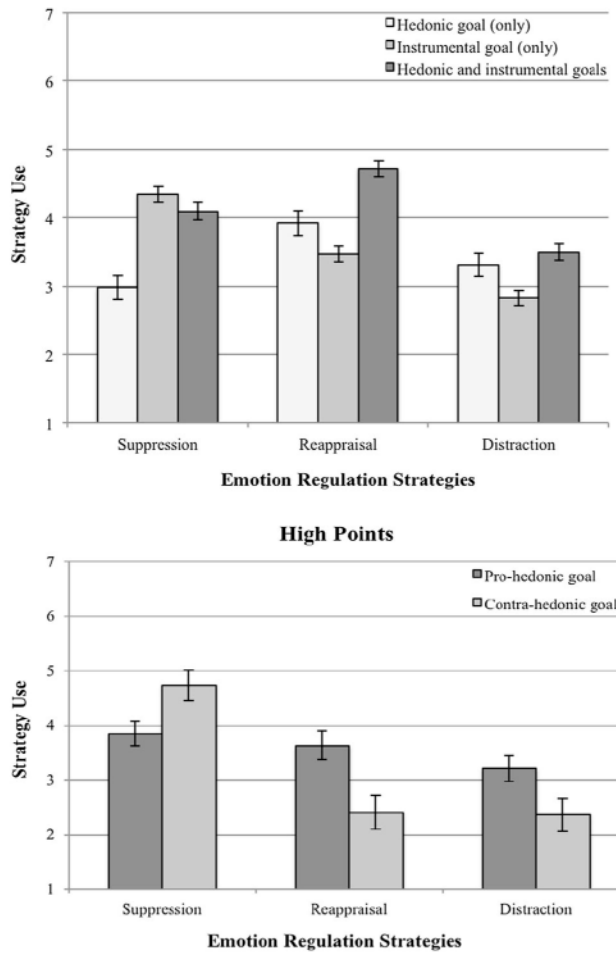
Fig. 4. Emotion regulation strategy use broken down by regulation goals, including a hedonic and instrumental goals, and b pro-hedonic versus contra-hedonic regulation

Table 1

Fixed effects of event valence, social context, and goals as predictors of strategy use

	Emotion regulation strategy type		
	Suppression	**Reappraisal**	**Distraction**
Model 1: core predictors			
Low point (vs. high point)	0.589 (0.305)[a]	0.525 (0.294)[a]	0.977 (0.285)**
Alone (vs. not)	−0.785 (0.307)*	0.497 (0.296)[a]	−0.251 (0.291)
Hedonic goal (vs. not)	0.081 (0.236)	1.594 (0.228)**	1.158 (0.222)**
Instrumental goal (vs. not)	0.731 (0.231)**	0.345 (0.224)	0.281 (0.218)
Alone × low point	−0.162 (0.357)	−0.244 (0.344)	0.103 (0.336)
Hedonic goal × low point	−0.258 (0.296)	−0.622 (0.285)*	−0.579 (0.277)*
Instrumental goal × low point	0.530 (0.314)[a]	0.475 (0.302)	−0.090 (0.294)
Model 2: specific social features			
Close other present (vs. not)	0.435 (0.305)	0.011 (0.308)	0.431 (0.295)
Non-close other present (vs. not)	0.608 (0.292)*	0.818 (0.299)**	0.571 (0.280)*
Close other × low point	−0.540 (0.389)	−0.270 (0.392)	−0.759 (0.372)*
Non-close other × low point	−0.096 (0.418)	−0.619 (0.422)	−0.576 (0.399)
Model 3: specific instrumental goals			
Avoid conflict with others (vs. not)	1.052 (0.377)**	−0.121 (0.406)	0.882 (0.383)*
Keep up appearances (vs. not)	0.993 (0.233)**	0.017 (0.253)	0.128 (0.239)
Make others feel better (vs. not)	0.032 (0.248)	0.144 (0.271)	−0.547 (0.256)*
Get work done (vs. not)	0.025 (0.261)	0.703 (0.283)*	0.567 (0.267)*
Avoid conflict × low point	0.044 (0.419)	−0.034 (0.451)	−0.689 (0.424)
Keep up appearances × low point	0.751 (0.288)**	−0.036 (0.312)	0.071 (0.295)
Make others feel better × low point	0.163 (0.324)	0.102 (0.349)	0.189 (0.330)
Get work done × low point	−0.092 (0.308)	−0.319 (0.333)	−0.503 (0.314)

Effects reported as unstandardized estimates with standard errors in parentheses. Model 2 and Model 3 also included event valence (i.e., low/high point) as a predictor

[a] $p < .10$

* $p < .05$;

** $p < .01$