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The Wisdom to Know the Difference: Strategy-Situation Fit in Emotion Regulation in Daily Life Is Associated With Well-Being

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Abstract

The ability to regulate emotions is central to well-being, but healthy emotion regulation may not merely be about using the "right" strategies. According to the *strategy-situation-fit hypothesis*, emotion-regulation strategies are conducive to well-being only when used in appropriate contexts. This study is the first to test the strategy-situation-fit hypothesis using ecological momentary assessment of cognitive reappraisal—a putatively adaptive strategy. We expected people who used reappraisal more in uncontrollable situations and less in controllable situations to have greater well-being than people with the opposite pattern of reappraisal use. Healthy participants (n = 74) completed measures of well-being in the lab and used a smartphone app to report their use of reappraisal and perceived controllability of their environment 10 times a day for 1 week. Results supported the strategy-situation-fit hypothesis. Participants with relatively high well-being used reappraisal more in situations they perceived as lower in controllability and less in situations they perceived as higher in controllability. In contrast, we found little evidence for an association between greater well-being and greater mean use of reappraisal across situations.

Keywords

emotion regulation, well-being, daily life, cognitive reappraisal, controllability, open data

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Emotions are functional (Frijda, 2007). Yet, in many situations, they are adaptive only if appropriately regulated (Gross & Jazaieri, 2014). A strategy central to cognitive behavioral therapies (e.g., Goldin et al., 2012) and widely considered the exemplar of healthy emotion regulation (Haga, Kraft, & Corby, 2009; John & Gross, 2004) is reappraisal: reframing an emotion-eliciting stimulus to modulate its emotional impact (Gross, 2015).

However, the assumption that reappraisal (or any regulation strategy) is uniformly effective across contexts is contested (Aldao, Sheppes, & Gross, 2015; Bonanno & Burton, 2013). Meta-analyses have shown that reappraisal is only modestly effective in modulating emotions (Webb, Miles, & Sheeran, 2012) or predicting adjustment (Aldao, Nolen-Hoeksema, & Schweizer, 2010), suggesting that important contextual moderators may have been overlooked (Webb et al., 2012). Reappraisal has mostly been studied using experimental and retrospective methods, not capturing the rich and varied contexts in which emotion regulation naturally occurs. In the current study, we tracked naturalistic variation in reappraisal across situations in daily life and investigated whether more context-appropriate use of reappraisal is related to greater well-being.

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Adopting Lazarus and Folkman's (1987) transactional model of coping, researchers are increasingly recognizing the importance of *strategy-situation fit*, that is, congruency between emotion-regulation strategies and the contexts in which they are used (Aldao et al., 2015; Bonanno & Burton, 2013). According to the strategy-situation-fit hypothesis, well-being is a function of the "goodness of fit" between emotion-regulation efforts and contextual characteristics, rather than greater overall use of particular emotion-regulation strategies (Conway & Terry, 1992). Specifically, emotion-focused strategies (e.g., reappraisal) should be more adaptive when used in uncontrollable contexts—that is, when the situation itself cannot be changed—than when used in controllable contexts (Cheng, 2001). Thus, flexibly varying reappraisal use in synchrony with changes in situational controllability may be healthier than simply using reappraisal across all contexts (Aldao et al., 2015). Although this does not necessarily imply that reappraisal is problematic when used in controllable contexts (Folkman, 1984), a recent study by Troy, Shallcross, and Mauss (2013) suggests that this may indeed be the case. Troy et al. found that individuals with higher reappraisal ability reported fewer depressive symptoms if exposed to uncontrollable stressors, but more depressive symptoms if exposed to controllable stressors. These findings suggest that when a situation can be directly changed, reappraisal may undermine the adaptive function of emotions in motivating action.

However, the findings of Troy et al. (2013) provide only indirect support for the strategy-situation-fit hypothesis, because better reappraisal ability (in the lab) does not necessarily predict more frequent or inflexible use of reappraisal across everyday contexts (McRae, 2013). Naturalistic studies have shown that people vary their reappraisal use and controllability appraisals across contexts in daily life (Brans, Koval, Verduyn, Lim, & Kuppens, 2013; David & Suls, 1999), and this allows for direct estimation of the within-person relationship between reappraisal and controllability across situations (Aldao et al., 2015). The strategy-situation-fit hypothesis can be directly tested by examining whether this person-specific covariation between reappraisal and controllability is related to well-being.

In the present study, we used ecological momentary assessment (EMA) to test the strategy-situation-fit hypothesis in daily life. Specifically, we investigated whether the association between a person's reappraisal use and controllability appraisals is related to his or her well-being. In light of previous findings (Cheng, Lau, & Chan, 2014; Troy et al., 2013), we hypothesized that greater well-being would be associated with a tendency to use reappraisal more in relatively uncontrollable situations and less in relatively controllable contexts.

Method

Participants

Seventy-eight people were recruited by advertisements posted in the classified-ad section on a local community Web site (Gumtree) and around the Australian Catholic University campus. We aimed to recruit as many participants as possible up to a maximum of 100 between June 1 and December 31, 2015; our target sample size was determined on the basis of previous EMA research conducted by our team and available funding. To maximize variability in well-being, the ad invited individuals who were either "comfortable" or "fearful" of social situations. Four participants withdrew early, leaving a final sample of 74 (61% female), ages 18 to 32 years (M = 23.26, SD = 3.54). Participants were students (58%), full-time workers (5%), part-time workers (23%), or unemployed (14%). The study was approved by the Australian Catholic University's Ethics Committee, and all participants provided informed consent. Participants were reimbursed up to $50 (a minimum of $30, plus incentives contingent on their level of EMA compliance).

Materials and procedure

During an initial laboratory session, participants completed a demographics questionnaire and several well-being measures. They were then instructed on the EMA procedure, which took place over the following week.

Well-being measures. Participants completed the 21-item version of the Depression Anxiety Stress Scales (Henry & Crawford, 2005), which assess frequency and severity of symptoms over the past week on a scale from 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*). These scales consist of seven items each for symptoms of depression (e.g., "I felt downhearted and blue"), anxiety (e.g., "I felt I was close to panic"), and stress (e.g., "I found it hard to wind down").

The well-being measures also included the eight-item Neuroticism subscale (e.g., "I am someone who gets nervous easily") of the Big Five Inventory (John, Naumann, & Soto, 2008). Ratings on this subscale range from 1 (*disagree strongly*) to 5 (*agree strongly*).

Social anxiety, including preoccupation with negative social evaluation, was assessed with the 20-item Social Interaction Anxiety Scale (Mattick & Clarke, 1998; e.g., "when mixing socially, I am uncomfortable") and the 12-item Brief Fear of Negative Evaluation Scale (Leary, 1983; e.g., "I am afraid that others will not approve of me"). On both instruments, participants rated themselves on a scale from 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*). Responses to all 32 items (from both scales) were combined into a measure of social anxiety.

Participants' global self-esteem was assessed with Rosenberg's (1965) Self-Esteem Scale, which comprises 10 items (e.g., "On the whole, I am satisfied with myself") rated on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*).

EMA. After completing the well-being measures, participants downloaded SEMA2, a custom-built EMA app running on iOS and Android, onto their own smartphones. They received detailed instructions for using SEMA2 and had a chance to practice answering the EMA survey and ask questions about the procedure. The experimenter explained to participants the importance of completing as many EMA surveys as possible, while ensuring that their responses were careful and honest. SEMA2 was programmed to run between 10:00 a.m. and 10:00 p.m. for 7 days, with surveys triggered at random intervals of 40 to 102 min (M = 72 min; i.e., approximately 10 EMA surveys per day). EMA compliance was high; participants completed an average of 87% of scheduled surveys (SD = 14%, 9.4%, range = 17–98%). Two participants' EMA compliance was poor (i.e., response rate < 50%). However, results were unchanged when these participants were excluded from analyses. We therefore report results obtained with the full sample.

At each EMA prompt, participants reported their use of cognitive reappraisal "since last survey" by responding to two items. Both items began with the stem "in response to your feelings, have you"; this stem was followed by "looked at things from a different perspective" and "changed the way you were thinking about the situation." The response scale ranged from 0 (*not at all*) to 100 (*very much so*). Because the two reappraisal items were strongly correlated (within-person r = .50, p < .001), we formed a composite state reappraisal score by taking their mean, which we used in all subsequent analyses. When we repeated analyses separately with each individual reappraisal item, results were substantively identical to those reported here.

On each EMA survey, participants rated the degree to which they perceived their environment as controllable by responding to a single item: "To what extent were you in control of what's happened since last survey?" The rating scale for this item ranged from 0 (*not at all*) to 100 (*very much so*).

The EMA survey also contained an item assessing the use of *situation modification* ("In response to your feelings, have you changed something in your environment, since last survey?"). This item was rated on a scale from 0 (*not at all*) to 100 (*very much so*).

Other measures not reported here. Participants also reported demographic information (including information on their exposure to major life events), completed cognitive tasks, and provided saliva samples for hormonal analysis at baseline. The EMA survey contained several additional items assessing affect, events, and the use of other emotion-regulation strategies. Finally, a subset of participants wore ambulatory physiology monitors throughout the EMA sampling period as a pilot test for a future study. Data from these additional measures are not relevant to the current study and are therefore not reported here.

Data cleaning and preparation. Participants' response times for each EMA item were recorded in milliseconds. Following McCabe, Mack, and Fleeson's (2011) guidelines, we treated responses made in 300 ms or less as missing (n = 35; < 1%), and if more than 50% of items within an EMA survey had response times less than or equal to 300 ms, the entire survey was excluded from analysis (n = 7, all from the same participant).

We calculated mean scores for each well-being measure and then standardized these scores before entering them in our main analyses. However, for descriptive purposes, Table 1 reports the mean and range of the unstandardized sum scores for each well-being scale, along with the scales' reliabilities and intercorrelations.

Statistical analyses

Data were analyzed using multilevel modeling (HLM Version 7.01; Raudenbush, Bryk, & Congdon, 2013) to account for the nesting of measurement occasions (i.e., EMA surveys, n = 5,510) within persons (n = 74). Specifically, we ran a series of two-level models with random intercepts and slopes, following Bolger and Laurenceau (2013). To test the strategy-situation-fit hypothesis, at the within-person level we regressed reappraisal onto controllability while controlling for the linear effect of time. We also included lagged reappraisal as a predictor to control for reappraisal use at the previous occasion and to model change in reappraisal as a function of controllability. At the within-person level, predictors were person-mean centered to remove between-person differences. The within-person model was as follows:

$$\text{reappraisal}_{ti} = \pi_{0i} + \pi_{1i}\left(\text{controllability}_{ti}\right) + \pi_{2i}\left(\text{time}_{ti}\right) + \pi_{3i}\left(\text{reappraisal}_{t-1i}\right) + e_{ti}. \quad (1)$$

The outcome (reappraisal$_{ti}$) reflects person i's use of reappraisal at time t. Because the predictors were person-mean centered, the intercept (π_{0i}) represents person i's mean use of reappraisal. Of particular interest, the slope (π_{1i}) reflects the within-person association between person i's rating of controllability at time t (controllability$_{ti}$) and change in person i's use of reappraisal from time

Table 1. Descriptive Statistics, Reliabilities, and Correlations Among the Well-Being Measures

Well-being measure	α	*M* (*SD*)	Range: Actual	Range: Possible	Correlations: 1	2	3	4	5
1. Depression	.86	6.38 (6.60)	0–32	0–42	—				
2. Anxiety	.77	6.05 (5.35)	0–20	0–42	.56	—			
3. Stress	.80	10.41 (7.20)	0–30	0–42	.55	.52	—		
4. Neuroticism	.86	23.70 (6.37)	9–37	8–40	.52	.55	.67	—	
5. Social anxiety	.96	81.45 (24.40)	43–141	32–160	.57	.47	.59	.76	—
6. Self-esteem	.91	31.42 (5.70)	19–40	10–40	–.58	–.41	–.38	–.60	–.66

Note: The descriptive statistics are based on sum scores for the well-being measures; scores on the Depression Anxiety Stress Scales (Henry & Crawford, 2005) were multiplied by 2 (to allow for comparison with scores on the full 42-item version of these scales). For all correlations, $n = 74$ and $p < .001$.

$t - 1$ to time t (i.e., after controlling for reappraisal at $t - 1$, captured by π_{3i}). Possible linear trends in the use of reappraisal are captured by the slope of time (π_{2i}). Thus, π_{1i} (henceforth referred to as the *reappraisal-controllability slope*) is a person-specific index of covariation between change in reappraisal use and perceived controllability, a direct operationalization of strategy-situation fit. A positive reappraisal-controllability slope indicates greater use of reappraisal in more controllable contexts (i.e., poorer strategy-situation fit), whereas a negative slope reflects greater use of reappraisal in less controllable contexts (i.e., better strategy-situation fit). Finally, the within-person residual, e_{ti}, reflects the unexplained component of person *i*'s reappraisal use at time t.

At the between-person level, the parameters π_{0i}, π_{1i}, π_{2i}, and π_{3i} were allowed to vary randomly across persons, and their associations with standardized scores on the well-being measures (denoted as *z*-well-being) were modeled while controlling for mean level of controllability ($\overline{\text{controllability}}_i$, i.e., each person *i*'s mean controllability score across all EMA surveys):

$$\pi_{0i} = \beta_{00} + \beta_{01}\left(z\text{-well-being}_i\right) + \beta_{02}\left(\overline{\text{controllability}}_i\right) + r_{0i} \quad (2)$$

$$\pi_{1i} = \beta_{10} + \beta_{11}\left(z\text{-well-being}_i\right) + \beta_{12}\left(\overline{\text{controllability}}_i\right) + r_{1i} \quad (3)$$

$$\pi_{2i} = \beta_{20} + \beta_{21}\left(z\text{-well-being}_i\right) + \beta_{22}\left(\overline{\text{controllability}}_i\right) + r_{2i} \quad (4)$$

$$\pi_{3i} = \beta_{30} + \beta_{31}\left(z\text{-well-being}_i\right) + \beta_{32}\left(\overline{\text{controllability}}_i\right) + r_{3i} \quad (5)$$

In these equations, because well-being scores are standardized, the intercepts β_{00}, β_{10}, β_{20}, and β_{30} are estimates of the within-person parameters in Equation 1 for a person with an average well-being score. The slopes β_{01}, β_{11}, β_{21}, and β_{31} represent between-person associations between well-being and the within-person parameters modeled in Equation 1, and the between-person residuals r_{0i}, r_{1i}, r_{2i}, and r_{3i} reflect variance in each parameter that is unexplained by well-being. We were primarily interested in the β_{01} and β_{11} slopes. The β_{01} slopes are estimates of the association between well-being and mean use of reappraisal across contexts in daily life. According to the strategy-situation-fit hypothesis, greater well-being should not necessarily be associated with greater use of reappraisal across all contexts. The β_{11} slopes represent associations between well-being and the within-person reappraisal-controllability slopes (i.e., strategy-situation fit). According to the strategy-situation-fit hypothesis, lower well-being should be related to a more positive reappraisal-controllability slope, and greater well-being to a more negative reappraisal-controllability slope. We ran a separate model for each well-being measure as an individual between-persons predictor.

Results

Preliminary analyses

We estimated means, standard deviations, and intraclass correlation coefficients (ICCs) for reappraisal and controllability using intercept-only models (also known as *null models*, as they include no predictors). For reappraisal, the mean level was 29.50 (*SE* = 1.97, 95% confidence interval, or CI = [25.58, 33.43]), with standard deviations of 18.47 and 16.89 at the within- and between-person levels, respectively. The ICC for reappraisal was .46, indicating that 46% of the total variability in reappraisal was between persons and 54% was within persons. For controllability, the mean level was 64.55

Table 2. Fixed-Effect Estimates of Well-Being's Associations With Mean Reappraisal Use (β_{01}) and Reappraisal-Controllability Slopes (β_{11})

	Association with mean reappraisal			Association with reappraisal-controllability slope		
Well-being measure	β_{01} (*SE*)	95% confidence interval	*p*	β_{11} (*SE*)	95% confidence interval	*p*
Depression	–0.841 (1.919)	[–4.667, 2.986]	.663	0.059 (0.018)	[0.023, 0.095]	.002
Anxiety	–0.635 (1.801)	[–4.227, 2.956]	.725	0.047 (0.018)	[0.012, 0.082]	.009
Stress	3.075 (2.140)	[–1.192, 7.343]	.155	0.063 (0.017)	[0.030, 0.097]	< .001
Neuroticism	2.564 (2.191)	[–1.805, 6.933]	.246	0.050 (0.020)	[0.010, 0.089]	.014
Social anxiety	2.607 (2.019)	[–1.419, 6.632]	.201	0.035 (0.018)	[–0.001, 0.071]	.059
Self-esteem	–1.454 (2.056)	[–5.554, 2.646]	.482	–0.039 (0.022)	[–0.083, 0.006]	.088

Note: For all these multilevel-model estimates, the approximate number of degrees of freedom is 71. *Reappraisal-controllability slope* refers to the estimated within-person association between state reappraisal and person-centered controllability in daily life (i.e., strategy-situation fit). The *p* values are based on *t* tests with a test value of zero; the *t*s were calculated by dividing the coefficient estimate by the corresponding standard error.

(*SE* = 1.89, 95% CI = [60.79, 68.32]), with standard deviations of 21.82 and 16.12 at the within- and between-person levels, respectively. The ICC for controllability was .35, indicating that 35% of the total variability in controllability was between persons and 65% was within persons.

A preliminary analysis using the within-person model shown in Equation 1, and estimating random effects without any predictors at the between-person level, showed that the average reappraisal-controllability slope was close to zero, $\beta_{10} = -0.005$, $SE = 0.023$, 95% CI = [−0.05, 0.04], $p = .835$. Thus, for the average person, reappraisal use did not covary with changes in perceived controllability. However, reappraisal-controllability slopes varied substantially between persons ($SD = 0.14$, $\chi^2(72, N = 74) = 156.94$, $p < .001$). Our main analyses involved modeling this between-person variability as a function of well-being.

Main analyses

Results of our main analyses (i.e., β_{01} and β_{11} estimates and 95% CIs) are displayed in Table 2. Examination of the β_{01} estimates, representing associations between well-being and mean use of reappraisal in daily life, revealed that none of the well-being measures was reliably associated with mean reappraisal use. Thus, we found little evidence for an association between well-being and greater overall use of reappraisal across contexts in daily life, as predicted by the strategy-situation-fit hypothesis.

Estimates of β_{11}, representing associations between well-being and within-person reappraisal-controllability slopes (i.e., strategy-situation fit), were in the predicted direction for all the well-being measures: Higher levels of depression, anxiety, stress, neuroticism, and social anxiety, and lower levels of self-esteem, were associated with more positive reappraisal-controllability slopes. Thus, people with lower well-being tended to use reappraisal more in relatively controllable contexts (i.e., poorer strategy-situation fit), whereas those with higher well-being used reappraisal more in situations perceived as less controllable (i.e., better strategy-situation fit).

Simple slopes

To further explore the association between well-being and the reappraisal-controllability slopes (representing strategy-situation fit), we conducted simple-slopes analyses using the method developed by Preacher, Curran, and Bauer (2006). Simple slopes were calculated using within-person standardized controllability ratings (i.e., each person *i*'s mean controllability rating across all EMA occasions was subtracted from his or her controllability rating at each occasion *t*, and the resulting value was then divided by the standard deviation of that person's controllability ratings across occasions). Results of these analyses replicated our main findings. Estimates of the simple slopes at 1 standard deviation above and below the mean for each well-being measure are shown in Table 3.

As expected, simple slopes were negative at 1 standard deviation below the mean (−1 *SD*) for all the well-being measures (except self-esteem, for which the simple slope was positive, as expected). However, only the simple slopes for low scores (–1 SD) on depression, stress, and neuroticism were statistically significant, $p < .05$. Also as expected, simple slopes were positive at 1 standard deviation above the mean (+1 *SD*) for all the well-being measures (except self-esteem, for which the simple slope was negative, as expected). However, only the simple slopes for high scores (+1 *SD*) on depression and stress

Table 3. Simple-Slope Estimates of the Association Between Reappraisal and Controllability at High and Low Levels of the Well-Being Measures

	Low scores			High scores		
Well-being measure	Estimate (*SE*)	95% confidence interval	*p*	Estimate (*SE*)	95% confidence interval	*p*
Depression	−1.33 (0.66)	[−2.65, −0.02]	.047	0.99 (0.43)	[0.13, 1.85]	.025
Anxiety	−1.19 (0.61)	[−2.41, 0.04]	.057	0.88 (0.53)	[−0.19, 1.94]	.104
Stress	−1.54 (0.55)	[−2.64, −0.44]	.007	1.21 (0.53)	[0.15, 2.26]	.026
Neuroticism	−1.18 (0.53)	[−2.24, −0.12]	.029	0.83 (0.63)	[−0.44, 2.09]	.196
Social anxiety	−0.86 (0.58)	[−2.02, 0.30]	.144	0.53 (0.59)	[−0.64, 1.70]	.368
Self-esteem	0.67 (0.57)	[−0.46, 1.80]	.243	−0.92 (0.70)	[−2.32, 0.47]	.192

Note: For each well-being measure, *high scores* and *low scores* refer to values 1 standard deviation above and below the mean score on that measure. The simple slopes reported here are from multilevel models using within-person standardized controllability scores as a predictor of reappraisal use (while also controlling for the linear effect of time, *t*, and use of reappraisal at time $t - 1$). For all the models, the approximate number of degrees of freedom is 71. The *p* values are based on *t* tests with a test value of zero; the *t*s were calculated by dividing the simple-slope estimate by the corresponding standard error.

were statistically significant, $p < .05$ (see Table 3). Although not all simple slopes for anxiety, neuroticism, social anxiety, and self-esteem at +1 *SD* and −1 *SD* were statistically significant, we calculated the *region of significance* (Preacher et al., 2006) for anxiety and neuroticism, that is, the values (in standard-deviation units) beyond which simple slopes were statistically significant. Simple slopes were statistically significant outside the region from −1.07 to 1.33 *SD* for anxiety and −0.79 to 2.30 *SD* for neuroticism. It is not always mathematically possible to calculate regions of significance (Preacher et al., 2006), and this was the case for social anxiety and self-esteem.

For illustrative purposes, Figure 1 plots the simple reappraisal-controllability slopes for depression and stress at +1 *SD* and −1 *SD*. The patterns in Figure 1 are representative of the results for all the other well-being measures (see Fig. S1 in the Supplemental Material available online). Figure 1a shows that individuals scoring higher (+1 *SD*) than average on depression tended to use less reappraisal in relatively uncontrollable contexts and more reappraisal as their perceptions of controllability increased. In contrast, participants with lower (−1 *SD*) depression scores tended to use reappraisal more in situations they perceived as low in controllability and decreased their use of reappraisal as their perceptions of controllability got higher. A similar pattern for the simple slopes for stress can be seen in Figure 1b, with the only difference being that mean use (i.e., the intercept) of reappraisal was higher among participants with higher (+1 *SD*) stress scores, although the association

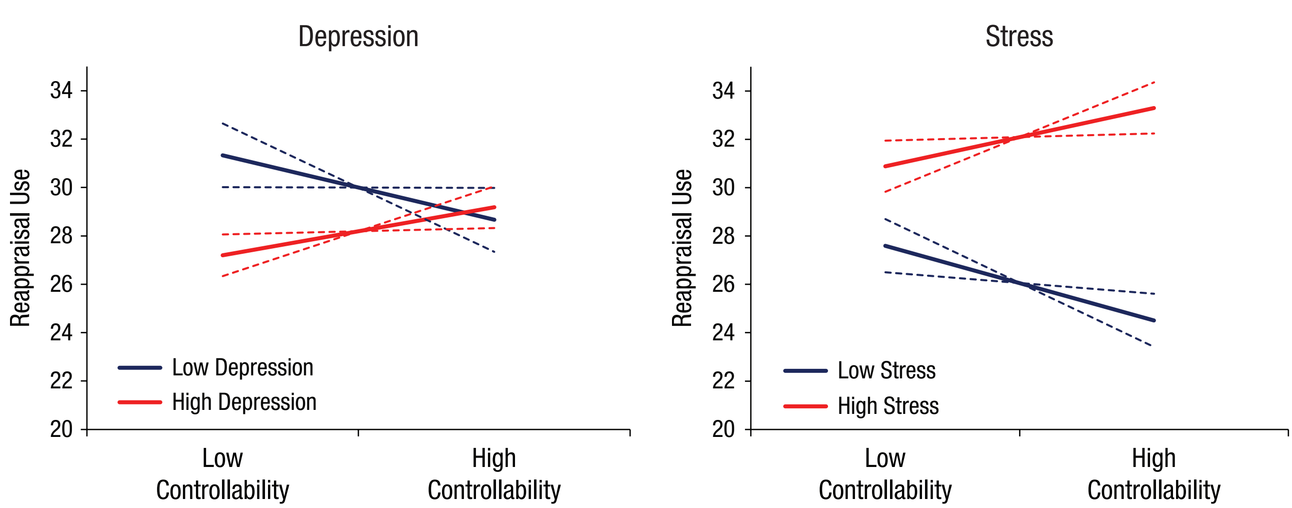

Fig. 1. Simple slopes reflecting use of reappraisal in situations rated as low versus high in controllability, among individuals scoring low versus high on (a) depression and (b) stress. For each variable, *low* refers to the value 1 standard deviation below the mean, and *high* refers to the value 1 standard deviation above the mean. The dashed lines represent 95% confidence intervals.

between stress and mean reappraisal use was not statistically significant, p = .155 (see the β_{01} estimate in Table 2).

Supplementary analyses

To ensure that our findings were robust and not exclusively due to the particular specification of our multilevel models, we ran several supplementary analyses with alternate model specifications (e.g., removing all covariates from the within-person model, additionally including controllability at $t - 1$ at the within-person level, including mean reappraisal use at the between-person level). Across all alternate model specifications, results were consistent with our main findings already reported. In a final model including all the well-being measures together at the between-person level, depression emerged as the only well-being measure to uniquely predict reappraisal-controllability slopes. The Supplemental Material describes these alternate model specifications and presents the resulting estimates of the associations between well-being and reappraisal-controllability slopes (see Tables S1 and S2).

Finally, situation modification is a problem-focused strategy, which may be more adaptive when deployed in controllable as opposed to uncontrollable situations (Lazarus & Folkman, 1987). Thus, a complementary hypothesis regarding flexible use of situation modification would predict that greater use of situation modification in more controllable contexts should be related to higher well-being. To test this hypothesis, we repeated our main analyses with situation modification (rather than reappraisal use) as the outcome; the results are reported in Table S3 of the Supplemental Material. Briefly summarized, these analyses showed that, for the average person, use of situation modification was not related to perceived controllability across contexts in daily life. Furthermore, none of the well-being measures were related to the within-person association between situation modification and controllability.

Discussion

This study is the first to assess within-person covariation between reappraisal and controllability in daily life using EMA, and thus capture strategy-situation fit with greater temporal resolution and ecological validity than previous studies (e.g., Cheng et al., 2014; Troy et al., 2013). As predicted, and extending previous research (Troy et al., 2013), we found that people with higher well-being increased their use of reappraisal as contexts became less controllable, whereas individuals with lower well-being showed the opposite pattern. Thus, our findings support the view that the adaptiveness of emotion-regulation strategies crucially depends on situational factors in real-life contexts (Aldao et al., 2015; Bonanno & Burton, 2013).

Whereas reappraisal has often been assumed to be a generally healthy strategy (Gross & Thompson, 2007), the current findings support a context-dependent account, according to which flexibly matching use of reappraisal with contextual demands (e.g., controllability) is central to healthy emotion regulation (Kashdan & Rottenberg, 2010). Thus, rather than being a panacea, reappraisal may be adaptive only in relatively uncontrollable situations.

Consistent with the study by Troy et al. (2013), our findings indicate that individuals low in well-being may actually increase their use of reappraisal in relatively controllable situations. This suggests that using reappraisal to modulate emotions when the situation can be directly altered may undermine the adaptive function of emotions in motivating action. However, we cannot rule out the possibility that low well-being may be associated with a general increase in regulatory effort in controllable situations.

This study has several limitations. First, as controllability was measured subjectively (cf. Troy et al., 2013), it may have been confounded with individual differences in well-being (Cheng et al., 2014). However, because we included mean controllability ratings as a between-persons covariate in our analyses, we can rule out the possibility that controllability influenced the observed association between well-being and strategy-situation fit. Second, being cross-sectional, the present study cannot establish whether well-being is a consequence or precursor of flexible reappraisal use; longitudinal studies are necessary to establish such causal directionality. Third, we did not measure perceived self-efficacy of reappraisal or reappraisal ability, both of which may contribute to well-being (Gross & Jazaieri, 2014). Finally, this study focused on cognitive restructuring, whereas other forms of reappraisal (e.g., self-distancing, positive reappraisal) may show different associations with controllability and well-being.

In conclusion, the current study provides clear support for a contextualized account of emotion regulation. By examining the process of strategy-situation fit as it unfolds over time in daily life, we found that individuals who use reappraisal more in situations they perceive as low in controllability have greater well-being. These findings have important implications for theoretical models of emotion regulation and their clinical applications.

Action Editor

Eddie Harmon-Jones served as action editor for this article.

Author Contributions

P. Koval, J. Gleeson, P. Kuppens, T. Hollenstein, and J. Ciarrochi developed the study concept. All the authors contributed to the study design. Testing and data collection were performed by

S. J. Haines and C. Grace under the supervision of P. Koval and I. Labuschagne. P. Koval and S. J. Haines performed the data analysis and interpretation of results. S. J. Haines and P. Koval drafted the manuscript, and J. Gleeson, P. Kuppens, T. Hollenstein, and J. Ciarrochi provided critical revisions. All the authors approved the final version of the manuscript for submission.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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Supplemental Material

Additional supporting information can be found at http://pss.sagepub.com/content/by/supplemental-data

Open Practices

All data have been made publicly available via the Open Science Framework and can be accessed at https://osf.io/j8zge/. The complete Open Practices Disclosure for this article can be found at http://pss.sagepub.com/content/by/supplemental-data. This article has received the badge for Open Data. More information about the Open Practices badges can be found at https://osf.io/tvyxz/wiki/1.%20View%20the%20Badges/ and http://pss.sagepub.com/content/25/1/3.full.

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