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Trait and Daily Emotion Regulation in Social Anxiety Disorder

Dan V. Blalock[1] · Todd B. Kashdan[1] · Antonina S. Farmer[2]

Abstract Emotion regulation strategies vary widely in use and effectiveness across psychological diagnostic categories. However, little data exists on (1) the use of these strategies in social anxiety disorder (SAD), and (2) how trait measures compare with actual daily use of emotion regulation strategies. We collected trait and daily assessments of emotion suppression, cognitive reappraisal, and positive and negative emotions from 40 adults with SAD and 39 matched healthy controls. Participants with SAD reported greater trait suppression and less cognitive reappraisal than healthy controls, and exhibited this same pattern of emotion regulation in daily life. Participants overall reported worse emotional experiences when suppressing positive (vs. negative) emotions, and better emotional experiences when reappraising to feel more positive (vs. less negative) emotions. However, SAD participants exhibited greater benefits (specifically increased positive emotions) from reappraising to feel less negative than healthy controls. These findings highlight the importance of positive emotion regulation strategies, particularly for individuals with SAD.

Keywords Social anxiety disorder · Emotion regulation · Negative emotions · Positive emotions · Experience sampling methodology

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Introduction

Social Anxiety Disorder (SAD) is the fourth most common psychiatric disorder, with a lifetime prevalence rate of 12.1 % (Kessler et al. 2005). This disorder is associated with significant impairment in social, occupational, and daily functioning (Schneier et al. 1994). People with social anxiety disorder (SAD) experience an intense, persistent fear of having perceived flaws exposed in social situations, leading to negative evaluations and ultimately, rejection (Morrison and Heimberg 2013; Moscovitch 2009). This intense and persistent fear fosters emotion hyper-reactivity and dysregulation (Hermann et al. 2004; Hofmann, 2004). Despite recent research on the differential perceptions of emotion regulation strategy use across disorders (Aldao et al. 2010; Hofmann et al. 2012), and in SAD specifically (e.g., Kashdan et al. 2011), little has been done to examine how these perceptions operate (or fail to operate) in daily life. The current paper explores how "trait" perceptions of emotion regulation differ in individuals with SAD versus healthy controls, how these perceptions compare to emotion regulation strategy use in daily life ("states"), and how both are related to daily positive and negative emotions.

Cognitive Appraisals and Positive and Negative Emotions in SAD

Emotion regulation generally refers to the ways by which people influence which emotions are experienced, when they are experienced, and how they are experienced and expressed (Gross 1998). A host of research has examined how tendencies to suppress or avoid emotions often outweigh tendencies to reappraise the causes for these emotions when a triggering stressful event occurs and how these tendencies (or diatheses) are shared among disorders

such as depression and anxiety disorders (Hofmann et al. 2012), as well as eating disorders, and substance use disorders (see Aldao et al. 2010 for a review). Yet we have little information on how these tendencies play out in everyday life for these individuals, especially those suffering from SAD. For decades, most research on SAD focused on the recognition, interpretation, and experience of emotion, while ignoring how emotions are altered. Research has consistently demonstrated that people diagnosed with SAD experience more negative emotions and fewer positive emotions (Brown et al. 1998; Kashdan 2007).

Early researchers believed what distinguished adults with and without SAD was that those with SAD had an intense, frequent, unremitting fear being negatively evaluated by others (Watson and Friend 1969); more recent work suggests a broader framework. People with SAD also fear positive evaluation, presumably because this directs the attentional spotlight towards them, raises the standard of desirable behavior in future situations, increases concerns of social reprisals from other people, and is a source of anxiety (Weeks et al. 2008; Weeks and Howell 2012). Moreover, the attentional bias of those with SAD is directed toward negative, threatening stimuli (Gilboa-Schechtman et al. 1999) and away from positive, rewarding stimuli (Taylor et al. 2010), fostering post-event rumination and creating a cycle of expectation and confirmation that is difficult to break (Hofmann 2007).

Given their exaggerated threat response to external stimuli (Bar-Haim et al. 2007; Etkin and Wager 2007), and tendency to form more negative and less positive appraisals of life events (Alden et al. 2008; Foa et al. 1996), it is unsurprising that people with SAD report more negative and less positive emotions. This disposition also underscores the importance of moving beyond the experience to the regulation of emotion in understanding the nature of SAD.

Trait Emotion Regulation in SAD

Difficulties with emotion regulation are a common feature of anxiety disorders (Campbell-Sills and Barlow 2007; Werner and Gross 2009), including SAD (Kashdan et al. 2013; Turk et al. 2005). Anxiety disorders are generally associated with the frequent use of maladaptive emotion regulation strategies such as avoidance, suppression, and rumination, and infrequent use of healthy strategies such as acceptance, reappraisal, and problem-solving (Aldao et al. 2010). People diagnosed with SAD, specifically, show minimal differences from healthy adults on their experience of anxiety during social interactions, as the largest difference is in the unwillingness to tolerate or handle these anxious moments (Herbert and Cardaciotto 2005; Kashdan et al. 2013).

Less work, however, has been conducted on the cognitive emotion regulation strategies of individuals with SAD when the behavioral avoidance of emotionally intense situations is not an option. Once an emotional stimulus is present, modulating judgments of the stimulus (reappraisal) and altering the expression of what is felt (suppression) are two of the most common emotion regulation strategies (Gross and John 2003). To date, research suggests that people diagnosed with SAD endorse more use of suppression (Werner et al. 2011), and less use of cognitive reappraisal compared with healthy adults (Goldin et al. 2009a, b). Much of this work relied on trait-level data, which is problematic for at least two reasons.

First, retrospective reports of behaviors typically force people to recall events long after they occur, and this recall is subject to information processing biases (Reis and Gable 2000). Moreover, individuals with SAD typically have distorted views of oneself, others, and their actual social performance (Hofmann 2007; Rapee and Heimberg 1997). Therefore, people with SAD may maintain biased perceptions of their use of emotion regulation strategies, attending to the adverse consequences of maladaptive strategy use while downplaying the healthy consequences of their emotion regulation strategy usage.

Second, trait-level data only offer a rough estimate of a person's emotion regulation tendencies instead of what actually occurs in everyday life. Global traits are now better understood as averages or "most likely" behaviors for a person across all situations; yet most behaviors vary more within a person than between people (Fleeson 2001, 2004). Thus, although trait measures of emotion regulation in people with and without social anxiety are important, they offer little information on how these individuals vary in daily emotion regulation. To fully understand how SAD differs from healthy controls in terms of emotion regulation strategy use *and* its effects on daily processes, we must examine these relationships in the contexts in which they are used. Moreover, placing a magnifying glass on this transdiagnostic factor within a specific disorder can provide insight into how these strategies might play out in the daily lives of individuals suffering from other disorders.

The Present Study

This study extends prior work by using an experience sampling design to assess emotion regulation strategy use in people with SAD and a demographically matched group of healthy adults. The availability of a disordered and healthy sample allowed us to examine the relevance of dynamic intra-individual, emotion-related processes. Using end-of-day reports (i.e., reflecting on the whole day) over 14 days, as well as initial trait questionnaires, we were able to examine how general perceptions of emotion regulation

and daily reporting of emotion regulation strategy use cohered, as well as their usefulness in predicting daily positive and negative emotional experiences.

Using this framework, we tested four hypotheses. First, a SAD diagnosis would predict trait levels of emotion regulation, specifically less reappraisal and more suppression of both positive and negative emotions. Second, a SAD diagnosis would predict daily levels of emotion regulation, specifically less use of reappraisal and more use of suppression of both positive and negative emotions. Third, a SAD diagnosis would moderate the extent to which daily emotion regulation predicted daily emotional experiences. Fourth, a SAD diagnosis will moderate the relationship between trait emotion regulation reporting and daily emotion regulation use. In sum, we expected people with SAD to generally report and experience emotion regulation difficulties, but that their actual emotion regulation use may be more impaired for positive than negative emotions. This fits with prior work suggesting that the two greatest predictors of whether a person met criteria for SAD were not the presence of anxiety but rather, the intolerance/avoidance of anxiety and lack of positive emotions during the course of everyday social interactions (Kashdan et al. 2013). Anxiety and the regulation of anxiety may be more normative than the tendency to disqualify positive events and extract minimal positive emotions from positive events (e.g., Kashdan and Steger 2006; Weeks and Howell 2012).
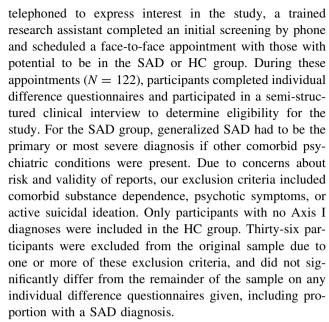
Method

Participants

Our sample included 86 participants, of whom 43 had generalized SAD and 43 were healthy controls (HC). After seven participants (three with SAD, four healthy controls) were excluded from analyses due to insufficient experience sampling data provided, the final sample consisted of 40 participants with SAD and 39 HCs, who were matched on age, gender, and ethnicity. Approximately 64.6 % of participants were female, with an average age of 28.9 years ($SD = 8.8$). With regard to race/ethnicity, 54.4 % of participants self-identified as "Caucasian/White," 19 % as "African-American/Black," 12.7 % as "Hispanic/Latino," 5.1 % as "Asian-American," and 8.9 % as "Other." There were no significant differences between groups on demographic variables (see Farmer and Kashdan 2013).

Procedure

Participants were recruited from the Northern Virginia community through targeted online advertisements and flyers on bulletin boards. When potential participants telephoned to express interest in the study, a trained research assistant completed an initial screening by phone and scheduled a face-to-face appointment with those with potential to be in the SAD or HC group. During these appointments ($N = 122$), participants completed individual difference questionnaires and participated in a semi-structured clinical interview to determine eligibility for the study. For the SAD group, generalized SAD had to be the primary or most severe diagnosis if other comorbid psychiatric conditions were present. Due to concerns about risk and validity of reports, our exclusion criteria included comorbid substance dependence, psychotic symptoms, or active suicidal ideation. Only participants with no Axis I diagnoses were included in the HC group. Thirty-six participants were excluded from the original sample due to one or more of these exclusion criteria, and did not significantly differ from the remainder of the sample on any individual difference questionnaires given, including proportion with a SAD diagnosis.

Following these assessments, qualified participants were instructed on how to complete experience sampling entries for the following 14 days. For the end-of-day entries used in these analyses, participants were asked to log into an online portal between 6:00 P.M. of the day in question and noon on the following day (preferably as close to bedtime or wake time as possible to minimize memory biases). Several efforts were made to encourage compliance: (1) brief measures, (2) date and time stamping of entries to verify timely completion, (3) incentive-based compensation ranged from $165 to $215 with consistent, timely completion of entries, and (4) e-mail reminders sent several days into data collection. Following the experience sampling timeframe, participants returned to the laboratory for an in-person debriefing. Complete details of our procedure can be found in Kashdan et al. (2013).

Measures

Diagnostic Interview

Doctoral-level clinical psychology students administered the *Structured Clinical Interview for DSM-IV Axis I Disorders* (SCID-I/NP; First, Spitzer, Gibbon, and Williams 2002) to assess for SAD, mood disorders, and other Axis I diagnoses. Interviewers were supervised by a clinical psychologist. Moreover, interviews were videotaped, and 45 were randomly selected to be evaluated by a second coder. Inter-rater agreement was good (Kappa = .87). The SCID has also demonstrated good interrater and test–retest agreement in other research (Zanarini et al. 2000). To ensure confidence in our SAD diagnoses and determine SAD subtype, we also administered the SAD module of the

Anxiety Disorders Interview Schedule for DSM–IV: Lifetime Version (Di Nardo et al. 1994).

Trait Emotion Regulation

To assess habitual emotion regulation strategy use, we asked participants to complete Gross and John's (2003) 10-item *Emotion Regulation Questionnaire* (ERQ). This measure provides two subscales that describe participants' tendencies to use emotion suppression and cognitive reappraisal with positive and negative emotions. Participants used a 4-item scale from 1 (*strongly disagree*) to 7 (*strongly agree*) to items like, "To feel more positive emotion, I change how I think about a situation" (Positive Reappraisal; $\alpha = .75$), "When feeling positive emotions, I'm careful not to express them" (Positive Suppression; $\alpha = .74$), "To feel less negative emotion, I change my thoughts" (Negative Reappraisal; $\alpha = .72$), and "When feeling negative emotions, I'm careful not to express them" (Negative Suppression; $\alpha = .78$). Reliability for our subscales was good (Cronbach $\alpha > .70$).

Trait Difficulties in Emotion Regulation

To examine individual differences in the perceived difficulty regulating emotions, participants completed a 36-item *Difficulties in Emotion Regulation Scale* (DERS; Gratz and Roemer 2004). The total score and subscales demonstrated adequate internal consistency and test–retest reliability in past research (Gratz and Roemer 2004). In our sample, the internal consistency was very good for the total DERS score ($\alpha = .95$) and subscales. Participants used a 5-item scale from 1 (*almost never*) to 5 (almost always) to items such as "When I'm upset, I feel out of control." Six subscales provided specific dimensions of difficulties: nonacceptance of emotional responses (Nonacceptance; $\alpha = .75$), Difficulties engaging in goal-directed behavior (Goals; $\alpha = .77$), Impulse control difficulties (Impulse; $\alpha = .95$), Lack of emotional awareness (Awareness; $\alpha = .85$), Limited access to emotion regulation strategies (Strategies), and lack of emotional clarity (Clarity; $\alpha = .91$). Scores are coded such that higher scores reflect more difficulty with emotion regulation.

Daily Emotion Experiences

At the end of each day, participants rated how much emotion words selected from the *Positive and Negative Affect Schedule—Expanded Form* (PANAS-X; Watson and Clark 1994) described their emotion experiences during that day. They rated six positive emotion items (e.g., joyful, enthusiastic) and six negative affect items (e.g., sad, angry) using a 5-point scale from 1 (*very slightly/not at all*) to 5 (*extremely*) to indicate "how well each adjective

described [their] mood *today*." Items reflected brief adjective sets used in prior daily diary research (e.g., Nezlek and Kuppens 2008) and sampled both activated and deactivated emotions in Barrett's (1998) circumplex model of emotions. We evaluated the reliability of the scales using three-level unconditional models with emotions nested within days, which were nested within participants. With this approach, the reliability of the Level 1 intercept is functionally similar to Cronbach's alpha (α), but adjusted for differences between days and between people (see Nezlek 2007). Reliability was very good for both positive ($\alpha = .89$) and negative ($\alpha = .81$) emotion items; thus, we created daily sum scores for each participant.

Daily Emotion Regulation

We also asked participants to describe the emotion regulation strategies they used over the course of each day with an adapted version of the ERQ where items were rephrased to refer to the day in question, consistent with prior research (e.g., Nezlek and Kuppens 2008). We chose two items (one positive and one negative) from both the reappraisal and suppression scales. Daily Positive Reappraisal was measured with the following item: "When I wanted to feel a more positive emotion (such as happiness or amusement), I changed what I was thinking about." To measure Daily Negative Reappraisal, participants responded to the question, "When I wanted to feel less negative emotion, I changed what I was thinking about." Daily Positive Suppression was measured with the following item: "When I was feeling positive emotions, I was careful not to express them." Daily Negative Suppression was assessed with the item: "When I felt negative emotions (such as sadness, nervousness, or anger), I was careful not to express them." All questions were answered using a 7-point scale from 1 (*not at all characteristic of me*) to 7 (*very characteristic of me*) scale and were prefaced with instructions to respond in terms of how participants felt on that day. Notably, within this framework, all measures represent down-regulation of emotion except Daily Positive Reappraisal, which represents up-regulation of positive emotions. One-item measures are common in daily diary research (e.g., Pond et al. 2012), where they have superiority in providing valid data over longer, time-consuming measures that are likely to over-burden participants and reduce compliance.

Results

Preliminary Analyses

Compliance in our sample was acceptable, with an average of 87.1 % of end-of-day entries ($n = 963$) completed

within the requested time window ($M = 12.1$ entries per participant, $SD = 3.67$). Based on previously published analyses (see Farmer and Kashdan 2013), compliance did not differ by diagnostic group, and the SAD group on average reported higher levels of negative emotions and lower levels of positive emotions over the two-week experience sampling period ($ds > 1.3$).

Hypothesis 1: Does SAD Predict Trait Differences in Emotion Regulation?

Consistent with our first hypothesis, we found the SAD group to report greater use of emotion suppression than the HCs, both overall ($d = 1.15$) and when further subdividing strategies into Trait Positive Suppression ($d = 0.77$) and Trait Negative Suppression ($d = 0.76$). The SAD group also reported using less cognitive reappraisal to change their emotional states ($d = 1.47$), including Trait Positive Reappraisal ($d = 0.91$) and Trait Negative Reappraisal ($d = 1.81$). With regard to perceived difficulties with emotion regulation, the SAD group reported more overall difficulty compared to HCs ($d = 2.43$), and had significantly higher scores on all subscales of the DERS (all $ds > 1$). See Table 1 for descriptive statistics and comparisons between groups. Notably, where scales violated normality assumptions, we also ran nonparametric Mann–Whitney U-Tests; all comparisons were statistically significant ($ps < .01$). In sum, the SAD group indeed reported more emotion suppression, less cognitive reappraisal, and more difficulty with emotion regulation.

Hypothesis 2: Does SAD Predict Daily Use of Emotion Regulation Strategies?

Analytical approach

Since our end-of-day data was inherently nested (days within people), we opted to use hierarchical linear modeling (HLM; Raudenbush and Bryk 2002) to test this hypothesis. This approach is particularly appropriate for experience sampling research with missing data (13 % in our study), where data are missing at random (Fitzmaurice et al. 2004)—which was the case in our dataset. We built separate Level 1 and Level 2 equations using HLM 6.08 software (Raudenbush et al. 2004). At Level 1, we specified daily measures to examine fluctuation over time centered on each participant's mean over the data collection (see Nezlek 2007 for rationale). At Level 2, we specified individual differences in Level 1 parameters as a function of diagnostic status (contrast coded -1 for HC and 1 for SAD). Following Raudenbush and Bryk (2002), we used full maximum likelihood estimation with robust standard

errors so that parameters would be based on all available data.

Descriptive Statistics

Prior to testing our hypotheses, we examined the proportion of variance explained by between-persons factors in our daily variables using unconditional models. Because each of the daily variables demonstrated considerable within-persons and between-persons variability, we retained random effects in HLM analyses and used changes in within- and between-person variance explained over the hull models as approximations of an effect size similar to the R^2 statistic in multiple linear regression (Snijders and Bosker 1994).

Test of Hypothesis

To examine group differences in daily use of emotion regulation strategies, we created models with each daily emotion regulation strategy predicted by diagnostic group at Level 2 (with no Level 1 predictors). Consistent with expectations, SAD diagnosis predicted greater use of Daily Positive Suppression ($\beta = 0.64$, $SE = 0.13$, $t = 5.08$, $p < .001$) and Daily Negative Suppression ($\beta = 0.64$, $SE = 0.15$, $t = 4.38$, $p < .001$). Whereas SAD did predict less use of Daily Positive Reappraisal ($\beta = -0.28$, $SE = 0.12$, $t = -2.30$, $p = .024$), diagnosis was not a significant predictor of Daily Negative Reappraisal ($\beta = -0.10, SE = 0.12, t = -0.87, p = .39$). These results suggest that similar to global self-reports, participants with SAD were more likely to suppress their positive and negative emotions in daily life compared to HCs. However, while they were less likely to reappraise situations to feel more positively than HCs, they reported similar use of reappraising situations to feel less negatively about them in daily life.

Hypothesis 3: Does SAD Predict How Daily Emotion Regulation Strategies Relate to Same-Day Emotion Experiences?

To examine within-day relationships between emotion regulation strategies and emotion experiences, we built multilevel models where the four emotion regulation strategies were within-day predictors at Level 1, and diagnostic group was a person-level predictor at Level 2. Separate models were run with positive emotions and negative emotions as outcomes. We found across all participants, positive emotions were greatest when they used less Daily Positive Suppression ($\beta = -0.36$, $SE = 0.10$, $t = -3.52$, $p = .001$), more Daily Negative Suppression ($\beta = 0.22$, $SE = 0.10$, $t = 2.25$, $p = .027$), and more Daily Positive Reappraisal ($\beta = 0.26$, $SE = 0.12$,

Table 1 Descriptive statistics and between group differences for emotion regulation measures

Trait measure	HC group (n = 39)	SAD group (n = 40)	Group differences		
			d	t	p
Trait ERQ suppression	10.92 (0.84)	16.70 (0.77)	1.15	−5.05	<.001
Positive suppression	1.92 (0.25)	3.13 (0.26)	0.77	−3.37	.001
Negative suppression	3.00 (0.26)	4.15 (0.26)	0.76	−3.32	.003
Trait ERQ reappraisal	34.08 (0.62)	26.33 (1.03)	1.47	6.43	<.001
Positive reappraisal	5.64 (0.10)	4.59 (0.22)	0.91	4.00	<.001
Negative reappraisal	5.83 (0.10)	4.27 (0.17)	1.81	7.95	<.001
Trait DERS	53.28 (1.48)	90.63 (3.14)	2.43	−10.66	<.001
Nonacceptance	9.23 (0.60)	14.65 (1.00)	1.06	−4.66	<.001
Goals	10.53 (0.55)	18.15 (0.82)	1.76	−7.73	<.001
Impulse	7.74 (0.36)	12.78 (0.81)	1.30	−5.70	<.001
Awareness	9.21 (0.40)	13.80 (0.62)	1.43	−6.27	<.001
Strategies	10.59 (0.39)	21.30 (1.21)	1.92	−8.43	<.001
Clarity	5.97 (0.21)	9.95 (0.57)	1.50	−6.59	<.001
Daily measure	**HC group**	**SAD group**	**β**	**t**	**p**
Daily ERQ					
Positive suppression	2.59 (0.26)	3.78 (0.27)	0.64	5.08	<.001
Negative suppression	3.07 (0.29)	4.33 (0.27)	0.64	4.38	<.001
Positive reappraisal	4.56 (0.24)	3.96 (0.25)	−0.28	−2.30	.024
Negative reappraisal	4.40 (0.25)	4.13 (0.26)	−0.10	−0.87	.389

Tabulated data depict group means for self-report measures and estimated group means derived from multilevel models for experience sampling data (with standard errors in parentheses). When variances were unequal between groups based on Levene's test, pooled variance estimates were used in the evaluation of group differences. *HC* healthy control, *SAD* social anxiety disorder, *d* Cohen's *d*, *ERQ* Emotion Regulation Questionnaire; *DERS* Difficulties in Emotion Regulation Scale

$t = 2.22$, $p = .029$). However, we found a significant Diagnosis × Daily Negative Reappraisal cross-level interaction effect ($β = 0.31$, $SE = 0.09$, $t = 3.65$, $p = .001$). Simple slopes analysis revealed that participants with SAD experienced significantly more positive emotions on days they used the emotion regulations strategy of reappraising situations to feel less negatively ($b = .81$, $p < .001$) compared to the HC group ($b = .25$, $p = .013$).

With regard to negative emotions, we found no cross-level interactions. However, across all participants, negative emotions were greatest when they used more daily Positive Suppression ($β = 0.29$, $SE = 0.10$, $t = 2.94$, $p = .005$), less daily Negative Suppression ($β = −0.30$, $SE = 0.10$, $t = 3.12$, $p = .003$), and less daily Positive Reappraisal ($β = −0.37$, $SE = 0.12$, $t = −3.19$, $p = .002$).

Hypothesis 4: Does SAD Predict the Similarity Between Trait Emotion Regulation and Daily Emotion Regulation Use?

To examine the relationship between trait reporting of emotion regulation and daily reporting of emotion regulation use, we built multilevel models where each of the four trait-level emotion regulation strategies, diagnostic group,

and their interaction were examined as Level 2 predictors of average daily emotion regulation use. Each trait-level emotion regulation report significantly predicted average daily reports of that same emotion regulation strategy, with trait Positive Suppression predicting daily Positive Suppression ($β = 0.29$, $SE = 0.14$, $t = −2.04$, $p = .044$), trait Negative Suppression predicting daily Negative Suppression ($β = 0.54$, $SE = 0.16$, $t = 3.31$, $p = .002$), trait Positive Reappraisal predicting daily Positive Reappraisal ($β = 0.32$, $SE = 0.14$, $t = 2.25$, $p = .027$), and trait Negative Reappraisal predicting daily Negative Reappraisal ($β = 0.45$, $SE = 0.22$, $t = 2.00$, $p = .048$). Interestingly, diagnostic status did not moderate the relationship between the reporting of emotion regulation strategies on the trait level and average daily use of emotion regulation ($ps > .37$). These results indicate that individuals with and without SAD are equally adept at reporting their overall emotion regulation use.

Together these results indicate that while individuals with and without SAD are good reporters of their emotion regulation, measuring the use of these strategies on a daily level illustrates a day-by-day relationship between emotion regulation and affect that cannot be explained by overall emotion regulation tendencies.

Discussion

The goal of this study was to examine if and how individuals with SAD differ from healthy adults in terms of trait perceptions of emotion regulation, daily use of emotion regulation strategies, and the effects of these strategies on daily emotions. The results served to strengthen the transdiagnostic status of emotion regulation difficulties, as individuals with SAD generally relied on less healthy emotion regulation strategies, much like individuals suffering from a range of other disorders. Supporting previous findings (e.g., Werner et al. 2011), individuals with SAD reported more overall trait suppression of positive and negative emotions, as well as less reappraisal of these emotions. Extending previous research, individuals with SAD exhibited the same patterns of increased emotional suppression and decreased emotional reappraisal in their daily lives when compared to healthy adults. Interestingly, individuals with SAD appear just as adept at reporting their average emotion regulation use on a trait questionnaire as healthy adults. Nevertheless, these measurement approaches are not equivalent in their predictive value. Daily emotion regulation use generally predicted daily positive and negative emotions better than trait emotion regulation. Reappraisal, in particular, may be more beneficial for increasing positive emotions in individuals with SAD than their healthy counterparts. These findings are discussed in turn.

Trait Versus State Emotion Regulation

An important aspect of the current research was to explore the relationship between one-time retrospective reports of overall emotion regulation (dispositional traits) to daily, contextualized reporting of emotion regulation use. Much work has demonstrated that self-reports of emotions are influenced by the accessibility of these episodic and contextualized experiences, and that there are predictable differences between emotions (reported in the moment) and beliefs about emotions (decontextualized, semantic reporting of emotions) (see Robinson and Clore 2002). We sought to examine these differences in reporting of a transdiagnostic factor within a specific diagnosis.

Indeed, trait emotion regulation reporting was a good predictor of average daily emotion regulation, and individuals with SAD exhibited the same deficits whether reporting generally, or within the context of their daily lives. The single exception was that individuals with SAD used negative reappraisal to a similar degree as the healthy controls, but reported less negative reappraisal on the trait measure. This might be construed as a bias in self-identity, with individuals with SAD devoting more attention to

external threats, distressing emotions and thoughts, problematic behavior, and undesirable social interactions, which in turn, can produce an overreporting of character flaws and an underreporting of desirable characteristics (e.g., Moscovitch 2009). If someone is skewed in defining their identity, that can be expected to have downstream effects on goal setting, initiation, motivation, monitoring, effort, and progress (see Kashdan and McKnight 2013). Greater consideration needs to be given to the construction and revisions of identity in SAD, and how the sense of self and life narratives can be modified to be more accurate and healthy via intervention.

Although comparing trait emotion regulation to daily emotion regulation use is insightful, emotion regulation strategies are important only to the extent that they successfully serve their purpose of creating change. In terms of psychological health, this typically means increases in positive emotions and decreases in negative emotions (cf. Aldao 2013; Kashdan et al. in press). To this extent, measuring emotion regulation on a daily level provides added value to predicting the emotional states of individuals, both with and without SAD. While overall traits typically cannot predict behaviors beyond a correlation of .3 (Mischel 1968), observing daily fluctuations in emotion regulation provides a much better prediction of any given emotional state. Moreover, the benefits of daily emotion regulation measurement over trait measurement are relatively constant across individuals with and without SAD. Despite the similarities though, there are unique aspects of the emotion regulation process in SAD that may provide insightful inroads into their emotional condition and treatment.

Emotion Regulation Effects on Daily Emotions in SAD

Individuals with SAD report emotion regulation difficulties at both trait and daily levels, providing a particular area where emotion dysregulation arises (Gross and Jazaieri 2014). Indeed previous research with this population has already demonstrated that individuals with SAD have fewer positive emotions and more negative emotions (Farmer and Kashdan 2012; Kashdan et al. 2013). However, when emotion regulation use in individuals with SAD fails to correspond with trait reporting of emotion regulation—namely negative reappraisal—this discrepancy shows a stronger association with daily positive emotions, beyond what this discrepancy predicts in healthy individuals. Thus, the singular instance in which individuals with SAD are inaccurate about their emotion regulation abilities is the instance in which they exhibit the greatest benefits. These benefits arise in the form of positive emotions, which

have been shown to be characteristically lacking in individuals with SAD (Kashdan et al. 2011).

So why might individuals with SAD experience more positive emotions when reappraising negative cognitions? Given their trait reporting of negative reappraisal deficits, it may be that they are pleasantly surprised on a daily basis to find they are able to successfully cope with negative thoughts or events using negative reappraisal. Their blindspot toward an ability to cope with adversity leads to momentary benefits that do not extend to their sense of identity.

More generally, this research study might be capturing the particular affective forecasting errors of individuals with SAD. The ability to imagine how they will handle stressful events in the future is error-prone, resulting in an overestimation of how negative events will be handled, and underestimation of the pleasures of successful coping (Wilson and Gilbert 2003). Such affective forecasts can be expected to fuel pessimism and avoidance of future stressors (Machell et al. 2016). Contrary to the belief of many individuals with SAD, grappling with stressors are often the source of desirable outcomes including, (1) discovering hidden abilities and strengths, and feeling greater confidence to face new challenges, (2) a greater appreciation of life, and (3) an alteration in priorities and philosophies concerning how life should be lived (e.g., Joseph and Linley 2005). This framework suggests one of the paths that account for the positivity deficits of individuals with SAD—their biases toward distress and stressful events—prevents opportunities for positive emotions and personal growth.

Limitations and Future Directions

Although our combination of dispositional and contextual data collection processes had many benefits, there are limitations worthy of consideration. First, because emotion regulation use and positive and negative emotions were self-reported and subjective, we have little idea as to how the severity of daily events, or perception of their severity factored into emotion generation and regulation. Individuals with SAD may have experienced qualitatively more or less stressful events in their daily lives, leading to the patterns of emotion regulation and positive and negative emotions observed. Future research would benefit from experimental designs using more standardized stressful events to observe emotion regulation strategy use and efficacy in individuals with and without SAD on a more common metric. In addition, our findings are limited to descriptive associations of emotion regulation use and positive and negative emotions in individuals with and without SAD. Now that these associations have been demonstrated, future research should delve into

mechanisms for the differences observed. Most notably, future research should investigate why negative reappraisal in SAD is both underreported on the dispositional level *and* especially beneficial for positive emotions.

Our findings support an expanding conceptualization of how negative emotion biases and positive emotion deficits are maintained in SAD. Interventions targeted specifically at increasing positive emotions in SAD may benefit from considerations of how to improve emotion regulation deficits, as well as how to improve socially anxious individuals' recognition of emotion regulation strengths they may not be attending to. Moreover, broader research on how these daily emotion regulation difficulties in SAD are related to daily emotion regulation difficulties in other disorders will help expand the transdiagnostic nature of emotion regulation.

Compliance with Ethical Standards

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