

Research Article

Expanding the Topography of Social Anxiety

An Experience-Sampling Assessment of Positive Emotions, Positive Events, and Emotion Suppression

Todd B. Kashdan¹ and Michael F. Steger²

¹George Mason University and ²University of Minnesota

ABSTRACT—*The relation between social anxiety and hedonic activity remains poorly understood. From a self-regulatory perspective, we hypothesized that socially anxious individuals experience diminished positive experiences and events on days when they are unable to manage socially anxious feelings adequately. In this 21-day experience-sampling study, we constructed daily measures of social anxiety and emotion regulation. Greater dispositional social anxiety was associated with less positive affect and fewer positive events in everyday life. Among individuals defined as socially anxious from their scores on a global self-report measure of social anxiety, the number of positive events was lowest on days when they both were more socially anxious and tended to suppress emotions and highest on days when they were less socially anxious and more accepting of emotional experiences. Irrespective of dispositional social anxiety, participants reported the most intense positive emotions on the days when they were both least socially anxious and most accepting of emotional experiences. Possible clinical implications are discussed.*

For decades, the study of individuals with excessive social anxiety has advanced by examining their negative experiences and events. Cataloguing the nature, concomitants, and causes of significant distress and impairment was essential to the development of appropriate conceptual models and interventions. However, we believe there is something to be gained by shifting focus to the elements of living a pleasurable and meaningful life that are typically disrupted by social anxiety. Positive emotions

have been posited to have the short-term effects of facilitating exploration, play, and restoration, and the long-term effects of building personal and interpersonal resources (e.g., Fredrickson, 1998). Recent work has found that in contrast to other anxiety conditions, excessive social anxiety is associated with diminished positive subjective experiences (T.A. Brown, Chorpita, & Barlow, 1998; Kashdan, 2002, 2004; Kashdan, Julian, Merritt, & Uswatte, in press; Kashdan & Roberts, 2004). Nonetheless, this relationship remains poorly understood, and no theoretical framework has been advanced.

We adopted and modified a self-regulatory model of psychopathology (Widiger & Trull, 1991) to provide a framework for why social anxiety might be associated with diminished positive experiences and events. In the case of excessive social anxiety, this model highlights the central importance of the individual's inability to adequately monitor, control, regulate, or resolve fears of being negatively evaluated or rejected. Socially anxious individuals view themselves as undesirable to others and believe their own actions will lead to embarrassment and rejection (e.g., laughing when no one else finds something humorous). The difference between socially anxious and nonanxious individuals may lie not only in the frequency and intensity of social fear and avoidance, but also in the differential ability to adequately manage anxiety in response to perceived social threat or rebound from distress back to neutral or hedonic modalities.

One strategy to prevent rejection is to conceal any output related to the self (e.g., words, ideas, emotions) that might lead to rejection and a reduction in social status. To avoid evoking negative reactions from other people, socially anxious individuals engage in safety behaviors such as talking very little or not laughing until others do so first (Wells, 1997). Socially anxious individuals may suppress their emotional responding, providing less self-relevant material to be observed or rejected by others. Unfortunately, this strategy leads to an exacerbation of the exact

Address correspondence to Todd B. Kashdan, Department of Psychology, MS 3F5, George Mason University, Fairfax, VA 22030, e-mail: tkashdan@gmu.edu.

responses they are trying to conceal (e.g., increased physiological arousal when trying to prevent hands from shaking during a job interview; Gross, 1998). Paradoxically, socially anxious individuals who try to regulate their feelings of social anxiety by suppression are likely to experience greater distress.

For socially anxious individuals, the natural inclination to seek positive experiences and avoid pain is diverted such that the fundamental goal is to evade social failure. Chronic, inflexible tendencies to prevent and prepare for social threat can deplete individuals' finite personal resources for coping and thriving (Muraven & Baumeister, 2000). When one is consistently being defensive to avoid threat and harm, it is difficult to engage in exploratory, reward-seeking behavior and reap psychosocial benefits (e.g., joining games being played by strangers; Gilbert, 2001).

THE CURRENT STUDY

In the present 21-day experience-sampling study, we examined the influence of social anxiety and struggles with the self-regulation of emotion during everyday life to understand whether, when, and why socially anxious individuals experience diminished hedonic activity (i.e., positive experiences and events). To test our predictions, we constructed and validated measures of moment-to-moment social anxiety symptoms and emotion-regulation strategies (state measures). We expected greater trait social anxiety to be associated with both less intense positive emotions and a lower rate of positive events. More important, on the basis of our self-regulatory model, we hypothesized a three-way Trait Social Anxiety \times Daily Social Anxiety \times Daily Emotion Suppression interaction for both daily positive emotions and daily positive events. Specifically, we predicted that socially anxious individuals would experience the most diminished positive emotions and positive events on days when they experienced the most social anxiety and suppressed their emotions the most.

We used more sophisticated methodologies to extend prior work on social anxiety and positive experiences. The large majority of studies have narrowly focused on subjective experiences such as trait self-report measures of positive emotions (e.g., T.A. Brown et al., 1998; Watson, Clark, & Carey, 1988). Although the current study used a trait measure of social anxiety, this methodology was supplemented by participants' daily reporting of social anxiety and positive emotions and events for a 3-week monitoring period. Socially anxious individuals tend to have unfavorable self-appraisals and discount positive experiences (e.g., Alden & Wallace, 1995). Behavioral reports on the presence of positive events, because they are more objective, are less likely to be affected by memory, response style, or halo effect biases that could account for the pattern of relations observed in prior studies. Additional advancements can derive from using experience-sampling methodologies to evaluate

emotions and events in the real-world contexts in which people live.

METHOD

Participants and Procedure

A total of 111 introductory psychology students participated. Daily reports were returned by 106 participants. Three participants appeared to report invalid response patterns, and 6 failed to complete primary measures, leaving a final sample of 97 participants (33 male, 64 female; mean age of 19.75 years, $SD = 3.20$).

Participants completed an initial questionnaire packet containing several dispositional measures. They also were given a packet containing 21 daily-report forms and instructed to complete 1 form at the end of each day, or within 1 hr of waking the next morning, over the next 3 weeks. It was emphasized that completing reports any later than this would jeopardize the study and provide misleading data. Instructions were repeated in class and e-mails.

Global Self-Report Measures

Trait Social Anxiety

To assess general tendencies to be fearful of social situations and avoid them, we asked participants to use a 5-point scale (0 = *not at all*, 4 = *extremely*) to complete the 19-item Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998; $\alpha = .89$). The SIAS has excellent psychometric properties, including discriminant ability in categorizing individuals with social anxiety disorder (e.g., E.J. Brown et al., 1997).

Trait Emotion Regulation

The 10-item Emotion Regulation Questionnaire (Gross & John, 2003) assesses individual differences in two emotion-regulation strategies: emotion suppression and cognitive reappraisal. Participants responded to the 4-item emotion-suppression and 6-item cognitive-reappraisal subscales using 7-point scales (1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = .79$ and $.80$, respectively).

Trait Positive and Negative Affect

Using a 5-point rating scale (1 = *very slightly*, 5 = *extremely*), participants completed the 20-item trait Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), which comprises 10-item scales for activated positive affect and activated negative affect ($\alpha = .86$ and $.88$, respectively). To assess current depressive symptoms, we asked participants to use a 4-point scale (1 = *rarely or none of the time*, 4 = *most or all of the time*) to complete the 20-item Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977; $\alpha = .89$).

Measures of Daily Positive Affect and Activity

Participants completed items relating to social anxiety, emotion regulation, positive affect, and positive events contained within the daily reports. We used hierarchical linear modeling (HLM) 6.0 (Raudenbush, Bryk, Cheong, & Congdon, 2004), a multi-level random coefficient modeling software program, for our analyses. This program provides appropriate reliability estimates for measures used in experience-sampling designs. In the Results section, we provide reliability and factor-analytic data on the experience-sampling scales constructed in the current study (i.e., social anxiety, emotion regulation).

Daily Social Anxiety

A seven-item measure, using a 5-point scale, was used to assess social anxiety during the day (see Table 1). The items were derived and modified from other scales: (a) the five items with the highest loadings from the Fear of Negative Evaluation Scale (Rodebaugh et al., 2004) and (b) two items agreed upon by the International Consensus Group on Depression and Anxiety

TABLE 1
Items on the State Social Anxiety and State Emotion-Regulation Questionnaires

State Social Anxiety ^a
1. I worried about what other people thought of me.
2. I was afraid other people noticed my shortcomings.
3. I was afraid that others did not approve of me.
4. I was worried that I would say or do the wrong things.
5. When I was talking to someone, I was worried about what they were thinking of me.
6. I felt uncomfortable and embarrassed when I was the center of attention.
7. I found it hard to interact with people.
State Emotion Regulation ^b
1. When I wanted to feel more positive emotion (such as joy or amusement), I changed what I was thinking about.
2. I kept my emotions to myself.
3. When I wanted to feel less negative emotion (such as sadness or guilt), I changed what I was thinking about.
4. When I was feeling positive emotions, I was careful not to express them.
5. I controlled my emotions by not expressing them.
6. I controlled my emotions by changing the way I thought about the situation I was in.
7. When I was feeling negative emotions, I made sure not to express them.
8. When I wanted to feel less negative emotion, I changed the way I was thinking about the situation.

^aItems were rated using a 5-point Likert format (1 = *very slightly/not at all*, 2 = *a little*, 3 = *moderately*, 4 = *very much*, 5 = *extremely*).

^bItems were rated using a 7-point Likert format (1 = *strongly disagree*, 7 = *strongly agree*) with the following directions: “We would like to ask you some questions about how you control (that is, regulate and manage) your emotions. Read each of the following statements carefully and indicate to what extent you engaged in the following behaviors today.” Cognitive reappraisal was measured by Items 1, 3, 6, and 8. Emotion suppression was measured by Items 2, 4, 5, and 7.

(Ballenger et al., 1998). HLM analyses indicated acceptable reliability (.91).

A principal-components analysis (PCA) with varimax rotation was conducted on these items. One factor had an eigenvalue greater than 1 (4.57, 65.30% of the variance), and an examination of the scree plot supported a one-factor solution.

Daily Emotion Regulation

From the Emotion Regulation Questionnaire (Gross & John, 2003), we selected 8 of the 10 items with the highest factor loadings and modified them to assess strategic attempts to modify mood during the day (see Table 1). We measured two strategies: emotion suppression and cognitive reappraisal (4 items for each, rated on 7-point scales). HLM analyses indicated acceptable reliability for the suppression (.97) and reappraisal (.97) scales.

A principal-components analysis with varimax rotation was conducted on these items. Examination of the scree plot and eigenvalues indicated that the four cognitive-reappraisal items loaded on the first factor (eigenvalue = 3.17, 39.67% of the variance; loadings ≥ .80; cross-loadings ≤ .10), and the four emotion-suppression items loaded on the second factor (eigenvalue = 2.24, 28.04% of the variance; loadings ≥ .74; cross-loadings ≤ .22).

Daily Positive and Negative Affect

Daily positive affect was measured using five items from the PANAS (relaxed, proud, excited, appreciative, and enthusiastic) and four items frequently used in on-line studies (happy, satisfied, curious, and grateful). For each adjective, respondents reported the degree to which it reflected the way they felt during the day. Negative affect was measured by five items (sluggish, afraid, sad, anxious, and angry). The items reflected core components of affective experience (e.g., Barrett & Russell, 1998) and brief adjective sets used in similar studies (e.g., Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Participants responded using 5-point rating scales (1 = *very slightly/not at all*, 5 = *extremely*). HLM analyses indicated acceptable reliability for both measures (daily positive affect: .95; daily negative affect: .93).

Daily Positive Activities

Positive daily activities were measured with 18 of the 20 positive events on the Daily Events Survey (Butler, Hokanson, & Flynn, 1994). These events reflect a broad span of meaningful life domains (e.g., social activity, achievement, health, fitness). Items from this scale have been used frequently in experience-sampling studies (e.g., Nezlek, 2002). The events included “Went out socializing with friends/date (e.g., party, dance clubs)” and “Met a daily fitness goal.” Each day, participants indicated whether or not each event occurred. Our measure was the total number of positive events each day. HLM analyses indicated acceptable reliability for this measure (.95).

TABLE 2
Correlations Among Measures of Trait Social Anxiety, Emotion Regulation, and Affect

Measure	Social anxiety	Emotion suppression	Cognitive reappraisal	PA-activated	NA-activated	Depressive symptoms	Mean	SD
Social anxiety	—	.41*** (.991)	.02 (.222)	-.47*** (.994)	.48*** (.991)	.43*** (.991)	20.46	10.30
Emotion suppression		—	-.02 (.219)	-.31** (.979)	.18 (.850)	.35** (.986)	13.93	4.47
Cognitive reappraisal			—	.15 (.773)	-.17 (.815)	-.09 (.573)	29.38	5.47
PA-activated				—	-.27** (.953)	-.39*** (.991)	36.09	6.48
NA-activated					—	.64*** (.997)	19.26	6.89
Depressive symptoms						—	15.81	10.03

Note. $n = 97$. The numbers in parentheses are p_{rep} values. PA = positive affect; NA = negative affect. ** $p < .01$. *** $p < .001$. All p values are two-tailed.

RESULTS

Descriptive Statistics

Table 2 presents descriptive statistics and correlations for the between-person, Level 2 trait variables. Mean scores for the daily measures were as follows: 11.78 ($SD = 5.55$) for daily social anxiety, 12.63 ($SD = 5.44$) for daily emotion suppression, 15.72 ($SD = 5.07$) for daily cognitive reappraisal, 24.74 ($SD = 7.98$) for daily positive affect, and 3.90 ($SD = 2.69$) for daily positive events.

Construct Validity for the Daily Measures

For all analyses, we transformed t values into correlation coefficients to convey the strength of relationships. The validity for daily measures was examined by calculating the between-person variance in daily outcomes accounted for by the relevant trait scales (Bryk & Raudenbush, 1992, p. 65). This procedure leads to a corresponding correlation coefficient.

The corresponding correlation between daily and trait social anxiety was .56, indicative of strong convergent validity. As for specificity, in an analysis controlling for depressive symptoms, trait social anxiety contributed incremental variance to daily social anxiety, $b = 1.66$, $t(94) = 4.51$, $p < .001$, $p_{rep} = .986$,¹ effect size (ES) $r = .42$. In a second analysis, controlling for trait-activated negative affect, trait social anxiety also contributed incremental variance to daily social anxiety, $b = 1.80$, $t(94) = 4.56$, $p < .001$, $p_{rep} = .986$, ES $r = .43$. In both models, the effects of trait social anxiety were greater than the effects of other predictors. Thus, our measure of daily social anxiety shows acceptable reliability and validity.

The corresponding correlation between daily and trait emotion suppression was .51, indicative of strong convergent validity. As for discriminant validity, trait cognitive reappraisal and daily emotion suppression were uncorrelated. The corre-

sponding correlation between daily and trait cognitive reappraisal was equivalent to .45, indicative of strong convergent validity. Trait emotion suppression and daily cognitive reappraisal were uncorrelated. The results suggest that our scales for daily emotion regulation show acceptable reliability and validity.

Using separate models, we examined the validity of the daily positive- and negative-affect scales. We examined the corresponding correlation between the daily affect scales and trait PANAS subscales. First, a positive relation was found between daily and trait positive affect, $b = 0.43$, $SE = 0.09$, $t(94) = 4.97$, $p < .001$, $p_{rep} = .986$, whereas trait negative affect was unrelated to daily positive affect ($p = .52$, $p_{rep} = .486$). Second, a positive relation was found between daily and trait negative affect, $b = 0.20$, $SE = 0.03$, $t(94) = 6.24$, $p < .001$, $p_{rep} = .986$, whereas trait positive affect was unrelated to daily negative affect ($p = .20$, $p_{rep} = .724$). These data provide evidence for the validity of our measures of daily affect.

Overview of Analytic Techniques

We evaluated the covariation between social anxiety and positive emotions and events using an HLM approach. The data were hierarchically arranged two-level models with 1,956 daily assessments nested within 97 persons. Coefficients representing day-level variables were estimated for each person (within person at Level 1), and then individual differences in these coefficients were estimated (between person at Level 2). The Level 1 data set included daily positive emotions and events, social anxiety, and emotion suppression. The Level 2 data set included trait social anxiety, activated negative affect, and depressive symptoms. Level 1 variables were group-mean centered, and Level 2 variables were converted into z scores prior to analyses (thus, there was no need for centering). All models had a random intercept, and slopes were treated as random effects.

Our dependent outcomes were daily positive emotions, positive events, and emotion suppression. We tested separate models to examine bivariate relations with trait social anxiety and tested specificity by controlling for trait activated negative affect and

¹Killeen (2005) introduced p_{rep} as an alternative to null-hypothesis significance testing. It represents the probability of replicating a given finding. Values of p_{rep} were calculated using a p -to- p_{rep} conversion spreadsheet, as suggested by Killeen.

trait depressive symptoms. Finally, we tested the ability of the hypothesized cross-level interactions among trait social anxiety, daily social anxiety, and daily emotion suppression to predict daily positive emotions and events. We tested models using the HLM 6.0 program (Raudenbush et al., 2004). When terms are treated as random effects, HLM 6.0 bases the degrees of freedom on the total sample of participants.

Relations Between Trait Social Anxiety and Daily Positive Emotions, Daily Positive Events, and Daily Emotion Suppression

As shown in Table 3, trait social anxiety was inversely associated with daily positive emotions and daily positive events, and positively related with daily tendencies to suppress emotions ($ps < .05, p_{rep} > .878$). We also examined whether the effects of social anxiety were a function of shared variance with other negative affective states. In an analysis controlling for trait-activated negative affect, trait social anxiety retained inverse relations with daily positive emotions and daily positive events ($ps < .05, p_{rep} > .878$), and a positive relation with emotion suppression. In an analysis controlling for depressive symptoms, trait social anxiety retained an inverse relation with daily positive events, but relations with daily positive emotions and emotion suppression were reduced to nonsignificance. Thus, in these conservative tests, there was some evidence of specificity for social anxiety in predicting daily positive events, positive emotions, and emotion suppression.

Interaction Effects

We applied a hierarchical step-down approach to examine whether positive emotions and events were predicted by a Trait

Social Anxiety \times Daily Social Anxiety \times Daily Emotion Suppression interaction. This cross-level interaction was composed of two Level 1 predictors, daily social anxiety and emotion suppression, and one Level 2 predictor, trait social anxiety. For each outcome, we began by estimating models with the three-way interaction term (and relevant higher-order and lower-order terms). To obtain our final model, we deleted nonsignificant higher-order terms sequentially (by testing them independently) until significant terms remained.

Positive Emotions

The three-way interaction did not significantly predict daily positive emotions ($p = .45, p_{rep} = .535$) and was removed. Reestimating the trimmed model showed that the only higher-order interaction to significantly predict daily positive emotions was the Daily Social Anxiety \times Daily Emotion Suppression interaction, $b = 0.02, SE = .01, t(96) = 2.42, p = .02, p_{rep} = .927, ES r = .24$. To probe the structure of this interaction, we calculated and graphed the simple effects for each group, as shown in Figure 1a (Aiken & West, 1991). On days when participants experienced the greatest social anxiety and tendency to suppress emotions, they reported the least positive emotions. In contrast, on days when participants experienced the least social anxiety and tendency to suppress emotions, they reported the most positive emotions.

Positive Events

The Trait Social Anxiety \times Daily Social Anxiety \times Daily Emotion Suppression interaction was significant for daily positive events, $b = 0.004, SE = .002, t(95) = 2.48, p = .02, p_{rep} = .927, ES r = .25$. To probe the structure of this interaction, we conducted separate simple-slope analyses for individuals

TABLE 3
Summary of Hierarchical Linear Models Predicting Daily Outcomes (Positive Emotions, Positive Events, and Emotion Suppression)

Model predictor	Positive emotions				Positive events				Emotion suppression			
	<i>b</i>	<i>t</i> test	ES <i>r</i>	<i>p</i> _{rep}	<i>b</i>	<i>t</i> test	ES <i>r</i>	<i>p</i> _{rep}	<i>b</i>	<i>t</i> test	ES <i>r</i>	<i>p</i> _{rep}
Trait social anxiety												
Intercept	24.84	42.49***	—	.986	3.92	19.35***	—	.986	12.58	30.29***	—	.986
Social anxiety	-1.39	-2.36*	.24	.925	-0.58	-2.82**	.28	.962	1.35	3.21**	.31	.979
Trait social anxiety with trait-activated NA												
Intercept	24.84	42.53***	—	.986	3.92	19.42***	—	.986	12.59	31.00***	—	.986
Activated NA	-0.43	-0.68	.07	.500	-0.27	-1.24	.13	.707	0.76	1.66	.17	.818
Social anxiety	-1.19	-2.21*	.22	.908	-0.45	-2.08*	.21	.892	0.98	2.08*	.21	.892
Trait social anxiety with trait depressive symptoms												
Intercept	24.82	45.77***	—	.986	3.92	19.25***	—	.986	12.58	33.21***	—	.986
Depressive symptoms	-2.36	-3.89***	.37	.986	-0.04	-0.17	.02	.213	1.87	4.47***	.42	.986
Social anxiety	-0.35	-0.57	.06	.450	-0.56	-2.47*	.25	.935	0.54	1.28	.13	.724

Note. Effect size (ES) was computed using *t*-to-*r* transformation. NA = negative affect. Degrees of freedom were 95 for terms in the bivariate models and 94 for terms in the specificity tests.

* $p < .05$. ** $p < .01$. *** $p < .001$. All *p* values are two-tailed.

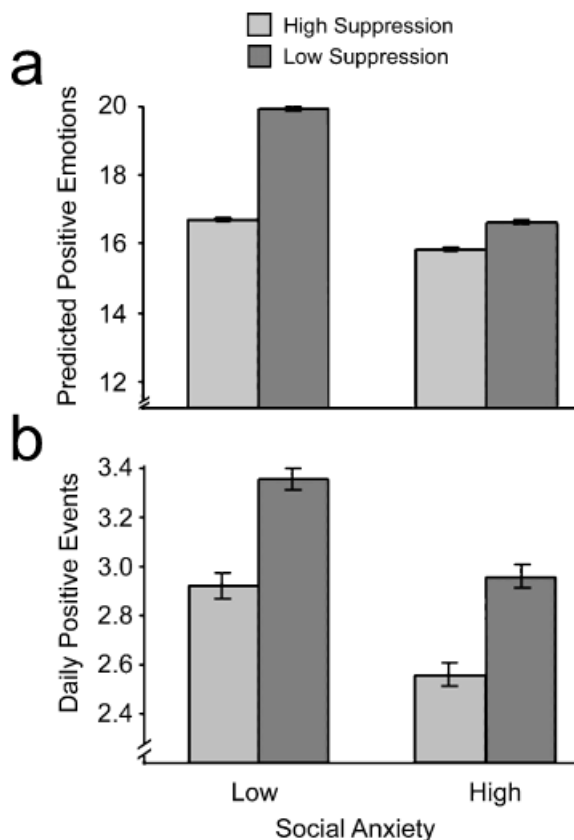


Fig. 1. Interaction of daily emotion suppression and daily social anxiety in predicting daily positive emotions in the sample overall (a) and number of daily positive events in individuals who scored at least 1 standard deviation above the mean on the Social Interaction Anxiety Scale (266 daily assessments nested within 13 persons; b). Scores 1 standard deviation above and below the mean were taken as the “high” and “low” values of the independent variables.

scoring high and low on trait social anxiety. The simple slope of the Daily Social Anxiety \times Daily Emotion Suppression interaction was significant for socially anxious individuals (those scoring at least 1 *SD* above the mean on the SIAS), $b = 0.01$, $SE = .005$, $t(12) = 2.81$, $p = .02$, $p_{rep} = .927$, $ES\ r = .63$, and nonsignificant for nonanxious individuals (those scoring at least 1 *SD* below the mean on the SIAS), $p > .90$, $p_{rep} < .182$ for each term). Decomposing the Daily Social Anxiety \times Daily Emotion Suppression interaction showed that when socially anxious individuals reported the greatest daily social anxiety and tendency to suppress emotions, they had the fewest daily positive events. In contrast, when socially anxious individuals reported the least daily social anxiety and tendency to suppress emotions, they had the most daily positive events. The simple effects for each group are shown in Figure 1b.

Finally, we sought to transform our findings into results that are ecologically meaningful. The individuals in the socially anxious group reported 39% fewer daily positive events than those in the non-socially anxious group. Furthermore, socially anxious individuals with greater daily social anxiety and emo-

tion suppression (at least 1 *SD* above the mean on both measures) reported 24% fewer daily positive events than socially anxious individuals with less daily social anxiety and emotion suppression (at least 1 *SD* below the mean on both measures). Thus, although socially anxious individuals reported fewer positive events than their less anxious peers, clearly, this was a heterogeneous group.

DISCUSSION

Within their natural social environments, socially anxious individuals reported fewer everyday positive emotions and positive events than did nonanxious individuals. In general, these associations were not accounted for by the conceptual overlap between social anxiety and other negative affective states. To advance understanding of when social anxiety leads to diminished hedonic activity, we proposed a self-regulatory model according to which overzealous attempts to conceal socially anxious feelings disrupt opportunities to recognize, pursue, and savor positive activity. Our data support this model in that socially anxious individuals reported fewer positive events on those days when they experienced greater social anxiety and tended to suppress emotions. In contrast, both socially anxious and nonanxious individuals reported less positive emotions on those days when they experienced greater social anxiety and suppressed emotions. These findings suggest that when socially anxious individuals engage in experiential avoidance in response to social anxiety, their pursuit of positive-appetitive behaviors and goals is disrupted. The pernicious impact of experiential avoidance in response to social anxiety held for positive emotions across all participants. These data fit with work suggesting that appetitive and avoidance systems are relatively independent systems that, in some cases, operate together (e.g., Carver, Sutton, & Scheier, 2000).

Our data also suggest a critical element in facilitating hedonic activity. Socially anxious individuals reported the highest rate of positive events on days when they both were not feeling socially anxious and were accepting of emotional experiences (as opposed to suppressing them). Similarly, both socially anxious and non-socially anxious individuals reported the most intense positive emotions on days when they both were not feeling socially anxious and were accepting of emotional experiences.

We propose that everyday attempts to suppress emotions in response to socially anxious feelings are a manifestation of chronic, inflexible tendencies to prevent and prepare for social threat in socially anxious individuals. The adaptive value of this prevention focus is that social rejection will be less imminent if the inner workings of the self are sequestered from public scrutiny. Socially anxious individuals may be ignored or neglected, but by not genuinely expressing themselves, they reduce the likelihood that they will make an egregious social error leading to outright rejection. In Gilbert's (2001) evolutionary model, social anxiety functions to warn people when social

failure can be costly and threatening to their social status, and loss of status increases the likelihood of being ostracized by others. In primitive eras, lack of a social group severely curtailed survival and reproduction. Although survival is less of a concern in modern life, without social belonging, people would be deficient in their ability to obtain sexual activity, affection, and caregiving from others, and the most pleasurable and meaningful moments in life are interpersonal in nature (Ryff & Singer, 2000).

People have limited emotional processing capacity and limited resources to control their behavior (Muraven & Baumeister, 2000). Thus, the cost of attempting to suppress emotions in response to socially anxious feelings (inflexible, prevention mode) would be a depletion of resources, disabling opportunities for hedonic activity. In addition, when preventing social rejection is the fundamental goal and strategies to reach this goal include social avoidance and emotion suppression, appetitive goals and activities and positive emotions can only be blunted in the process. The effectiveness and maladaptivity of self-regulation strategies appear to be integral in the refinement of definitions, theoretical models, and taxometric structures of personality and psychopathology (Widiger & Trull, 1991). We hope our work launches inquiry into more complex, integrative approaches to social anxiety.

Models of anxiety and depression have generally posited that only depression is related to deficits in positive emotions and events (Clark & Watson, 1991; R.J. Davidson, 1994). Our data extend a growing body of research identifying diminished frequency and intensity of positive emotions and events as a core feature of excessive social anxiety as well. Moreover, with an experience-sampling approach, we were able to begin delineating how and why social anxiety is related to diminished positive emotions and events.

Relative deficits in positive emotions and events can be expected to interfere with the experimentation, exploration, and persistence that lead to life enhancements such as learning, problem-solving skills, and the development of meaningful social relationships. Our findings suggest that current efficacious interventions for excessive social anxiety (Heimberg, 2002) may not be sufficient to enhance appetitive goals and activities and positive emotions. A potentially valuable alternative to trying to alter emotional content is to facilitate an accepting, nonjudgmental stance toward unwanted internal events (Hayes, Strosahl, & Wilson, 1999). That is, it is healthy to view internal events as transient, universal experiences that are distinct from the self as opposed to defining the self. As a supplement to traditional therapeutic processes (e.g., exposure), socially anxious clients can be trained to change their relations with previously avoided internal experiences, such that emotions, thoughts, images, and bodily sensations are accepted as nothing more or less than natural components of being human (and not something to fear or to struggle with). As rigid and inflexible attempts to manage and control these private events are re-

placed with greater acceptance and nonjudgment, clients can be trained to focus their energies on changing behavioral responses and making movement toward personally meaningful goals irrespective of the presence of anxiety (Eifert & Forsyth, 2005). Interventions for excessive social anxiety should examine positive emotions and events as a supplemental index of treatment efficacy. After all, the overarching goal of treatment is not to simply reduce social anxiety and avoidance, but to help people live more satisfying, engaging, and meaningful lives.

Although our use of an experience-sampling approach and behavioral reports of positive events is an improvement over prior studies of social anxiety and hedonic activity, there is reason to be cautious about causality until relevant variables are experimentally manipulated. Replications and extensions should incorporate technological refinements in experience-sampling methods that implement date- and time-stamping procedures (e.g., Web-based daily records, cellular phones with interactive voice response). Although the socially anxious individuals in our study engaged in less frequent stereotypically positive events than the non-socially anxious individuals, it remains to be seen whether they derive pleasure from more idiosyncratic activities that satisfy their low threshold for anxiety, threat, and novelty. Additional studies with more diverse idiographic measures of positive life events are needed. Also, we narrowly focused on one emotion-regulation strategy with theoretical relevance to social anxiety, and in future work, consideration should be given to other self-regulatory strategies (e.g., spiritual beliefs and actions, savoring).

Although findings should be replicated with clinical samples, prior data suggest that social anxiety is best understood as a dimensional construct (e.g., R.T. Davidson, Hughes, George, & Blazer, 1994; Rapee & Spence, 2004). In our college sample, a score 1 standard deviation above the mean on the SIAS (i.e., a score of 30.76) was within 0.025 standard deviations of the mean reported in a sample of 243 individuals meeting diagnostic criteria for social anxiety disorder (Mattick & Clarke, 1998). Self-report measures cannot adequately assess functional impairment, but our findings appear to have some generalizability to clinical populations.

It is important to extend the current study by examining the interactive effects of social anxiety and different emotion-regulation strategies on reactivity to positively valenced stimuli. Multiple stimuli and response domains need to be considered. These domains might include, for example, physiological arousal to sexually provocative stimuli, salivary responses to delicious cuisine, olfactory responses to fragrances, and behavioral responses to potentially enjoyable physical (e.g., sports) and mental (e.g., puzzles) challenges. Furthermore, understanding of social anxiety and hedonic activity can be enhanced by incorporating more biological assessments of appetitive and aversive responses, such as magnitude of startle response and neuroimaging of amygdala and prefrontal cortex activation.

To serve our primary goals, we constructed and validated experience-sampling measures of social anxiety and emotion regulation. With the recent influx of experience-sampling approaches, it remains important to continually apply psychometric standards in developing items and scales. The scales used in the current study show promise as reliable and valid measures. However, additional studies, along the lines we have just described, are needed.

Data continue to show that diminished positive emotions and events are hallmarks of social anxiety. Empirical examinations and intervention programs may benefit by broadening their territory to address the hedonic activity and emotion-regulation difficulties associated with social anxiety. Self-regulatory and evolutionary models of social anxiety can provide social-cognitive, emotion-regulation, and contextual variables to further inform how and when social anxiety interferes with hedonic activity.

Acknowledgments—We are grateful to James Maddux for his invaluable comments.

REFERENCES

- Aiken, L.S., & West, S.G. (1991). *Multiple regression: Testing and interpreting interactions*. London: Sage.
- Alden, L.E., & Wallace, S.T. (1995). Social phobia and social appraisal in successful and unsuccessful social interactions. *Behaviour Research and Therapy*, *33*, 497–505.
- Ballenger, J.C., Davidson, J.R., Lecrubier, Y., Nutt, D.J., Bobes, J., Beidel, D.C., Ono, Y., & Westenberg, H.G. (1998). Consensus statement on social anxiety disorder from the International Consensus Group on Depression and Anxiety. *Journal of Clinical Psychiatry*, *59*(Suppl. 17), 54–60.
- Barrett, L.F., & Russell, J.A. (1998). Independence and bipolarity in the structure of current affect. *Journal of Personality and Social Psychology*, *74*, 967–984.
- Brown, E.J., Turovsky, J., Heimberg, R.G., Juster, H.R., Brown, T.A., & Barlow, D.H. (1997). Validation of the Social Interaction Anxiety Scale and the Social Phobia Scale across the anxiety disorders. *Psychological Assessment*, *9*, 21–27.
- Brown, T.A., Chorpita, B.F., & Barlow, D.H. (1998). Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal. *Journal of Abnormal Psychology*, *107*, 179–192.
- Bryk, A.S., & Raudenbush, S.W. (1992). *Hierarchical linear models: Applications and data analysis methods*. Newbury Park, CA: Sage.
- Butler, A.C., Hokanson, J.E., & Flynn, H.A. (1994). A comparison of self-esteem lability and low trait self-esteem as vulnerability factors for depression. *Journal of Personality and Social Psychology*, *66*, 166–177.
- Carver, C.S., Sutton, S.K., & Scheier, M.F. (2000). Action, emotion, and personality: Emerging conceptual integration. *Personality and Social Psychology Bulletin*, *26*, 741–751.
- Clark, L.A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology*, *100*, 316–336.
- Davidson, R.J. (1994). Asymmetric brain function, affective style, and psychopathology: The role of early experience and plasticity. *Development and Psychopathology*, *6*, 741–758.
- Davidson, R.T., Hughes, D.C., George, L.K., & Blazer, D.G. (1994). The boundary of social phobia: Exploring the threshold. *Archives of General Psychiatry*, *51*, 975–983.
- Eifert, G.H., & Forsyth, J.P. (2005). *Acceptance and commitment therapy for anxiety disorders: A practitioner's treatment guide to using mindfulness, acceptance, and values-based behavior change strategies*. Oakland, CA: New Harbinger.
- Fredrickson, B.L. (1998). What good are positive emotions? *Review of General Psychology*, *2*, 300–319.
- Gilbert, P. (2001). Evolution and social anxiety: The role of attraction, social competition, and social hierarchies. *Psychiatric Clinics of North America*, *24*, 723–751.
- Gross, J.J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, *2*, 271–299.
- Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*, 348–362.
- Hayes, S.C., Strosahl, K., & Wilson, K.G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford Press.
- Heimberg, R.G. (2002). Cognitive-behavioral therapy for social anxiety disorder: Current status and future directions. *Biological Psychiatry*, *51*, 101–108.
- Kashdan, T.B. (2002). Social anxiety dimensions, neuroticism, and the contours of positive psychological functioning. *Cognitive Therapy and Research*, *26*, 789–810.
- Kashdan, T.B. (2004). The neglected relationship between social interaction anxiety and hedonic deficits: Differentiation from depressive symptoms. *Journal of Anxiety Disorders*, *18*, 719–730.
- Kashdan, T.B., Julian, T., Merritt, K., & Uswatte, G. (in press). Social anxiety and posttraumatic stress in combat veterans: Relations to well-being and character strengths. *Behaviour Research and Therapy*.
- Kashdan, T.B., & Roberts, J.E. (2004). Social anxiety's impact on affect, curiosity, and social self-efficacy during a high self-focus social threat situation. *Cognitive Therapy and Research*, *28*, 119–141.
- Killeen, P.R. (2005). An alternative to null-hypothesis significance tests. *Psychological Science*, *16*, 345–353.
- Mattick, R.P., & Clarke, J.C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy*, *36*, 455–470.
- Muraven, M., & Baumeister, R.F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, *126*, 247–259.
- Nezlek, J.B. (2002). Day-to-day relationships between self-awareness, daily events, and anxiety. *Journal of Personality*, *70*, 249–275.
- Radloff, L.S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*, 385–401.
- Rapee, R.M., & Spence, S.H. (2004). The etiology of social phobia: Empirical evidence and an initial model. *Clinical Psychology Review*, *24*, 737–767.
- Raudenbush, S., Bryk, A., Cheong, Y.F., & Congdon, R. (2004). *HLM 6: Hierarchical linear and nonlinear modeling*. Lincolnwood, IL: Scientific Software International.

- Reis, H.T., Sheldon, K.M., Gable, S.L., Roscoe, J., & Ryan, R.M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin*, *26*, 419–435.
- Rodebaugh, T.L., Woods, C.M., Thissen, T.M., Heimberg, R.G., Chambless, D.L., & Rapee, R.M. (2004). More information from fewer questions: The factor structure and item properties of the original and brief fear of negative evaluation scales. *Psychological Assessment*, *16*, 169–181.
- Ryff, C.D., & Singer, B. (2000). Interpersonal flourishing: A positive health agenda for the new millennium. *Personality and Social Psychology Review*, *4*, 30–44.
- Watson, D., Clark, L.A., & Carey, G. (1988). Positive and negative affect and their relation to anxiety and depressive disorders. *Journal of Abnormal Psychology*, *97*, 346–353.
- Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS. *Journal of Personality and Social Psychology*, *54*, 1063–1070.
- Wells, A. (1997). *Cognitive therapy of anxiety disorders: A practice manual and conceptual guide*. Chichester, England: Wiley.
- Widiger, T.A., & Trull, T.J. (1991). Diagnosis and clinical assessment. *Annual Review of Psychology*, *43*, 1409–1433.

(RECEIVED 12/20/04; REVISION ACCEPTED 8/1/05;
FINAL MATERIALS RECEIVED 8/4/05)