American Psychological Association

Emotion

ISSN: 1528-3542

http://dx.doi.org/10.1037/emo0000725

The Momentary Benefits of Positive Events for Individuals With Elevated Social Anxiety

James D. Doorley, Fallon R. Goodman, David J. Disabato, and Todd B. Kashdan
George Mason University

Jennifer S. Weinstein and Alexander J. Shackman
University of Maryland, College Park

Understanding how individuals with varying levels of social anxiety respond to daily positive events is important. Psychological processes that increase positive emotions are being widely used as strategies to not only enhance well-being but also reduce the symptoms and impairment tied to negative emotional dispositions and conditions, including excessive social anxiety. At present, it is unclear whether and how levels of social anxiety impact the psychological benefits derived from momentary positive events. We used ecological momentary assessment to examine the impact of trait social anxiety on momentary changes in emotions, sense of belonging, and social approach versus avoidance motivation following positive events in daily life. Over the course of a week, people with elevated social anxiety experienced greater momentary anxiety and social avoidance motivation and lower momentary happiness and sense of belonging on average. Despite these impairments, individuals with elevated social anxiety experienced greater psychological benefits—in the form of reduced anxiety and motivation to avoid social situations, and an increased sense of belonging—following positive events during the past hour that were rated as particularly intense. This pattern of findings was not specific to social anxiety, with evidence of similar effects for other forms of internalizing psychopathology (general anxiety and depression). These observations detail circumstances in which individuals with social anxiety, and other emotional disturbances, can thrive—creating potentially important targets for intervention.

Keywords: ecological momentary assessment, emotion, experience sampling method, positive affect, social anxiety

Supplemental materials: http://dx.doi.org/10.1037/emo0000725.supp

Individuals with elevated levels of social anxiety are prone to frequent, excessive fear and avoidance of social interactions and other situations that carry the potential for social scrutiny (e.g., Rapee & Heimberg, 1997). There is growing evidence that individuals with elevated social anxiety also have deficits in positive affect. Research using diary techniques and other retrospective methods shows that individuals with elevated social anxiety tend to experience blunted positive affect and, in some cases, report fewer and less intense positive events (Blanco & Joormann, 2017; T. A. Brown, Chorpita, & Barlow, 1998; Farmer & Kashdan, 2012; Geyer et al., 2018; Kashdan, 2002, 2007; Kashdan & Breen, 2008; Kashdan & Collins, 2010; Kashdan & Steger, 2006; Kashdan, Weeks, & Savostyanova, 2011). For example, Farmer and Kashdan (2012) used 2 weeks of diary data to demonstrate that individuals with higher levels of social anxiety report significantly less intense positive affect in their daily lives. In the laboratory, individuals with elevated social anxiety have been shown to experience distress in response to normatively rewarding social interactions, such as receiving positive feedback from an unfamiliar but warm and personable confederate (e.g., Kashdan & Roberts, 2006; Wallace & Alden, 1997; Weeks, Heimberg, Rodebaugh, & Norton, 2008).

Other research motivates the hypothesis that individuals with elevated social anxiety can derive enhanced emotional benefits—that is, a steeper reduction in negative affect—from positive events compared to those with low social anxiety. Using a daily diary approach, Kashdan and colleagues (2014) showed that individuals

James D. Doorley, Fallon R. Goodman, David J. Disabato, and Todd B. Kashdan, Department of Psychology, George Mason University; Jennifer S. Weinstein and Alexander J. Shackman, Department of Psychology and Neuroscience, University of Maryland, College Park.

James D. Doorley, David J. Disabato, and Fallon R. Goodman designed the analytic strategy. James D. Doorley and David J. Disabato performed analyses. James D. Doorley drafted the article and created tables with assistance and feedback from all authors. David J. Disabato created the figures. Alexander J. Shackman and Jennifer S. Weinstein designed the study and collected data. Todd B. Kashdan and Alexander J. Shackman supervised and funded the work, respectively. All of the authors edited the article and approved the final version. The data featured in this report are available via the Open Science Framework (https://osf.io/b83rv/). This work was supported by the National Institutes of Health (DA040717 and MH107444) and the University of Maryland. The authors acknowledge the assistance of Kathryn DeYoung, Laura Friedman, and members of the Affective and Translational Neuroscience laboratory as well as critical feedback from J. Hur and M. Barstead.

Correspondence concerning this article should be addressed to James D. Doorley, Department of Psychology, George Mason University, 4400 University Drive, Fairfax, VA 22030. E-mail: jddoorley@gmail.com

with higher levels of social anxiety experience larger reductions in anxiety on days following especially pleasurable and intimate sexual experiences. Indirect support for this hypothesis comes from evidence that individuals with low levels of well-being or high levels of depression—features characteristic of many individuals with extreme social anxiety (e.g., Eng, Coles, Heimberg, & Safren, 2005; Kashdan, 2007; Stein & Kean, 2000)—tend to profit more from positive daily events, as indexed by larger decreases in negative affect and larger increases in positive affect (Bylsma, Taylor-Clift, & Rottenberg, 2011; Lamers et al., 2018; Grosse Rueschkamp, Kuppens, Riediger, Blanke, & Brose, 2018; Thompson et al., 2012). Whether individuals with elevated social anxiety show similar "mood-brightening" effects (Rottenberg, 2017) remains unknown.

In the present study, we used smartphone ecological momentary assessment (EMA) to intensively sample changes in mood (happiness and anxiety), sense of belonging, and social motivation (approach and avoidance) in the daily lives of 125 young adults. Prior to the EMA portion of the study, participants completed measures of trait social anxiety, general anxiety, and depression. At each assessment, participants also rated the intensity of their most positive event during the past hour, enabling us to assess momentary perceptions of naturally occurring, subjectively positive events. Because EMA data are captured in the real world, in real time, they circumvent many of the biases that can distort retrospective reports and provide insights into how emotional experience dynamically changes in response to positive events (Barrett, 1997; Lay, Gerstorf, Scott, Pauly, & Hoppmann, 2017; Stone, Shiffman, Atienza, & Nebeling, 2007). We focused on young adulthood because it is a time of profound, often stressful developmental transitions (e.g., moving away from home, forging new social relationships; Arnett, 2000; Hays & Oxley, 1986). In fact, more than half of undergraduate students report overwhelming anxiety (American College Health Association, 2016), with many experiencing the first onset or recurrence of internalizing disorders during this period (Auerbach et al., 2016, 2018; Kessler, Chiu, Demler, Merikangas, & Walters, 2005; Russell & Shaw, 2009; Vos et al., 2016). In particular, young adults with elevated social anxiety tend to experience substantial distress and impairment and are more likely to develop a range of psychological disorders (Merikangas, Avenevoli, Acharyya, Zhang, & Angst, 2002).

Using these data, we tested the following hypotheses:

Hypothesis 1: Consistent with decades of emotion research, we expected that positive events from the previous hour that are rated as more intense will enhance momentary mood (increase happiness, decrease anxiety), sense of belonging, and social motivation (increase approach, decrease avoidance; e.g., Rolls, 2018).

Hypothesis 2: Consistent with prior work by our group and others (e.g., T. A. Brown et al., 1998; Geyer et al., 2018; Kashdan & Collins, 2010; Kashdan & Steger, 2006; Kashdan et al., 2011), we anticipated that elevated social anxiety will be associated with lower average levels of happiness, social belonging, and social approach motivation, and higher average levels of anxiety and social avoidance motivation. We also expected that individuals with elevated trait social anxiety would perceive positive events during the past hour as less intense.

Hypothesis 3a: Based on findings from positivity deficit research in social anxiety (e.g., Kashdan, 2007; Wallace & Alden, 1997; Weeks et al., 2008), it may be that individuals with elevated social anxiety derive smaller psychological benefits from positive events (i.e., attenuated improvements in mood, sense of belonging, and social motivation).

Hypothesis 3b: In contrast, recent research on social anxiety and other emotional disturbances motivates the competing hypothesis that individuals with elevated social anxiety will derive larger psychological benefits (i.e., amplified improvements in mood, social belonging, and social motivation) following momentary positive events (e.g., Kashdan et al., 2014; Morgan et al., 2017; Rottenberg, 2017).

Exploratory Hypothesis 4: To test for the specificity of the hypothesized effects of social anxiety, we collected data on trait levels of general anxiety and depression and explored whether scores on each measure impacted the psychological benefits of momentary positive events (cf. Conway et al., 2019).

Understanding how individuals with varying levels of social anxiety respond to daily positive events is important. Psychological processes that increase positive emotions are being widely used as strategies to not only enhance well-being but also reduce the symptoms and impairment tied to negative emotional dispositions and conditions, including excessive social anxiety (e.g., Quoidbach, Mikolajczak, & Gross, 2015; Taylor, Lyubomirsky, & Stein, 2017). At present, it is unclear whether and how levels of social anxiety impact the psychological benefits derived from momentary positive events. Addressing this question should help propel the field forward by providing clues about etiology, identifying potentially modifiable targets (e.g., positive event exposure and appraisal), and informing the development of more effective interventions for individuals at increased risk for developing social anxiety and related disorders.

Method

Participants and Procedure

As part of an ongoing program of research focused on the etiology of mood and anxiety disorders, 2,501 individuals completed screening measures of negative emotionality—the propensity to experience and express more frequent, intense, and enduring anxiety, worry, and other negative emotions (Shackman et al., 2016, 2018)—in exchange for course extra credit. Data from the screening assessment were stratified by tertile (high, medium, low) and sex (male, female). For the EMA study, 133 university students with consistent smartphone access were independently and randomly recruited via e-mail from each of the resulting six strata, enabling us to sample a broad spectrum of social anxiety without gaps or discontinuities.

Eight participants were excluded from data analysis: Six were excluded for insufficient compliance with the EMA protocol ($<$50% completed assessments) and two were excluded because of

missing social anxiety data. Thus, the final sample was comprised of 125 participants (50.4% women; 53.2% White, 16.1% Asian, 12.9% Black, 11.3% multiracial/other, and 6.5% Hispanic). The mean age was 19.3 years old (SD = 1.6). The final sample did not differ significantly from the initial screening sample on demographics. At enrollment, participants provided written informed consent, were trained on the EMA protocol, and completed trait measures of social anxiety, general anxiety, and depression.

SurveySignal (Hofmann & Patel, 2015) was used to deliver 10 text messages per day to each subject's smartphone. Messages were delivered between 8:30 a.m. and 11:00 p.m., with 1 to 2 hr between successive messages (M = 86.5 min, SD = 14.7 min). Surveys took an average of 3.25 min to complete (SD = 5.65 min). During weekday hours, messages were delivered between regularly scheduled university courses to maximize compliance. Messages contained a link to a secure online survey. Participants were instructed to respond within 30 min of receiving the message and cautioned to avoid responding at unsafe or inconvenient moments (median response latency = 8.78 min, SD = 15.85 min). At enrollment, several well-established procedures were used to maximize compliance (Palmier-Claus et al., 2011). These procedures included (a) delivering a test message to the subject's phone in the laboratory and confirming that they were able to successfully complete the online survey, (b) providing subjects with a 24/7 technical support number, (c) 24-hr and 72-hr check-in calls or e-mails, (d) real-time monitoring of compliance using the SurveySignal dashboard and recontacting subjects showing low levels of compliance, and (e) monetary bonuses for increased compliance. Participants were debriefed and compensated after the seventh day of data collection. In the final sample, EMA compliance was acceptable (M = 79%, SD = 11%) and unrelated to social anxiety (r = .04, p = .66). Participants provided informed written consent and the University of Maryland's Institutional Review Board approved all procedures.

Trait Measures

Social anxiety. Trait-level social anxiety symptoms were assessed using the 19-item Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998). Items assess fear and avoidance of social interactions using a 5-point Likert scale (1 = *not at all characteristic of me*; 5 = *extremely characteristic of me*). Sample items include "I worry about expressing myself in case I appear awkward," "I find myself worrying that I won't know what to say in social situations," and "I feel tense if I am alone with just one other person." The SIAS reliably discriminates individuals with social anxiety disorder from those with other anxiety disorders (E. J. Brown et al., 1997; Cox, Ross, Swinson, & Direnfeld, 1998) and shows excellent psychometric properties (Rodebaugh, Woods, Heimberg, Liebowitz, & Schneier, 2006). Reliability was acceptable in the present sample (α = .96).

General anxiety. Trait-level general anxiety symptoms were assessed using the 10-item trait anxiety scale from the International Personality Item Pool (IPIP; 2001), which provides a variety of freely available, expert-developed scales of personality and individual differences. Items assess symptoms of general trait anxiety using a 5-point Likert scale (1 = *very inaccurate*; 5 = *very accurate*). Sample items include "I worry about things" and "I am relaxed most of the time." The Trait Anxiety scale of the IPIP demonstrates strong test–retest reliability (r = .91; see DiBattista & Gosse, 2006) and strong, positive correlations with other measures of anxiety (e.g., the Revised NEO Personality Inventory Anxiety scale; Costa & MacCrae, 1992; Goldberg, 1999). Reliability was acceptance in the present sample (α = .81).

Depression. Trait-level depression symptoms were assessed using the 20-item General Depression scale from the Inventory for Depression and Anxiety (IDAS; Watson et al., 2007). Items assess symptoms of depression on a 5-point Likert scale (1 = *not at all*; 5 = *extremely*). Sample items include "I felt depressed" and "I felt inadequate." The General Depression scale has acceptable test–retest reliability over 1 week (r = .84; Watson et al., 2007), strong criterion validity with *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV*; American Psychiatric Association, 1994) diagnoses of major depression, and strong incremental validity in predicting *DSM–IV* depressive disorder diagnoses above and beyond the Beck Depression Inventory-II (Watson et al., 2008). Reliability was acceptable in the present sample (α = .89).

EMA Survey

Happiness (*cheerful, happy, joyful*), anxiety (*anxious, nervous, worried*), sense of belonging (*acceptance, connectedness*), and social approach/avoidance motivation (*want to be with other people, want to be alone*) were rated using a 1 (*not at all*) to 5 (*very*) scale. Participants also recorded their *best* (most positive) *event in the past hour* with a brief, one-to-three-word response. Common positive events included, "watching TV," "working out," "walking," "showering," "seeing friends," "napping," and "relaxing." Participants then rated the intensity of their most positive event during the past hour using the same 5-point scale.

EMA Data Reduction

Given strong within-person correlations between cheerful, joyful, and happy (rs = .84–.89) and nervous, anxious, and uneasy (rs = .75–.79), we created composite Happiness and Anxiety scales. We used procedures outlined by Lane and Shrout (2010) to compute within-person scale reliability across repeated measurements for these three-item composite scales. Both the happiness (R_{CN} = .88) and anxiety (R_{CN} = .82) scales demonstrated acceptable reliability. We also combined momentary perceived social acceptance and connectedness items to form a composite measure of sense of belonging. There is disagreement in the literature regarding best practices for calculating reliability for two-item scales (e.g., Eisinga, Grotenhuis, & Pelzer, 2013), so we calculated a simple within-person correlation between the two scale items across time points (r = .60).

Data Analytic Strategy

Analyses were conducted using R Version 3.6.1 (R Core Team, 2019). For primary analyses, data were hierarchically nested in two-level models with momentary observations (Level 1) nested within people (Level 2). Although momentary observations were theoretically nested within days, then within people, a likelihood ratio test revealed that including the random effect for days did not significantly improve model fit (χ^2 = 0, df = 6, p = 1.00). Thus, we chose the more parsimonious two-level model. All models

were analyzed using maximum likelihood estimation. All Level 1 predictors were person mean-centered prior to analyses. This approach captured the within-person effect of the hourly predictors, while parsing out variance attributed to between-person differences.

We examined whether positive events perceived as more intense predicted changes in momentary mood (*increase happiness, decrease anxiety*), sense of belonging (*acceptance, connectedness*), and social motivation (*increase approach, decrease avoidance*). We also tested whether trait levels of social anxiety moderated associations between the intensity of positive events and changes in each outcome. General anxiety and depression were entered as moderators in exploratory analyses (all moderators were at Level 2 and centered at the grand mean). To measure hourly change in outcomes, we included a time-lagged version of each outcome as a covariate in all models (i.e., outcome scores an hour earlier, before the positive events occurred). When creating lagged variables, the first observation of each day was coded as missing to correct for the longer overnight time lapse. Collectively, this resulted in random effects attributable to (a) day-to-day intercept differences, (b) person-to-person intercept differences, (c) person-to-person slope differences, and (d) relations between person-to-person intercept differences and slope differences. Standardized (β) effects are reported for moderation and simple slope analyses.

Results

Descriptive Statistics

Descriptive statistics are presented in Table 1. The mean score on the SIAS was 26.39 (SD = 18.17; range = 64), consistent with other samples of undergraduates recruited based on negative emotionality (e.g., Adkins, Weathers, McDevitt-Murphy, & Daniels, 2008). Mean levels of momentary anxiety (scored on a 5-point Likert scale) were slightly lower than anticipated (M = 1.76) given that dispositional negativity was normally distributed in the present sample. However, baseline levels of dispositional negativity, or any other trait, do not guarantee elevated manifestations of that trait at the momentary level over a single week. Further, although we selected participants to obtain normally distributed scores on dispositional negativity, this was neither an extreme groups design (with very high dispositional negativity exclusively) nor a clinical sample, so lower mean scores should not be considered abnormal. Other mean scores fell within expected ranges.

Primary Hypothesis Testing

Consistent with Hypothesis 1, positive events rated as more intense during the past hour were associated with adaptive changes in momentary mood (increased happiness, decreased anxiety), sense of belonging, and social motivation (increased approach, decreased avoidance) after controlling for these outcomes at the prior assessment (see Table 2).

Hypothesis 2 was partially supported. Social anxiety predicted worsened momentary mood (decreased happiness and increased anxiety), a lower sense of belonging, and greater social avoidance motivation. Contrary to our hypothesis, social anxiety was not associated with the intensity of momentary positive events (see Table 2). A similar pattern of results emerged when examining between-person correlations between social anxiety and momentary outcomes. Contrary to our hypothesis, there was only a weak negative correlation between social anxiety and the intensity of positive events (see Table 1).

Lastly, we found support for Hypothesis 3b. Results showed that social anxiety amplified associations between the intensity of positive events during the past hour and momentary anxiety, sense of belonging, and social avoidance motivation (Table 2, Figure 1). Although individuals with elevated trait social anxiety reported higher levels of momentary anxiety on average, analyses of simple slopes revealed a significantly larger reduction in anxiety following more intense positive events (see Table 3). The same pattern was evident for sense of belonging and social avoidance motivation. Although individuals with elevated social anxiety reported lower average levels of sense of belonging, simple slopes analyses

Table 1
Between- and Within-Person Correlations and Descriptive Statistics for Study Variables

Measure	1	2	3	4	5	6	7	8	9
States									
1. PE intensity	—	.39	−.16	.31	.16	−.18	N/A	N/A	N/A
2. Happiness	.41	—	−.32	.72	.39	−.39	N/A	N/A	N/A
3. Anxiety	−.09	−.22	—	−.21	−.11	.24	N/A	N/A	N/A
4. Sense of belonging	.42	.88	−.20	—	.39	−.39	N/A	N/A	N/A
5. Social approach	.10	.39	.02	.47	—	−.52	N/A	N/A	N/A
6. Social avoidance	−.01	−.20	.55	−.20	−.11	—	N/A	N/A	N/A
Traits									
7. Social anxiety	−.05	−.29	.42	−.32	−.11	.45	—	N/A	N/A
8. General anxiety	.05	−.28	.46	−.24	−.12	.42	.65	—	N/A
9. Depression	−.03	−.40	.51	−.39	−.22	.36	.53	.63	—
Descriptives									
M	3.45	3.09	1.76	3.16	2.79	2.18	26.39	29.64	42.95
SD	1.21	1.16	.91	1.14	1.32	1.26	18.17	6.97	11.28
ICC	.33	.51	.39	.44	.40	.33	1.00	1.00	1.00

Note. Coefficients below the diagonal represent between-person correlations. Coefficients above the diagonal represent within-person correlations. Because social anxiety is a trait-level measure, there are no within-person correlations. PE intensity = intensity of the most positive event during the past hour; N/A = no within-person correlations available for between-person measures; ICC = intraclass correlation.

Table 2
Main and Interaction Effects of the Intensity of the Most Positive Event During the Past Hour, Social Anxiety, Depression, and General Anxiety on Momentary Happiness, Anxiety, Sense of Belonging, and Social Approach and Avoidance Motivation

	Outcome									
	Happiness		Anxiety		Sense of belonging		Social approach motivation		Social avoidance motivation	
Moderation models	β	*t*	β	*t*	β	*t*	β	*t*	β	*t*
Social anxiety										
Lagged outcome	.26***	18.36	.26***	15.12	.24***	17.57	.29***	16.54	.27***	14.18
Past-hour PE intensity	.29***	15.68	−.10***	−7.57	.25***	14.70	.14***	6.90	−.16***	−9.25
Social anxiety	−.25***	−3.57	.24***	5.16	−.24***	−3.80	−.09	−1.18	.32***	5.46
PE × SA interaction	.03	1.43	−.03*	−2.20	.04*	2.44	.03	1.39	−.07***	−3.81
General anxiety										
Lagged outcome	.26***	18.31	.26***	15.22	.24***	17.59	.29***	16.51	.28***	14.29
Past-hour PE intensity	.29***	15.86	−.10***	−7.66	.24***	14.97	.14***	6.85	−.16***	−9.39
General anxiety	−.24***	−3.40	.26***	5.66	−.19**	−2.90	−.09	−1.24	.28***	4.73
PE × GA interaction	.05***	2.86	−.04**	−3.37	.06***	3.72	.04	1.81	−.08***	−4.74
Depression										
Lagged outcome	.26***	18.18	.26***	15.32	.24***	17.44	.29***	16.54	.28***	14.24
Past-hour PE intensity	.29***	16.14	−.10***	−7.71	.24***	14.95	.14***	6.85	−.16***	−9.13
Depression	−.34***	−4.98	.29***	6.48	−.31***	−4.90	−.18*	−2.39	.24***	3.99
PE × Dep interaction	.06***	3.58	−.06***	−3.58	.06***	3.63	.03	1.29	−.06***	−3.65

Note. Lagged outcome = A given outcome measured at the previous momentary observation (entered as a covariate in each model to measure change over time); PE = positive event; PE × SA interaction = the interaction between the intensity of positive events during the past hour and social anxiety; PE × GA interaction = the interaction between the intensity of positive events during the past hour and general anxiety; PE × Dep interaction = the interaction between the intensity of positive events during the past hour and depression.
* $p < .05$. ** $p < .01$. *** $p < .001$.

revealed a significantly larger increase in sense of belonging following more intense positive events (see Table 3). Likewise, although individuals with elevated social anxiety reported greater social avoidance motivation, on average, analyses of simple slopes revealed a significantly larger reduction in social avoidance motivation following more intensely positive events during the past hour (see Table 3). Social anxiety did not significantly influence the impact of positive events on momentary happiness or social approach motivation.

Exploratory Hypothesis Testing

We tested whether the observed effects were specific to social anxiety by running similar moderation models as above but replacing social anxiety as the Level 2 moderator with other forms of internalizing psychopathology: general anxiety and depression. Similar to the social anxiety results, trait levels of general anxiety and depression amplified associations between the intensity of positive events during the past hour and momentary happiness, anxiety, sense of belonging, and social avoidance motivation (Figures 2 and 3). Interaction effects between the intensity of positive events and all three forms of internalizing psychopathology predicted momentary outcomes in similar directions (increased happiness and sense of belonging and decreased anxiety and social avoidance motivation). One small yet notable difference was that interactions between the intensity of positive events and both general anxiety and depression significantly predicted increased momentary happiness, whereas the interaction with social anxiety did not (see Table 2).

Discussion

Young adults with elevated social anxiety experience a range of emotional difficulties in daily life, yet the real-world factors that govern the hour-by-hour expression of social anxiety have only recently come into focus. Leveraging intensive EMA sampling, our findings show that positive events have a meaningful impact on the emotional lives of young adults. On average, more intense positive events during the past hour were associated with adaptive changes in momentary *emotion* (increased happiness, decreased anxiety), *sense of belonging*, and *social motivation* (increased approach, decreased avoidance). As expected, social anxiety was associated with impairments in these emotional and social domains. On average, young adults with elevated social anxiety experienced higher levels of momentary anxiety and social avoidance motivation and lower levels of momentary happiness and sense of belonging. The present results provide new evidence that individuals with elevated social anxiety experience greater psychological benefits (e.g., decreased anxiety, increased sense of belonging, and decreased motivation to avoid others) following positive events during the past hour that are perceived as more intense. These observations provide insight into the circumstances in which individuals with elevated social anxiety experience well-being and/or the absence of psychological difficulties.

Exploratory analyses revealed similar patterns of effects for individuals with elevated trait levels of general anxiety and depression. On average, these individuals exhibited similar impairments in momentary emotional (less happiness, more anxiety) and social functioning (lower sense of belonging, less social approach

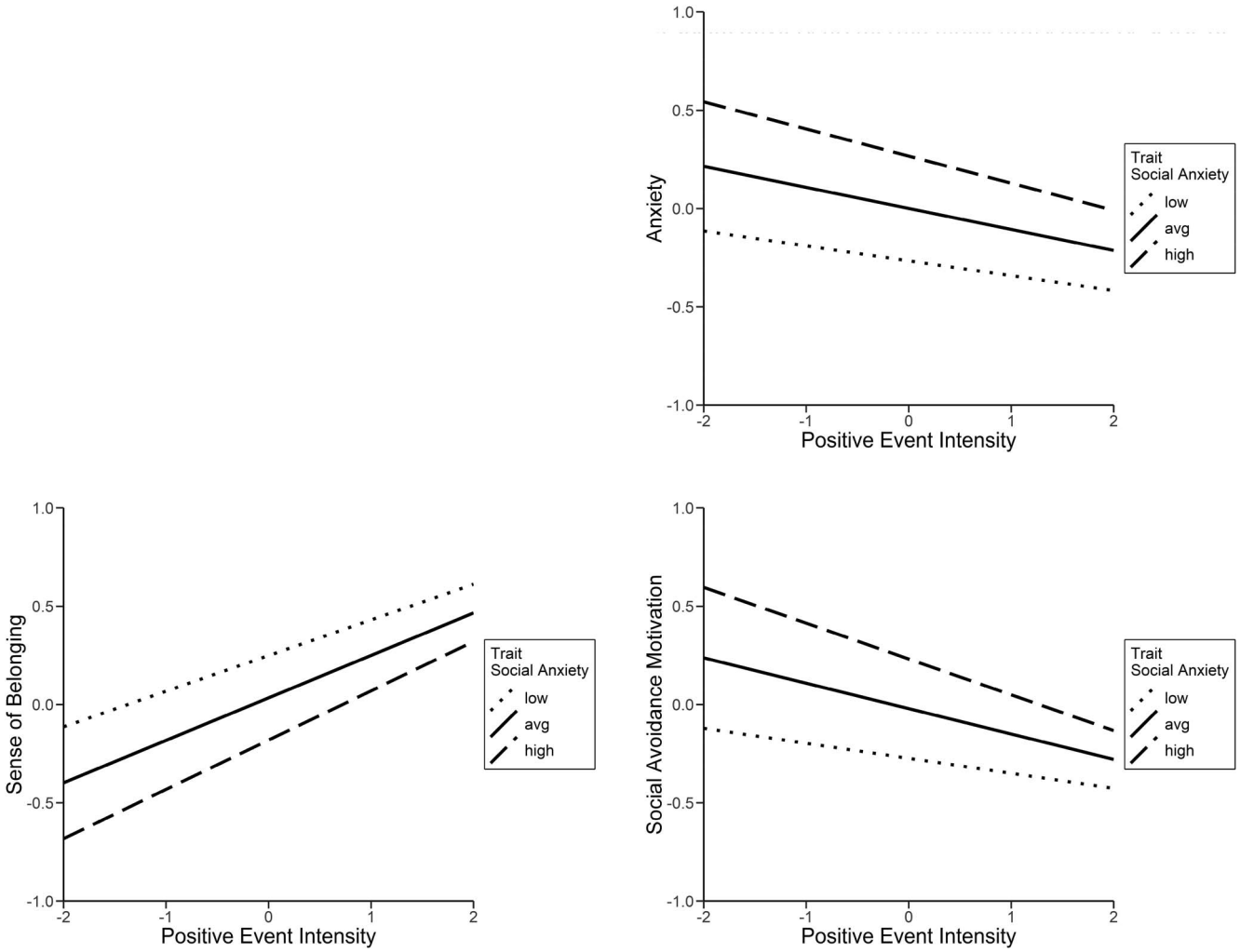

Figure 1. Interactions of the intensity of the most positive event during the past hour and trait social anxiety predicting momentary anxiety, sense of belonging, and social avoidance motivation.

motivation, more social avoidance motivation) compared with individuals with elevated social anxiety. Individuals with elevated general anxiety and depression also experienced greater psychological benefits following more intensely positive events in the form of greater increases in momentary happiness and sense of belonging and greater decreases in momentary anxiety and social avoidance motivation. Of note, elevated general anxiety and depression did not predict greater increases in momentary social approach motivation following intensely positive events, which mirrors our social anxiety findings. Elevated general anxiety and depression did predict greater increases in momentary happiness, however, and these effects were not significant for elevated social anxiety.

The observed moderating role of elevated internalizing symptoms on momentary emotions following positive events is consistent with "mood brightening" effects found in previous research (e.g., Bylsma et al., 2011; Lamers et al., 2018; Rottenberg, 2017; Thompson et al., 2012). These studies found "larger decreases in negative affect after positively appraised life events" for individuals with major depressive disorder compared with controls (Rottenberg, 2017 p. 248). Although these studies have primarily discovered mood brightening effects among individuals with mood disorders, our results suggest that mood brightening may occur for individuals with elevated levels of internalizing symptoms more broadly following intensely positive events. Our findings also suggest that mood brightening phenomena may not be specific to decreased negative affect as previous findings suggest (e.g., Bylsma et al., 2011; Lamers et al., 2018; Thompson et al., 2012) but may also extend to increased positive affect (e.g., happiness) and other adaptive cognitive/affective states (e.g., sense of belonging, social motivation).

The fact that individuals with elevated internalizing symptoms exhibited a wider range of momentary benefits following positive events than those observed in previous studies may be because of differences in sampling. For example, other studies of mood brightening effects have focused on individuals diagnosed with major depressive disorder, whereas we selected young adults with normally distributed levels of dispositional negativity; nonclinical

Table 3
Simple Slope for Association Between the Intensity of the Most Positive Event During the Past Hour Predicting Momentary Happiness, Anxiety, Sense of Belonging and Social Avoidance Motivation, Moderated by Social Anxiety, General Anxiety, and Depression

	Outcome							
	Happiness		Anxiety		Sense of belonging		Social avoidance motivation	
Moderators	β	*t*	β	*t*	β	*t*	β	*t*
Social anxiety								
−1 *SD*	N/A	N/A	−.08***	−3.86	.18***	8.95	−.08***	−3.95
M	N/A	N/A	−.11***	−7.57	.22***	14.70	−.13***	−9.25
+1 *SD*	N/A	N/A	−.14***	−6.80	.25***	12.11	−.18***	−9.07
General anxiety								
−1 *SD*	.20***	9.54	−.06**	−3.08	.16***	8.22	−.07***	−3.42
M	.25***	15.86	−.11***	−7.66	.21***	14.97	−.13***	−9.39
+1 *SD*	.29***	13.67	−.15***	−7.88	.26***	13.56	−.19***	−10.11
Depression								
−1 *SD*	.19***	9.11	−.06**	−2.85	.16***	8.06	−.08***	−3.80
M	.25***	16.14	−.11***	−7.71	.21***	14.95	−.13***	−9.13
+1 *SD*	.30***	14.29	−.15***	−8.02	.27***	13.34	−.18***	−9.07

Note. N/A = the interaction between the intensity of the most positive event during the past hour and social anxiety did not predict momentary happiness.
** $p < .01$. *** $p < .001$.

samples of individuals with elevated internalizing symptoms may experience a wider array of "brightening" effects following positive events. Future studies should seek to replicate and extend these findings with community and clinical samples.

Individuals with elevated internalizing symptoms did not experience greater increases in momentary social approach motivation, although they did experience adaptive momentary changes in nearly every other outcome following more intensely positive events. There is insufficient research that examines changes in social motives following daily positive events. However, it makes intuitive sense that individuals with elevated internalizing pathology would not be more motivated to be with others following positive events. These individuals tend to avoid social situations, so it perhaps makes more sense that this preexisting motive to avoid would be dampened following positive events as opposed to a substantial increase in low desires to affiliate. It may also be the case that these individuals were already with others during or following their more intensely positive events; it would make little sense for social approach motivation to markedly increase if they were already socializing. Further, the observed nonsignificant findings cannot be adequately explained by lack of statistical power. Simulation studies of multilevel power suggest that designs with at least 80 Level 2 units (e.g., participants) and 14 Level 1 units (e.g., observations) are sufficient to detect effect sizes greater than .20 (Nezlek, 2011, 2012; Raudenbush & Liu, 2000).

Limitations and Future Directions

Although we believe the present results make an important contribution to the literature, there are several limitations worth addressing. First, it is possible that floor effects contributed to the greater observed reductions in momentary anxiety and social avoidance motivation among individuals with higher versus lower levels of internalizing symptoms. Descriptive statistics showed that mean levels of these outcomes were close to 1 on scales of 1 to 5 (*M* range = 1.32–1.86; see Supplemental Table 1 of the online supplemental materials). These floor effects may be because of measurement limitations. For example, our measure of anxiety was a composite of three items, and our measure of social avoidance motivation was a single-item scale. The fact that participants rated these items 10 times per day is a strength of this study, but the high number of assessments may have inflated the number of ratings of "1" from participants with lower levels of internalizing symptoms.

We believe the present findings cannot be solely explained by floor effects, however. Similar moderation effects emerged when examining "positive" momentary outcomes (e.g., happiness) as well as "negative" ones (social avoidance motivation). This suggests that, beyond floor effects, there is something about higher compared with lower internalizing symptoms that both alleviates negative states following intensely positive events *and* enhances positive states. Further, our results partially replicate and extend findings demonstrating that individuals with elevated depression (e.g., Bylsma et al., 2011; Lamers et al., 2018; Thompson et al., 2012) and social anxiety (e.g., Shackman et al., 2018) experience greater momentary benefits from positive daily experiences (e.g., "mood brightening" effect). Future studies should seek to replicate these effects with measures that are less susceptible to floor effects and/or with clinical samples with higher mean levels of momentary anxiety and social avoidance motivation.

Future studies may benefit from using event-contingent responding, in which participants endorse positive events precisely when they occur rather than asking participants to endorse a positive event at each assessment. It may be that forced response methods lead to the reporting of some positive events that are not truly positive. However, we accounted for this in our study by obtaining participants' subjective ratings of positive event intensity. Event-contingent responding could provide valuable contextual clues as to where and when positive events are most likely to occur. Our study would have also benefited from more detailed

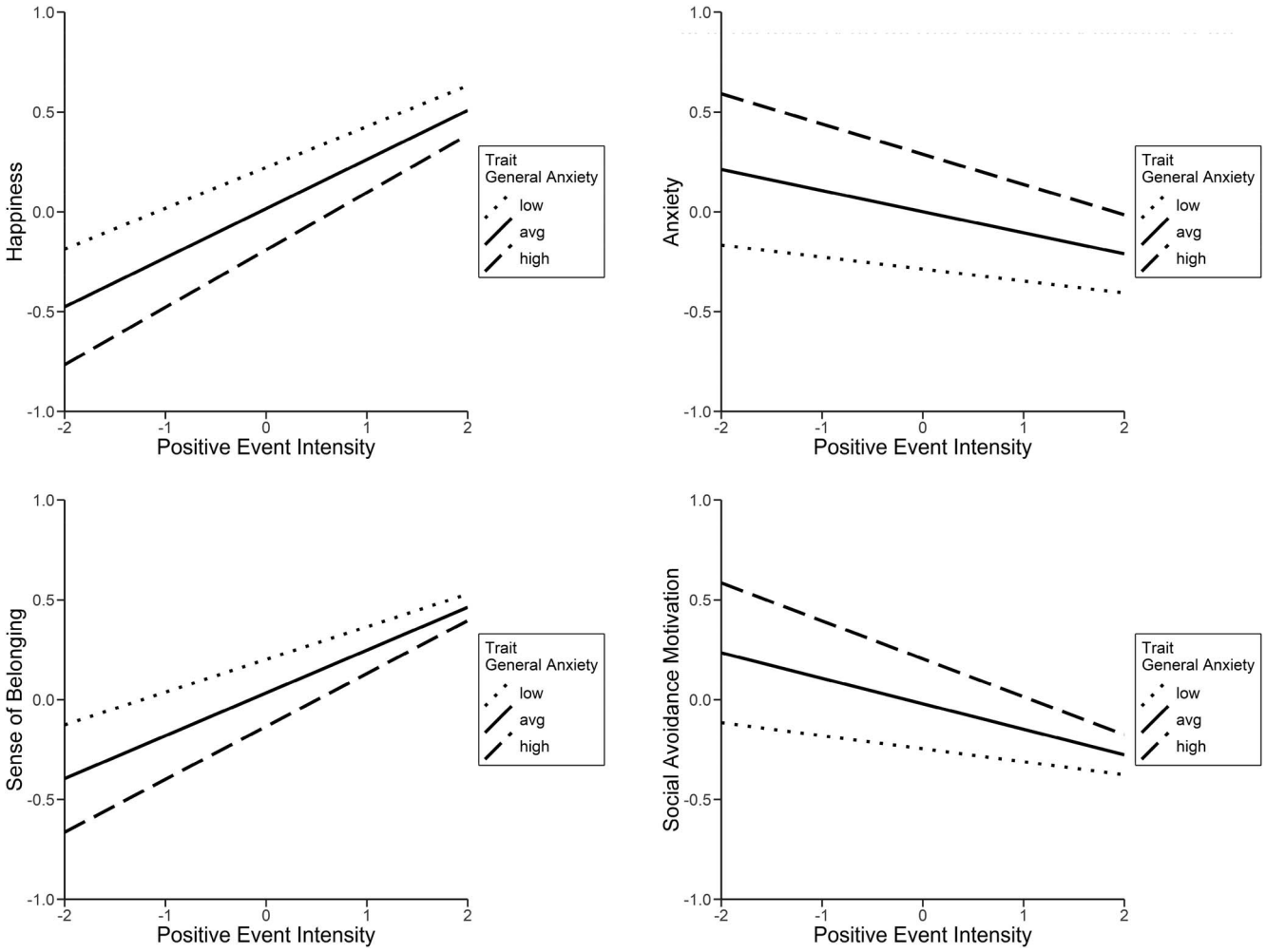

Figure 2. Interactions of the intensity of the most positive event during the past hour and trait general anxiety predicting momentary happiness, anxiety, sense of belonging, and social avoidance motivation.

qualitative data on momentary positive events. Participants provided qualitative event descriptions in the present study, but these descriptions were too brief or vague to be coded without substantial measurement error. Future studies should collect richer qualitative information to assess whether (a) the daily positive events of individuals with elevated social anxiety or other internalizing symptoms differ from those of the general young adult population, and (b) whether our conclusions generalize across different types of positive events—especially in light of evidence that individuals with elevated social anxiety fail to extract rewards from social situations specifically (e.g., Wells et al., 1995).

It would also be fruitful to investigate predictors of intensely positive events for individuals with elevated internalizing symptoms, including individual differences (e.g., savoring, metabeliefs about emotions, reliance on experiential avoidance as a self-regulatory strategy), features of positive events (e.g., levels of physical activity, exposure to nature, consistency of event with personal values), and other contextual features (e.g., presence of close friends). Individuals with elevated internalizing symptoms may deploy less adaptive emotion regulation strategies in response to positive events (e.g., emotional suppression), whereas others respond in healthier ways—thereby upregulating momentary benefits from these events. Exploring these moderators of responses to daily positive events could elucidate factors that promote positive functioning among people with elevated internalizing symptoms and shape interventions to enhance well-being in daily life (Goodman, Doorley, & Kashdan, 2018).

Given the observed psychological benefits of intensely positive events, behavioral activation strategies (e.g., deliberately scheduling pleasurable activities into one's daily routine) may improve affect, enhance feelings of social belonging, and decrease motivations for social withdrawal among individuals with elevated internalizing symptoms. Simply attending to and recording positive events throughout the day may also help these individuals experience more positivity than normal. Individuals with elevated internalizing symptoms often display maladaptive attentional biases toward negative self-relevant information and emotional stimuli (depression; Clasen, Wells, Ellis, & Beevers, 2013; Mogg & Bradley, 2005), negative thoughts and emotions, external social threats (social anxiety; Mogg & Bradley, 2002), and hypothetical

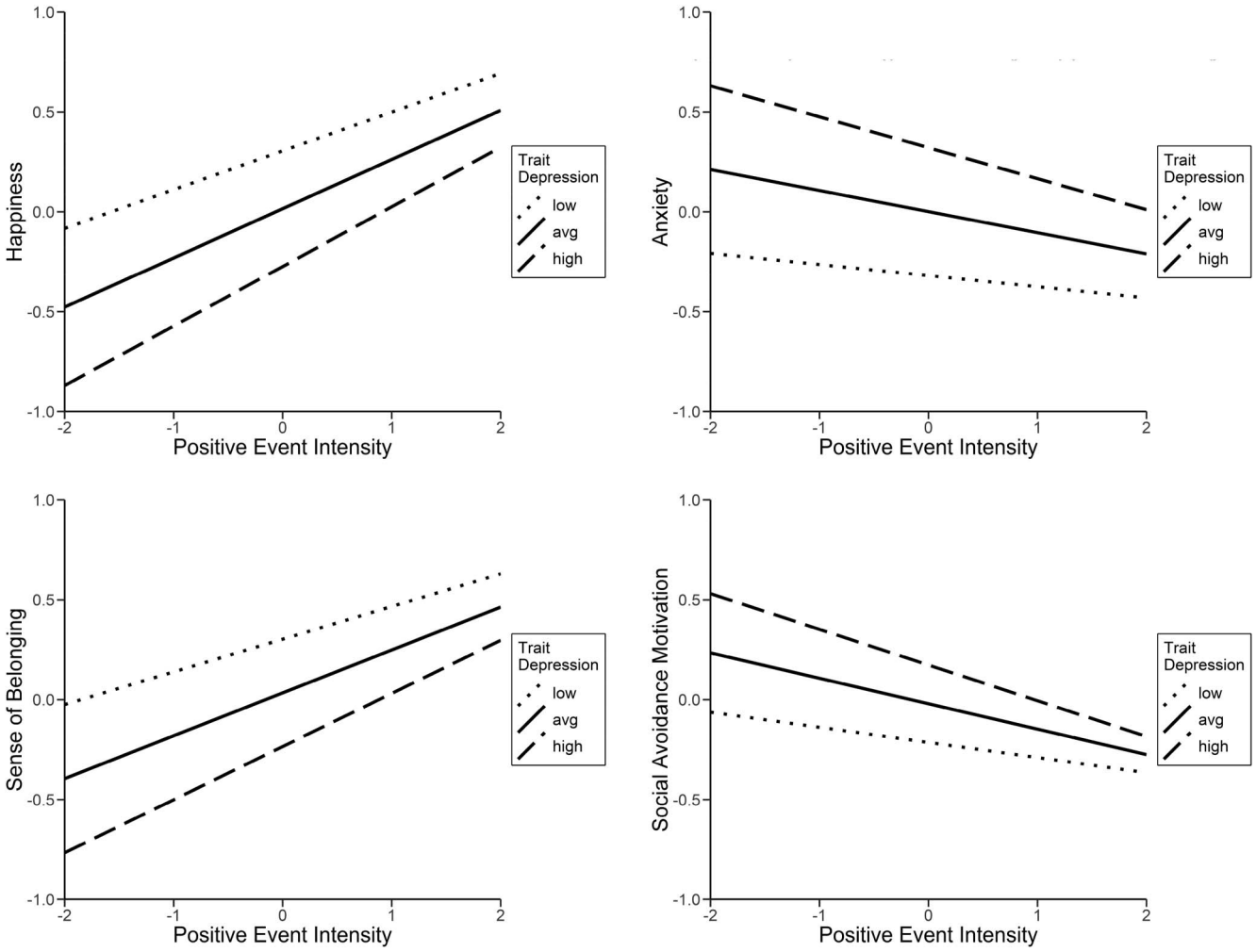

Figure 3. Interactions of the intensity of the most positive event during the past hour and trait depression predicting momentary happiness, anxiety, sense of belonging, and social avoidance motivation.

or future threats (general anxiety; e.g., Stefanopoulou, Hirsch, Hayes, Adlam, & Coker, 2014), making it challenging to fully attend to positive events. Reporting on positive events throughout the day may serve as an ecological momentary intervention (EMI)—helping individuals shift attention toward positive environmental cues and reap more psychological benefits. EMIs have received increasing support (e.g., Businelle et al., 2016; Pramana, Parmanto, Kendall, & Silk, 2014; Riordan, Conner, Flett, & Scarf, 2015) and have a number of benefits compared with traditional therapy, including reduced cost and barriers to treatment, greater flexibility, and potential for wider dissemination of evidence-based interventions (Andrews & Erskine, 2003; Griffiths, Lindenmeyer, Powell, Lowe, & Thorogood, 2006; Titov, 2007). Future studies should test EMIs that prompt individuals with elevated internalizing symptoms to plan, pay attention to, record, and reflect on daily positive experiences.

Conclusions

To date, the momentary consequences of positive events have been largely overlooked among individuals with elevated social anxiety and other internalizing symptoms. The present results suggest that positive events play a key role in governing the momentary dynamics of real-world emotional experience, highlighting a potential pathway to enhance well-being and better understand the circumstances under which individuals with elevated internalizing symptoms can thrive. The use of well-established EMA techniques, a sample selectively recruited from a pool of more than 2,500 prescreened individuals, and our exploration of multiple forms of internalizing psychopathology increases our confidence in the reproducibility and clinical relevance of these findings. These results set the stage for developing improved strategies for preventing or treating the deleterious consequences of anxiety and depression.

References

Adkins, J. W., Weathers, F. W., McDevitt-Murphy, M., & Daniels, J. B. (2008). Psychometric properties of seven self-report measures of posttraumatic stress disorder in college students with mixed civilian trauma exposure. *Journal of Anxiety Disorders, 22,* 1393–1402. http://dx.doi.org/10.1016/j.janxdis.2008.02.002

American College Health Association. (2016). *American College Health Association–National College Health Assessment II: Reference Group Executive Summary Spring 2016*. Hanover, MD: Author.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Andrews, G., & Erskine, A. (2003). Reducing the burden of anxiety and depressive disorders: The role of computerized clinician assistance. *Current Opinion in Psychiatry, 16,* 41–44. http://dx.doi.org/10.1097/00001504-200301000-00009

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55,* 469–480.

Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., Green, J. G., . . . Bruffaerts, R. (2016). Mental disorders among college students in the World Health Organization world mental health surveys. *Psychological Medicine, 46,* 2955–2970. http://dx.doi.org/10.1017/S0033291716001665

Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., . . . WHO WMH-ICS Collaborators. (2018). WHO World Mental Health Surveys International College Student Project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology, 127,* 623–638. http://dx.doi.org/10.1037/abn0000362

Barrett, L. F. (1997). The relationships among momentary emotion experiences, personality descriptions, and retrospective ratings of emotion. *Personality and Social Psychology Bulletin, 23,* 1100–1110. http://dx.doi.org/10.1177/01461672972310010

Blanco, I., & Joormann, J. (2017). Examining facets of depression and social anxiety: The relation among lack of positive affect, negative cognitions, and emotion dysregulation. *The Spanish Journal of Psychology, 20,* E51. http://dx.doi.org/10.1017/sjp.2017.43

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. http://dx.doi.org/10.1037/1040-3590.9.1.21

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. http://dx.doi.org/10.1037/0021-843X.107.2.179

Businelle, M. S., Ma, P., Kendzor, D. E., Frank, S. G., Vidrine, D. J., & Wetter, D. W. (2016). An ecological momentary intervention for smoking cessation: Evaluation of feasibility and effectiveness. *Journal of Medical Internet Research, 18,* e321. http://dx.doi.org/10.2196/jmir.6058

Bylsma, L. M., Taylor-Clift, A., & Rottenberg, J. (2011). Emotional reactivity to daily events in major and minor depression. *Journal of Abnormal Psychology, 120,* 155–167. http://dx.doi.org/10.1037/a0021662

Clasen, P. C., Wells, T. T., Ellis, A. J., & Beevers, C. G. (2013). Attentional biases and the persistence of sad mood in major depressive disorder. *Journal of Abnormal Psychology, 122,* 74–85. http://dx.doi.org/10.1037/a0029211

Conway, C. C., Forbes, M. K., Forbush, K. T., Fried, E. I., Hallquist, M. N., Kotov, R., . . . Eaton, N. R. (2019). A hierarchical taxonomy of psychopathology can transform mental health research. *Perspectives on Psychological Science, 14,* 419–436. http://dx.doi.org/10.1177/1745691618810696

Costa, P. T., & MacCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI): Professional manual*. Odessa, FL: Psychological Assessment Resources.

Cox, B. J., Ross, L., Swinson, R. P., & Direnfeld, D. M. (1998). A comparison of social phobia outcome measures in cognitive-behavioral group therapy. *Behavior Modification, 22,* 285–297. http://dx.doi.org/10.1177/01454455980223004

DiBattista, D., & Gosse, L. (2006). Test anxiety and the immediate feedback assessment technique. *Journal of Experimental Education, 74,* 311–328. http://dx.doi.org/10.3200/JEXE.74.4.311-328

Eisinga, R., Grotenhuis, M., & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health, 58,* 637–642. http://dx.doi.org/10.1007/s00038-012-0416-3

Eng, W., Coles, M. E., Heimberg, R. G., & Safren, S. A. (2005). Domains of life satisfaction in social anxiety disorder: Relation to symptoms and response to cognitive-behavioral therapy. *Journal of Anxiety Disorders, 19,* 143–156. http://dx.doi.org/10.1016/j.janxdis.2004.01.007

Farmer, A. S., & Kashdan, T. B. (2012). Social anxiety and emotion regulation in daily life: Spillover effects on positive and negative social events. *Cognitive Behaviour Therapy, 41,* 152–162. http://dx.doi.org/10.1080/16506073.2012.666561

Geyer, E. C., Fua, K. C., Daniel, K. E., Chow, P. I., Bonelli, W., Huang, Y., . . . Teachman, B. A. (2018). I did OK, but did I like it? Using ecological momentary assessment to examine perceptions of social interactions associated with severity of social anxiety and depression. *Behavior Therapy, 49,* 866–880. http://dx.doi.org/10.1016/j.beth.2018.07.009

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. *Personality Psychology in Europe, 7,* 7–28.

Goodman, F. R., Doorley, J. D., & Kashdan, T. B. (2018). Well-being and psychopathology: A deep exploration into positive emotions, meaning and purpose in life, and social relationships. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being* (pp. 1–25). Salt Lake City, UT: DEF.

Griffiths, F., Lindenmeyer, A., Powell, J., Lowe, P., & Thorogood, M. (2006). Why are health care interventions delivered over the internet? A systematic review of the published literature. *Journal of Medical Internet Research, 8,* e10. http://dx.doi.org/10.2196/jmir.8.2.e10

Grosse Rueschkamp, J. M., Kuppens, P., Riediger, M., Blanke, E. S., & Brose, A. (2018). Higher well-being is related to reduced affective reactivity to positive events in daily life. *Emotion*. Advance online publication. http://dx.doi.org/10.1037/emo0000557

Hays, R. B., & Oxley, D. (1986). Social network development and functioning during a life transition. *Journal of Personality and Social Psychology, 50,* 305–315.

Hofmann, W., & Patel, P. V. (2015). SurveySignal: A convenient solution for experience sampling research using participants' own smartphones. *Social Science Computer Review, 33,* 235–253. http://dx.doi.org/10.1177/0894439314525117

International Personality Item Pool. (2001). *A scientific collaboratory for the development of advanced measures of personality traits and other individual differences*. Retrieved from http://ipip.ori.org/

Kashdan, T. B. (2002). Social anxiety dimensions, neuroticism, and the contours of positive psychological functioning. *Cognitive Therapy and Research, 26,* 789–810. http://dx.doi.org/10.1023/A:1021293501345

Kashdan, T. B. (2007). Social anxiety spectrum and diminished positive experiences: Theoretical synthesis and meta-analysis. *Clinical Psychology Review, 27,* 348–365. http://dx.doi.org/10.1016/j.cpr.2006.12.003

Kashdan, T. B., Adams, L. M., Farmer, A. S., Ferssizidis, P., McKnight, P. E., & Nezlek, J. B. (2014). Sexual healing: Daily diary investigation of the benefits of intimate and pleasurable sexual activity in socially anxious adults. *Archives of Sexual Behavior, 43,* 1417–1429. http://dx.doi.org/10.1007/s10508-013-0171-4

Kashdan, T. B., & Breen, W. E. (2008). Social anxiety and positive emotions: A prospective examination of a self-regulatory model with tendencies to suppress or express emotions as a moderating variable.

Behavior Therapy, 39, 1–12. http://dx.doi.org/10.1016/j.beth.2007.02.003

Kashdan, T. B., & Collins, R. L. (2010). Social anxiety and the experience of positive emotion and anger in everyday life: An ecological momentary assessment approach. *Anxiety, Stress & Coping: An International Journal, 23,* 259–272. http://dx.doi.org/10.1080/10615800802641950

Kashdan, T. B., & Roberts, J. E. (2006). Affective outcomes in superficial and intimate interactions: Roles of social anxiety and curiosity. *Journal of Research in Personality, 40,* 140–167. http://dx.doi.org/10.1016/j.jrp.2004.10.005

Kashdan, T. B., & Steger, M. F. (2006). Expanding the topography of social anxiety. An experience-sampling assessment of positive emotions, positive events, and emotion suppression. *Psychological Science, 17,* 120–128. http://dx.doi.org/10.1111/j.1467-9280.2006.01674.x

Kashdan, T. B., Weeks, J. W., & Savostyanova, A. A. (2011). Whether, how, and when social anxiety shapes positive experiences and events: A self-regulatory framework and treatment implications. *Clinical Psychology Review, 31,* 786–799. http://dx.doi.org/10.1016/j.cpr.2011.03.012

Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month *DSM–IV* disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62,* 617–627. http://dx.doi.org/10.1001/archpsyc.62.6.617

Lamers, F., Swendsen, J., Cui, L., Husky, M., Johns, J., Zipunnikov, V., & Merikangas, K. R. (2018). Mood reactivity and affective dynamics in mood and anxiety disorders. *Journal of Abnormal Psychology, 127,* 659–669. http://dx.doi.org/10.1037/abn0000378

Lane, S. P., & Shrout, P. E. (2010). Assessing the reliability of within-person change over time: A dynamic factor analysis approach. *Multivariate Behavioral Research, 45,* 1027. http://dx.doi.org/10.1080/00273171.2010.534380

Lay, J. C., Gerstorf, D., Scott, S. B., Pauly, T., & Hoppmann, C. A. (2017). Neuroticism and extraversion magnify discrepancies between retrospective and concurrent affect reports. *Journal of Personality, 85,* 817–829. http://dx.doi.org/10.1111/jopy.12290

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. http://dx.doi.org/10.1016/S0005-7967(97)10031-6

Merikangas, K. R., Avenevoli, S., Acharyya, S., Zhang, H., & Angst, J. (2002). The spectrum of social phobia in the Zurich cohort study of young adults. *Biological Psychiatry, 51,* 81–91. http://dx.doi.org/10.1016/S0006-3223(01)01309-9

Mogg, K., & Bradley, B. P. (2002). Selective orienting of attention to masked threat faces in social anxiety. *Behaviour Research and Therapy, 40,* 1403–1414. http://dx.doi.org/10.1016/S0005-7967(02)00017-7

Mogg, K., & Bradley, B. P. (2005). Attentional bias in generalized anxiety disorder versus depressive disorder. *Cognitive Therapy and Research, 29,* 29–45. http://dx.doi.org/10.1007/s10608-005-1646-y

Morgan, J. K., Lee, G. E., Wright, A. G., Gilchrist, D. E., Forbes, E. E., McMakin, D. L., . . . Silk, J. S. (2017). Altered positive affect in clinically anxious youth: The role of social context and anxiety subtype. *Journal of Abnormal Child Psychology, 45,* 1461–1472.

Nezlek, J. B. (2011). *Multilevel modeling for social and personality psychology*. Thousand Oaks, CA: SAGE Publications Ltd.

Nezlek, J. B. (2012). Multilevel modeling analyses of diary-style data. *Handbook of Research Methods for Studying Daily Life,* 357–383.

Palmier-Claus, J. E., Myin-Germeys, I., Barkus, E., Bentley, L., Udachina, A., Delespaul, P. A. E. G., . . . Dunn, G. (2011). Experience sampling research in individuals with mental illness: Reflections and guidance. *Acta Psychiatrica Scandinavica, 123,* 12–20. http://dx.doi.org/10.1111/j.1600-0447.2010.01596.x

Pramana, G., Parmanto, B., Kendall, P. C., & Silk, J. S. (2014). The SmartCAT: An m-health platform for ecological momentary intervention in child anxiety treatment. *Telemedicine and e-Health, 20,* 419–427. http://dx.doi.org/10.1089/tmj.2013.0214

Quoidbach, J., Mikolajczak, M., & Gross, J. J. (2015). Positive interventions: An emotion regulation perspective. *Psychological Bulletin, 141,* 655–693. http://dx.doi.org/10.1037/a0038648

R Core Team. (2019). R: A language and environment for statistical computing (Version 3.3.1) [Computer software]. Vienna, Austria: R Foundation for Statistical Computing.

Rapee, R. M., & Heimberg, R. G. (1997). A cognitive-behavioral model of anxiety in social phobia. *Behaviour Research and Therapy, 35,* 741–756. http://dx.doi.org/10.1016/S0005-7967(97)00022-3

Raudenbush, S. W., & Liu, X. (2000). Statistical power and optimal design for multisite randomized trials. *Psychological Methods, 5,* 199–213.

Riordan, B. C., Conner, T. S., Flett, J. A., & Scarf, D. (2015). A brief orientation week ecological momentary intervention to reduce university student alcohol consumption. *Journal of Studies on Alcohol and Drugs, 76,* 525–529. http://dx.doi.org/10.15288/jsad.2015.76.525

Rodebaugh, T. L., Woods, C. M., Heimberg, R. G., Liebowitz, M. R., & Schneier, F. R. (2006). The factor structure and screening utility of the Social Interaction Anxiety Scale. *Psychological Assessment, 18,* 231–237. http://dx.doi.org/10.1037/1040-3590.18.2.231

Rolls, E. T. (2018). What are emotional states and what are their functions. In A. S. Fox, R. C. Lapate, A. J. Shackman, & R. J. Davidson (Eds.), *The nature of emotion: Fundamental questions* (2nd ed., pp. 19–28). New York, NY: Oxford University Press.

Rottenberg, J. (2017). Emotions in depression: What do we really know? *Annual Review of Clinical Psychology, 13,* 241–263. http://dx.doi.org/10.1146/annurev-clinpsy-032816-045252

Russell, G., & Shaw, S. (2009). A study to investigate the prevalence of social anxiety in a sample of higher education students in the United Kingdom. *Journal of Mental Health, 18,* 198–206. http://dx.doi.org/10.1080/09638230802522494

Shackman, A. J., Tromp, D. P. M., Stockbridge, M. D., Kaplan, C. M., Tillman, R. M., & Fox, A. S. (2016). Dispositional negativity: An integrative psychological and neurobiological perspective. *Psychological Bulletin, 142,* 1275–1314. http://dx.doi.org/10.1037/bul0000073

Shackman, A. J., Weinstein, J. S., Hudja, S. N., Bloomer, C. D., Barstead, M. G., Fox, A. S., & Lemay, E. P., Jr. (2018). Dispositional negativity in the wild: Social environment governs momentary emotional experience. *Emotion, 18,* 707–724. http://dx.doi.org/10.1037/emo0000339

Stefanopoulou, E., Hirsch, C. R., Hayes, S., Adlam, A., & Coker, S. (2014). Are attentional control resources reduced by worry in generalized anxiety disorder? *Journal of Abnormal Psychology, 123,* 330–335. http://dx.doi.org/10.1037/a0036343

Stein, M. B., & Kean, Y. M. (2000). Disability and quality of life in social phobia: Epidemiologic findings. *The American Journal of Psychiatry, 157,* 1606–1613. http://dx.doi.org/10.1176/appi.ajp.157.10.1606

Stone, A., Shiffman, S., Atienza, A., & Nebeling, L. (2007). *The science of real-time data capture: Self-reports in health research*. New York, NY: Oxford University Press.

Taylor, C. T., Lyubomirsky, S., & Stein, M. B. (2017). Upregulating the positive affect system in anxiety and depression: Outcomes of a positive activity intervention. *Depression and Anxiety, 34,* 267–280. http://dx.doi.org/10.1002/da.22593

Thompson, R. J., Mata, J., Jaeggi, S. M., Buschkuehl, M., Jonides, J., & Gotlib, I. H. (2012). The everyday emotional experience of adults with major depressive disorder: Examining emotional instability, inertia, and reactivity. *Journal of Abnormal Psychology, 121,* 819–829. http://dx.doi.org/10.1037/a0027978

Titov, N. (2007). Status of computerized cognitive behavioural therapy for adults. *Australian and New Zealand Journal of Psychiatry, 41,* 95–114. http://dx.doi.org/10.1080/00048670601109873

Vos, T., Allen, C., Arora, M., Barber, R. M., Bhutta, Z. A., Brown, A., . . . GBD 2015 Disease and Injury Incidence and Prevalence Collaborators.

(2016). Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: A systematic analysis for the Global Burden of Disease Study 2015. *Lancet, 388,* 1545–1602. http://dx.doi.org/10.1016/S0140-6736(16)31678-6

Wallace, S. T., & Alden, L. E. (1997). Social phobia and positive social events: The price of success. *Journal of Abnormal Psychology, 106,* 416–424. http://dx.doi.org/10.1037/0021-843X.106.3.416

Watson, D., O'Hara, M. W., Chmielewski, M., McDade-Montez, E. A., Koffel, E., Naragon, K., & Stuart, S. (2008). Further validation of the IDAS: Evidence of convergent, discriminant, criterion, and incremental validity. *Psychological Assessment, 20,* 248–259. http://dx.doi.org/10.1037/a0012570

Watson, D., O'Hara, M. W., Simms, L. J., Kotov, R., Chmielewski, M., McDade-Montez, E. A., . . . Stuart, S. (2007). Development and validation of the Inventory of Depression and Anxiety Symptoms (IDAS). *Psychological Assessment, 19,* 253–268. http://dx.doi.org/10.1037/1040-3590.19.3.253

Weeks, J. W., Heimberg, R. G., Rodebaugh, T. L., & Norton, P. J. (2008). Exploring the relationship between fear of positive evaluation and social anxiety. *Journal of Anxiety Disorders, 22,* 386–400. http://dx.doi.org/10.1016/j.janxdis.2007.04.009

Wells, A., Clark, D. M., Salkovskis, P., Ludgate, J., Hackmann, A., & Gelder, M. (1995). Social phobia: The role of in-situation safety behaviors in maintaining anxiety and negative beliefs. *Behavior Therapy, 26,* 153–161.

Received March 22, 2019
Revision received December 2, 2019
Accepted December 4, 2019 ■

Supplemental Materials

Supplemental Table 1.

Outcome:	Happiness		Anxiety		Sense of Belonging		Soc. Approach Motivation		Soc. Avoidance Motivation	
Moderators:	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Social Anxiety										
-1 *SD*	3.58	1.20	1.39	.71	3.60	1.12	3.06	1.43	1.67	1.01
+1 *SD*	2.89	1.15	1.98	1.03	2.93	1.14	2.64	1.30	2.57	1.37
General Anxiety										
-1 *SD*	3.46	1.22	1.36	.66	3.42	1.11	2.83	1.30	1.79	.98
+1 *SD*	2.82	1.12	2.15	1.07	2.91	1.13	2.51	1.24	2.80	1.42
Depression										
-1 *SD*	3.68	1.36	1.32	.66	3.66	1.16	3.03	1.48	1.86	1.18
+1 *SD*	2.65	1.21	2.23	1.06	2.67	1.15	2.38	1.26	2.63	1.45

Means and standard deviations for each outcome at one standard deviation above and below each moderator