Emotion
2014, Vol. 14, No. 4, 769–781

1528-3542/14/$12.00 DOI: 10.1037/a0035935

A Contextual Approach to Experiential Avoidance and Social Anxiety: Evidence From an Experimental Interaction and Daily Interactions of People With Social Anxiety Disorder

Todd B. Kashdan, Fallon R. Goodman, Kyla A. Machell, Evan M. Kleiman, and Samuel S. Monfort
George Mason University

Joseph Ciarrochi
Australian Catholic University

John B. Nezlek
College of William and Mary and University of Social Sciences and Humanities

Experiential avoidance (EA), the tendency to avoid internal, unwanted thoughts and feelings, is hypothesized to be a risk factor for social anxiety. Existing studies of experiential avoidance rely on trait measures with minimal contextual consideration. In two studies, we examined the association between experiential avoidance and anxiety within real-world social interactions. In the first study, we examined the effect of experiential avoidance on social anxiety in everyday life. For 2 weeks, 37 participants with Social Anxiety Disorder (SAD) and 38 healthy controls provided reports of experiential avoidance and social anxiety symptoms during face-to-face social interactions. Results showed that momentary experiential avoidance was positively related to anxiety symptoms during social interactions and this effect was stronger among people with SAD. People low in EA showed greater sensitivity to the level of situational threat than high EA people. In the second study, we facilitated an initial encounter between strangers. Unlike Study 1, we experimentally created a social situation where there was either an opportunity for intimacy (self-disclosure conversation) or no such opportunity (small-talk conversation). Results showed that greater experiential avoidance during the self-disclosure conversation temporally preceded increases in social anxiety for the remainder of the interaction; no such effect was found in the small-talk conversation. Our findings provide insight into the association between experiential avoidance on social anxiety in laboratory and naturalistic settings, and demonstrate that the effect of EA depends upon level of social threat and opportunity.

Keywords: experiential avoidance, social anxiety, well-being, daily diary methodology

Experiential avoidance (EA) refers to efforts to control or avoid unpleasant internal events, such as distressing emotions, negative thoughts, and unwanted physical sensations (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Avoiding unpleasant mental content often provides temporary relief from distress. Unfortunately, rigid use of this regulatory strategy over time has been shown to increase the exact distress one is trying to avoid (e.g., Farach, Mennin, Smith, & Mandelbaum, 2008; Marx & Sloan, 2005).

Chambers, Gullone, and Allen (2009) state that experiential avoidance occurs "when one is unwilling to remain in contact with elements of one's experience, and therefore acts to alter the form and frequency of related events, through avoidance strategies such as distraction, rumination, suppression or reappraisal" (p. 562). A point that echoes Kashdan, Barrios, Forsyth, and Steger (2006), "To some extent, strategic attempts to escape stressful experiences (avoidant coping), to become independent from aversive events and accompanying emotions (detached coping), or to inhibit the expression of emotions (emotion suppression) can be considered component processes of experiential avoidance" (p. 1303). Other researchers are in agreement that experiential avoidance "includes the tendency to use suppression and other emotional control tac-

This article was published Online First April 21, 2014.

Todd B. Kashdan, Fallon R. Goodman, Kyla A. Machell, Evan M. Kleiman, and Samuel S. Monfort, Department of Psychology, George Mason University; Joseph Ciarrochi, Institute of Positive Psychology and Education, Australian Catholic University; John B. Nezlek, College of William & Mary and University of Social Sciences and Humanities.

Todd B. Kashdan procured the grant funding, designed both studies, developed the empirical protocols, and collected the data. Todd B. Kashdan devised the data-analytic plan, which Fallon R. Goodman, Kyla A. Machell, Evan M. Kleiman, Samuel S. Monfort, and Joseph Ciarrochi executed. Fallon R. Goodman, Kyla A. Machell, Evan M. Kleiman, and Samuel S. Monfort wrote the first draft of the article, and all authors contributed substantively to the revisions. All authors approved the final version of the article for submission.

Todd B. Kashdan was financially supported by NIMH R21-MH073937 and as Senior Scientist of the Center for the Advancement of Well-Being, George Mason University. Fallon R. Goodman was financially supported by the same center with a graduate student fellowship.

Correspondence concerning this article should be addressed to Todd B. Kashdan, Department of Psychology, MS 3F5, George Mason University, Fairfax, VA 22030. E-mail: tkashdan@gmu.edu

tics" (Campbell-Sills, Barlow, Brown, & Hofmann, 2006; p. 588). Experiential avoidance is a behavior that is strategically employed to control emotions, and the focus can be directed toward the subjective experience, physiological arousal, or behavioral expression of emotion.

Although EA has been shown to be a transdiagnostic risk factor for psychopathology (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Bond et al., 2011; Hildebrandt & Hayes, 2012), theorists suggest that it is particularly relevant to the development and maintenance of excessive, impairing social anxiety (Heimberg, Brozovich, & Rapee, 2010; Kashdan, Weeks, & Savostyanova, 2011). In the current research, we conducted two tests of whether and when the use of EA in the presence of fear cues is related to social anxiety symptoms and responsive to the level of social threat during interactions.

Self-Regulatory Model of Social Anxiety

The dominant, cognitive–behavioral framework for understanding social anxiety proposes that the fear and avoidance of social interactions arise from dysfunctional beliefs (Clark & Wells, 1995; Hofmann, 2007; Leary, 2001; Rapee & Heimberg, 1997), focusing on being evaluated negatively (e.g., "Everyone is looking for reasons to criticize me"), having character flaws exposed (e.g., "People notice that I'm not funny and because of that don't like me"), the visibility of anxiety symptoms (e.g., "Everyone notices that I'm anxious and my hands are shaking"), and the importance of being viewed positively (e.g., "If I make a blunder while talking, people will stop spending time with me"). These dysfunctional thoughts are proposed to set forth a chain of unhelpful reactions. They increase hypervigilance to possible signs of social threat such as frowns or yawns of other people. In an attempt to avoid social failure, they also increase monitoring of internal threat cues, such as anxious thoughts, feelings, and bodily sensations. Recently, theorists have argued that the valence and shifts in attention might be less important to the development of excessive social anxiety than the unwillingness to experience anxiety related thoughts and feelings. This unwillingness may in turn lead to maladaptive efforts to resist, escape, and avoid such experiences (Morrison & Heimberg, 2013).

People differ in how they react to their emotional experiences. Some people respond to uncomfortable or unpleasant emotional states with efforts to alter those states through emotion regulation strategies (Gross, 1998). Engaging in aspects of EA, such as emotion suppression, requires enormous effort and energy relative to other ways of regulating emotions (Richards & Gross, 1999), and thus its use (particularly in stressful contexts) contributes to mental exhaustion and reduced cognitive capacities. Excessive focus on controlling and avoiding emotions also diminishes contact with present experiences, causing a person to be less responsive to reward contingencies in the environment (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). For instance, experience-sampling research has shown that devoting limited time and energy to EA interferes with the frequency of positive events and the subsequent emotional benefits (e.g., Kashdan, Barrios, Forsyth, & Steger, 2006). This research supports the link between excessive emotion regulation—particularly EA—and greater distress and reductions in positive experiences, but we have yet to see how this regulatory strategy functions in the context of actual social interactions. The current article explores the possibility that when individuals attempt to avoid feelings of anxiety and thoughts of rejection, they end up amplifying the prominence of those feelings and thoughts, and exhausting the very resources required to effectively engage in social interactions and emotion management. That is, by their efforts to divert negative thoughts and feelings evoked by social interactions, they use an EA self-regulatory strategy that may increase their anxiety.

Experiential Avoidance in Social Contexts

An avoidance orientation acts as a barrier to pursuing and experiencing meaningful social interactions. Specifically, research has shown that EA is associated with fewer approach-oriented behaviors, such as introducing oneself to others (Chawla & Ostafin, 2007; Hayes et al., 2006, 2004). Research also suggests that EA interferes with the maintenance of existing relationships by diminishing reward responsiveness during social interactions (Gross & John, 2003). Given that EA is a cognitively taxing process (Richards & Gross, 1999), individuals might be so preoccupied with avoiding anxious thoughts and feelings that they become less responsive in environments where social rewards are possible. Theorists have argued that anxiety is generated as the desire to conceal this anxiety in social situations where personal strengths and vulnerabilities are easily exposed and scrutinized by others (Leary, 2001; Moscovitch, 2009). During conversational social contexts where two people take turns self-disclosing to one another, where the potential for social rewards (and social failures) is high, the threat of being evaluated and rejected by others is also high. Theory suggests that EA is likely to amplify social anxiety in these high-risk, high-reward social situations. In social contexts perceived as safe, EA should have less effect on anxiety levels. Research suggests that the effectiveness of EA varies depending on a person's values and goals (Kashdan & Breen, 2007) and the demands of a given situation (Kashdan & Rottenberg, 2010). Despite the potential detrimental role of EA during social interactions, few studies have examined how EA operates across social contexts (e.g., intimate settings, casual settings; Butler & Gross, 2004; Reddy, Pickett, & Orcutt, 2006). Most studies of EA have relied on global, trait self-report questionnaires with little consideration of social context (Chawla & Ostafin, 2007). Even those studies that have gone beyond the use of global measures to examine the effects of EA in everyday life have yet to explicitly consider the impact of EA across varied social contexts (e.g., Kashdan et al., 2006). Given the importance of interpersonal functioning and social relationships to well-being and psychopathology, it is essential to explore the impact of EA in the context of social interactions.

The Present Research

We examined the impact of EA in social interactions across two studies using a combination of experience sampling and experimental methodologies. Our studies used a novel measure that captures the momentary use of EA during social interactions rather than inferring EA from a retrospective trait questionnaire. In both studies, we conducted factor analyses to examine whether momentary emotion generation, in this case social anxiety, was distinct from emotion regulation, in this case EA; surprisingly, to our

knowledge, no study to date has conducted such a conservative test of the uniqueness of a state measure of EA. Following these basic analyses, Study 1 used a 14-day experience-sampling approach to examine the association between momentary experiences of EA and social anxiety during naturalistic, face-to-face social interactions. We focused on people diagnosed with the *DSM–IV* generalized subtype of social anxiety disorder (SAD; American Psychiatric Association, 2000) and compared them with a healthy adult comparison group. To address the importance of context, we examined whether EA was more relevant to the generation of social anxiety when people met criteria for SAD and were in situations deemed to be threatening/negative (critical interaction partners or conflict with interaction partners) compared with situations deemed safe/positive (warm/friendly or interested interaction partners). Study 2 examined EA and social anxiety symptoms during the course of an experimental social encounter between two strangers (nonclinical sample). To address the importance of context, we examined whether EA is more relevant to the generation of social anxiety when there is a greater opportunity for personal vulnerabilities to be exposed, evaluated, and rejected—a situation theorized to be strongly linked to social anxiety (Moscovitch, 2009). Taken together, these studies offer a more fine-grained understanding of whether and when EA is positively related to social anxiety symptoms during social interactions.

Study 1: Ecological Assessment of Experiential Avoidance and Social Anxiety

Compared with healthy adults with low levels of social anxiety, socially anxious people are more likely to fear negative emotions (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005; Weeks, Heimberg, & Rodebaugh, 2008) and use strategies to downregulate them (Farmer & Kashdan, 2012; Spokas, Luterek, & Heimberg, 2009; Werner, Goldin, Ball, Heimberg, & Gross, 2011). The belief that expressing negative emotions has maladaptive consequences has been found to indirectly link social anxiety to deficits in positive experiences (Juretic & Zivcic-Becirevic, 2013). Other theoretical (Cisler, Olatunji, Feldner, & Forsyth, 2010) and empirical (Kashdan et al., 2013) work suggests that EA is useful in distinguishing between individuals with and without the presence of anxiety disorders.

Building on this prior work, our initial interest was in whether EA and social anxiety during everyday social interactions are related but independent constructs; we used factor analyses to test this proposition. Following these analyses, we examined whether any association between EA and social anxiety during everyday social interactions differed as a function of adults being diagnosed with SAD. Next, we examined how the presence of EA and social anxiety during social interactions might be influenced by contextual factors. We explored four different social contexts: two that were threatening/negative (being around critical people; having conflict during the interaction) and two that were safe/positive (being around warm, friendly people; having people interested in what you had to say during the interaction). We hypothesized that the use of EA in a social interaction would predict greater levels of social anxiety and that this relationship would be stronger for people diagnosed with SAD. Yet, context was expected to be of primary importance, such that being around critical people or having conflicts during the interaction (when the potential for negative evaluation and rejection is amplified) may be a stronger predictor of social anxiety than either EA or the presence of SAD.

Based on recent theoretical models, excessive use of EA during a social interaction was expected to be related to greater social anxiety across threatening/negative social contexts. That is, excessive use of EA was expected to render people uncomfortable and avoidant, with a hypersensitivity to threat in both contexts and lack of responsiveness to rewards in the safe/positive social context. Supportive results could provide additional evidence to the findings from Study 1 for the explicit importance of social context in understanding how and when EA is relevant to social anxiety.

Method

Participants. Participants from our initial sample were 84 individuals (52 women) from the Northern Virginia community, 41 of whom were diagnosed with the *DSM–IV* generalized subtype of SAD and the remaining 43 were a healthy control group. Our definition of generalized SAD deviated slightly from *DSM–IV* guidelines (American Psychiatric Association, 2000), which focuses only on the number of feared social situations. Instead, we used the more widely used definition in the research literature: "Although people with generalized social anxiety disorder can fear and avoid specific performance situations such as public speaking, their social fears and avoidance extend far beyond that relatively common sphere of concern" (Stein & Stein, 2008; p. 1115).

Individuals were excluded from the study if they had a psychotic or substance use disorder, or met criteria for a nongeneralized subtype of SAD. After excluding nine participants who did not provide data on daily social interactions, our final sample consisted of 75 participants, 37 (25 women) with *DSM–IV* generalized SAD diagnoses and 38 (24 women) healthy controls. The mean age of our final sample was 28.34 years ($SD = 8.44$) and racially diverse: 51.3% Caucasian, 23.7% African American, 10.5% Latino/Hispanic, 3.9% Asian, 1.3% Middle Eastern, and 9.2% other. Our two groups did not show statistically significant differences in age ($p = .25$, ethnic background ($p = .82$), or sex ($p = .95$). This study was approved by the Institutional Review Board at George Mason University and carried out in accordance with the provisions of the World Medical Association Declaration of Helsinki.

To determine psychological functioning and co-occurring diagnoses, we assessed for the presence of *DSM–IV–TR* Axis I disorders. Comorbid diagnoses in the SAD group ($n = 38$) included specific phobia ($n = 11$), major depressive or dysthymic disorder ($n = 7$), posttraumatic stress disorder ($n = 5$), generalized anxiety disorder ($n = 2$), obsessive–compulsive disorder ($n = 2$). and panic disorder with or without agoraphobia ($n = 2$). In the control group, only two participants (5.4%) met diagnostic criteria for a specific phobia (but without significant impairment in any major life domains); no other psychopathology was present. Seven participants (18.4%) in the SAD group were receiving some form of psychological treatment compared with only one person in the healthy control group, $\chi^2(1) = 6.40$, $p = .01$; the person in the control group was not receiving psychotherapy for a psychiatric disorder. Treatment status did not significantly predict any outcome variables, trait measures, or number of reported social interactions. Eight participants in the SAD group were on psychotropic medication compared with one person in the control group. The person in the control group was on Adderall for the past month at

10 mg twice per day (prescribed by their primary care physician to increase their concentration at work).

Procedure. Participants were recruited via community flyers and online advertisements. An initial phone screen was conducted to assess for functional impairment, social anxiety symptoms, generalized anxiety disorder symptoms, depression, suicidality, and psychotic symptoms. Following the phone screen, face-to-face assessments were scheduled for participants who disclosed generalized social anxiety fears (i.e., fears occurring outside public speaking and observational situations). Informed consent, demographic, and personality trait questionnaires were completed during this initial session. Participants were administered the *Structured Clinical Interview for DSM–IV Axis I Disorders* (SCID; First, Spitzer, Gibbon, & Williams, 2002) by doctoral students in clinical psychology to assess for anxiety, mood, substance use, eating, and psychotic disorders. The SAD module of the Anxiety Disorders Interview Schedule for *DSM–IV: Lifetime Version* (Di Nardo, Brown, & Barlow, 1994) was administered to supplement the SCID to determine generalized SAD diagnostic status.

To determine interrater reliability of diagnoses, two clinical psychology doctoral students with multiple years of training in diagnostic assessment served as raters. Each individual independently watched videotaped interviews of research participants. Any diagnostic discrepancies were discussed until a consensus was reached. A consensus was reached on all discrepancies. Prediscussion interrater reliability estimates for generalized SAD diagnoses demonstrated excellent agreement ($\kappa = .87$). Participants with generalized SAD were matched to healthy community participants via targeted advertisements on gender, age (within 8 years), and Caucasian versus non-Caucasian.

The initial assessment session was followed by a 1.5-hr introductory session on the experience sampling protocol. Participants were given hand-held computers (Palm Pilot Z22) programmed using the Purdue Momentary Assessment Tool program (PMAT; Weiss, Beal, Lucy, & MacDermid, 2004). Before leaving the lab, participants practiced completing self-initiated recordings of daily social interactions, random prompts, and end-of-day records using the hand-held computers. Only the daily social interaction data are used in the present study.

Participants received instructions on how to complete a questionnaire describing every face-to-face social interaction that lasted at least 10 min over the 2-week assessment period. The training procedure used was based on 35 years of social interaction research using diary data (for review, see Nezlek, 2012). We defined a social interaction as "any situation involving you and one or more other people in which the behavior of each person is affected by the behaviors of the others." Research assistants described examples of events that were considered social interactions (e.g., conversation) as well as those that were not (e.g., quietly watching a movie), and discussed each survey item and response category to verify participants understood the procedure. Participants were instructed to provide reports as soon as possible after each social interaction.

Research assistants contacted participants 2 days after the experience sampling protocol to assess and resolve any problems encountered. Researchers sent reminder e-mails throughout the 2-week assessment period to stress the importance of compliance. Daily measures were kept brief to encourage compliance and prevent participant burn-out, a method that does not decrease reliability or validity (e.g., Nezlek, 2012).

Participant compensation was structured to maximize compliance (see Bardone, Krahn, Goodman, & Searles, 2000 and Kamarck et al., 1998 for similar procedures). Participants received a minimum payment of $165 for the entire study and up to $50 in bonus compensation (50 cents for each completed daily prompt and end-of-day record and $10 bonus for each uninterrupted week of completed reports) for a maximum payment of $215. During exit interviews, nearly all participants indicated that they took the task seriously, and reported that the process was helpful and illuminating (not cumbersome).

Experience Sampling Social Interaction Measures

Experiential avoidance and social anxiety. We conceptualized EA as an unwillingness to experience negative thoughts and feelings, and measured it using four items (created by the first author, TBK): "How much did you try to hide and/or conceal your anxiety from others?," "To what degree did you give up saying or doing what you like (or mattered to you) in order to control and manage anxiety?," "How much did you try to control your anxiety-related feelings or thoughts?," and "How upset and bothered were you about anxiety-related feelings or thoughts?" See Results section for descriptive data and reliability.

Social anxiety was measured with three items (from Kashdan & Steger, 2006): "I was worried that I would say or do the wrong things," "I worried about what other people thought of me," and "I was afraid that others did not approve of me." Participants responded using a 5-point scale from all social interaction measures, where 1 = *very slightly or not at all* and 5 = *extremely*. See Results section for factor structure, descriptive data, reliability, and validity.

As tests of validity, the experience sampling state measure of EA correlated .75 ($p < .001$) with the Acceptance and Action Questionnaire-II (Bond et al., 2011), a trait measure of EA; the experience sampling state measure of social anxiety was correlated .74 ($p < .001$) with the Social Interaction Anxiety Scale (Mattick & Clarke, 1998), a trait measure of social interaction fears.

Social context. We asked respondents four questions to capture the nature or context of each of their social interactions. Two of these items reflected threatening/negative contexts, "How critical/judgmental were other people during this interaction?" and "How much conflict did you experience with other people during this interaction?," and two of these items reflected safe/positive contexts, "How warm/friendly were other people during this interaction?" and "To what degree did others show interest in you?" Participants responded using a 7-point scale where 0 = *very slightly or not at all* and 7 = *extremely*. Because this was only the second study to examine the contextual nature of EA, we examined each of these items separately.

Participant compliance. Participants reported an average of 9.83 face-to-face social interactions lasting at least 10 min ($SD = 4.63$). There was no significant difference between the SAD and control groups for number of social interactions ($M = 10.22$, $SD = 5.41$ vs. $M = 9.55$, $SD = 3.79$, respectively; $t(73) = .54$, $p = .59$, Cohen's $d = .13$) or number of days in which data were provided ($M = 11.65$, $SD = 4.74$ vs. $M = 11.45$, $SD = 4.83$, respectively; $t(73) = .86$, $p = .39$, Cohen's $d = .20$).

Analytic strategy. Our experience sampling methodology yielded a hierarchically organized dataset, with observations (social interactions) nested within persons. To accommodate this nesting, we analyzed the data using a series of multilevel models with HLM (Raudenbush, Bryk, Cheong, & Congdon, 2000). Our analyses followed procedures and guidelines outlined by Nezlek (2001, 2011). The multilevel modeling analyses we used take into account the number of observations (interactions) for each person. This adjustment, known within the literature as Bayes shrinkage, adjusts variance estimates using a combination of the reliability of a coefficient, the number of observations in a unit of analysis, and the distance from the mean coefficient of a coefficient for a unit of analysis.

Results

Experience-sampling measures: Factor structure. We used Mplus 6.1 (Muthén & Muthén, 2010) and structural equation modeling to examine our assumption that EA and social anxiety were indeed separate but related factors. We used Maximum Likelihood parameter (MLR) estimates with standard errors that are robust to non-normality. We conducted exploratory factor analyses with target rotation, a procedure that is a mix between confirmatory and exploratory analysis (Browne, 2001). This approach allowed us to test the assumption that the anxiety and EA items loaded on their respective factor as with confirmatory factor analysis. However, unlike confirmatory factor analysis, we do not make the unlikely assumption that item cross-loadings are zero (Marsh et al., 2009). In target rotation, the items expected to not load on a particular factor are only made as close to the specified zeros as possible (Browne, 2001).

The data for the current study had a nested data structure in which repeated assessments are nested within individuals. If this complex data structure is not accounted for, standard errors may be biased (Hox, 2010). Therefore, we used the TYPE = COMPLEX option in Mplus, which adjusts standard errors for the effects of clustered data and hence provides appropriate statistical significance tests. We used the comparative fit index (CFI $>$ .90) and RMSEA ($<$ .08) to determine the quality of the fit of the two factor model relative to the one factor model. Normally, a CFI $>$ .90 and RMSEA $<$ .08 indicates acceptable fit (Marsh, Balla, & McDonald, 1988; McDonald & Marsh, 1990) for larger models. However, models with small N and DF, as in the present case, can have artificially large RMSEA values (Kenny, Kaniskan, & McCoach, 2011). Thus, our interest in using RMSEA is in the relative fit between the one and two factor model, rather than absolute fit.

The factor analyses with target rotation revealed that a two factor model, with separate EA and social anxiety factors, fit the data adequately ($\chi^2_{(8)}$ = 44.79, CFI = .98, RMSEA = .079), and considerably better than a model that assumed only one factor ($\chi^2_{(14)}$ = 229.82, CFI = .87, RMSEA = .15). The factor loadings for the first factor were .69 (EA item 1), .91 (EA item 2), 1.01 (EA item 3), and .72 (EA item 4) whereas the three social anxiety had small loadings at −.01, .00, and .04, respectively. The factor loadings for the second factor were .91 (Social Anxiety Item 1), .92 (Social Anxiety Item 2), .87 (Social Anxiety Item 3) whereas the four EA items had small loadings at .13, −.01, −.13, and .07, respectively. Thus, there was clear evidence of separate EA and social anxiety factors.

Experience-sampling measures: Descriptive data and reliability. Prior to primary analyses, we examined the reliability of social interaction measures. We used a series of three-level unconditional models with items nested within interactions and interactions nested with persons (Nezlek, 2007). In this model shown below, there are *i* items nested within *j* interactions nested within *k* persons.

$$\text{Item level : } y_{ijk} = \pi_{0jk} + e_{ijk}$$

$$\text{Interaction level: } \pi_{0jk} = \beta_{00k} + r_{0jk}$$

$$\text{Person level: } \beta_{00k} = \gamma_{000} + u_{00k}$$

The reliability of each social interaction measure was acceptable at .84 for social anxiety and .87 for experiential avoidance, as reported in Table 1. In terms of variability, for social anxiety, 50% of the variance occurred within-person and for experiential avoidance, 55% of the variance occurred within-person. These findings provide evidence for the importance of studying these constructs using intensive repeated assessments instead of relying on single occasion trait questionnaires. Acceptable reliability and sufficient within-person variability allowed us to define each social interaction measure as the mean response score of items for each respective scale. Subsequent analyses were conducted using a two-level model with interactions (n = 747) nested with persons (n = 75).

We estimated the correlation between each of the four social context items. This was done by comparing the residual variance (the random error) from the original unconditional analysis (empty model) with the residual variance from another model in which another contextual variable was included as a predictor. Using this approach, the correlation between critical/judgmental and conflict (the two threatening/negative) contexts was .57 and the correlation between warm/friendly and interesting (the two safe/positive) contexts was .73. Also, the warm/friendly context correlated −.45 with the critical/judgment context and −.41 with the conflict context, and the interesting context correlated −.40 with the critical/judgment context and −.31 with the conflict context.

Social Interaction Measures: Differences Between SAD and Control Group

Preliminary analyses showed that the SAD group reported higher average levels of state EA, B = .49, $t(70)$ = 7.84, p $<$ .001,

Table 1
Multilevel Descriptive Statistics for Experience-Sampling Social Interaction Measures (Study 1)

	Mean (*SE*)	Variability		Reliability
		Within	Between	
State social anxiety	1.80 (.10)	0.50	0.50	0.84
Social Anxiety Disorder	2.32 (.15)			
Control	1.33 (.08)			
State EA	1.70 (.08)	0.55	0.45	0.87
Social Anxiety Disorder	2.19 (.12)			
Control	1.25 (.06)			

and state social anxiety, $B = .50$, $t(70) = 6.41$, $p < .001$. To examine the association between EA and social anxiety across individuals with SAD and healthy controls, we used a two-level model, with the mean of the social interaction measures at Level 1, the diagnostic status of SAD at Level 2, and state social anxiety as our outcome. SAD was coded using a contrast variable (1 = SAD, −1 = Control group). The model is shown below.

$$\text{Day level: } y_{ij} = \beta_{0j} + \beta_{1j}(\text{State EA}) + r_{ij}.$$

$$\text{Person-level intercept: } \beta_{0j} = \gamma_{00} + \gamma_{01}(\text{SAD}) + u_{0j}$$

$$\text{Person-level slope: } \beta_{1j} = \gamma_{10} + \gamma_{11}(\text{SAD}) + u_{1j}$$

In our initial model, above and beyond the positive association between the presence of SAD and social anxiety during social interactions, $B = .50$, $t(72) = 6.29$, $p < .001$, EA predicted greater social anxiety symptoms, $B = .48$, $t(72) = 8.06$, $p < .001$. To go beyond main effects, we tested whether the presence of SAD moderated the effect of EA on social anxiety and found a significant cross-level interaction between EA and SAD diagnostic status, $B = .16$, $t(72) = 2.69$, $p < .01$. Upon decomposing this moderation effect by examining simple slopes, the link between EA and social anxiety was stronger for individuals with SAD, $B = .65$, $t(72) = 8.34$, $p < .001$ than it was for healthy controls, $B = .32$, $t(72) = 3.50$, $p < .05$.

A contextual approach to everyday social interactions. Our final set of analyses examined the relevance of our four social context variables to understanding the link between EA and social anxiety in everyday social interactions. Preliminary analyses showed that the SAD group were more likely to endorse being in social interactions characterized by the presence of critical people, $B = .26$, $t(72) = 2.37$, $p = .02$, and conflict with other people, $B = .25$, $t(72) = 3.21$, $p = .002$, and a lower likelihood of being in social interactions characterized by the presence of warm/friendly people, $B = -.40$, $t(72) = 3.30$, $p = .002$, and people interested in what they said, $B = -.39$, $t(72) = -3.67$, $p = .001$.

To examine whether these social contexts moderated the slope between EA and social anxiety or the two-way SAD × EA interaction on social anxiety, we used the following two-level models. To study moderation effects between Level-1 predictors, continuous variables (EA, social context) were centered prior to the creation of interaction terms.

$$\text{Day level: } y_{ij} = \beta_{0j} + \beta_{1j}(\text{State EA}) + \beta_{2j}(\text{Social Context}) + \beta_{3j}(\text{EA} \times \text{Social Context}) + r_{ij}.$$

$$\text{Person-level intercept: } \beta_{0j} = \gamma_{00} + \gamma_{01}(\text{SAD}) + u_{0j}$$

$$\text{Person-level slopes: } \beta_{1j} = \gamma_{10} + \gamma_{11}(\text{SAD}) + u_{1j}$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{SAD}) + u_{1j}$$

$$\beta_{3j} = \gamma_{30} + \gamma_{31}(\text{SAD}) + u_{1j}$$

The presence of critical people in the social interaction predicted greater social anxiety symptoms, $B = .14$, $t(72) = 3.95$, $p < .001$, and this contextual variable moderated the effect of EA on social anxiety symptoms in everyday interactions, $B = .16$, $t(72) = 2.69$, $p < .01$. We decomposed the moderation effect and upon examining simple slopes, when the situation involved less critical people (−1 standard deviation), greater use of EA was related to more social anxiety, $B = .79$, $t = 7.59$, $p < .001$; when the situation involved more critical people (+1 standard deviation), greater use of EA was also related to more social anxiety (but the slope was less steep), $B = .53$, $t = 7.40$, $p < .001$, as seen in Figure 1 (left). When EA served as the moderator neither simple slope was statistically significant but we found that among people low in EA (−1 standard deviation), there was a trend to respond to critical people with more social anxiety, $B = 0.11$ (0.06), $t = 1.83$, $p = .07$.

The presence of conflict in the social interaction did not predict social anxiety symptoms ($p > .20$), but this contextual variable moderated the effect of EA on social anxiety symptoms in everyday interactions, $B = .16$, $t(72) = 2.69$, $p < .01$. Upon examining simple slopes, when the situation involved less conflict (−1 standard deviation), greater use of EA was related to more social anxiety, $B = .88$, $t = 6.00$, $p < .001$; when the situation involved more conflict (+1 standard deviation), greater use of EA was also related to more social anxiety (but the slope was less steep), $B = .62$, $t = 4.74$, $p < .001$. Figure 1 (right side) illustrates this effect, showing that people who rely more on EA experience more social anxiety regardless of the situation.

Notably, the safe/positive contextual variables (presence of warm/friendly or interested people) failed to significant predict social anxiety symptoms in everyday interactions (ps > .20) and did not moderate the effect of EA on social anxiety symptoms (ps > .20). We failed to find evidence for any three-way SAD × EA × social context interactions on social anxiety symptoms (ps > .20). However, in each model testing the importance of social context, the two-way SAD × EA interaction with EA being a stronger predictor of social anxiety symptoms in people with SAD remained statistically significant (ps < .05); these tests of construct specificity show evidence of robust effects.

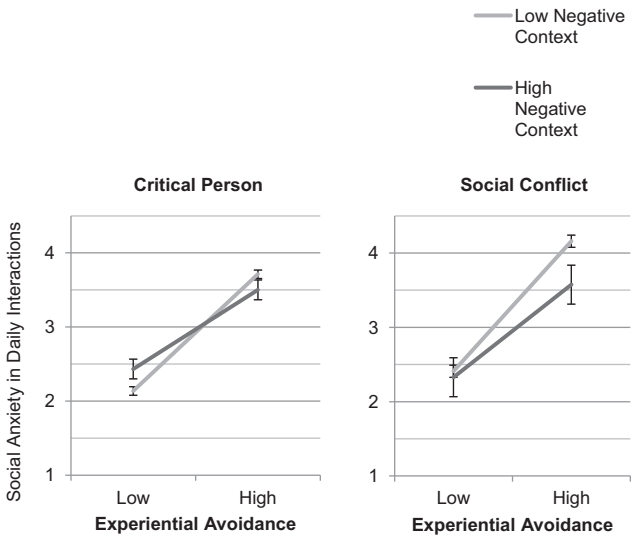

Figure 1. Negative social contexts alter the relationship between experiential avoidance and social anxiety symptoms, with the presence of critical others as the context on the left side and the presence of conflict on the right side (Study 1). Error bars represent standard errors.

Discussion

The primary aim of Study 1 was to examine the effect of EA in spontaneous, everyday social interactions among a community sample of individuals with and without SAD. We found that EA and social anxiety are related but independent factors; this was the first factor analysis testing the independence of these constructs. As hypothesized, individuals with SAD were both more likely to experience EA during a given social interaction and more likely to experience greater social anxiety when using this regulatory strategy. Thus, EA seems to be a normal experience that is magnified by the presence of SAD. Also, we found that a contextual lens offers an improved understanding of EA and the presence of social anxiety symptoms in everyday social interactions. The threatening/negative context of being around critical people predicted an increase in social anxiety symptoms above and beyond the contributions of EA and the presence of SAD. There was also a significant moderation effect involving EA and the negative social situation. When someone was being critical or when there was conflict, EA was less important, with people both low and high in EA showing elevated anxiety. When the situation was relatively safe, people high in EA had larger elevations in anxiety levels. Thus, people low in EA were relatively more sensitive to the situation, responding with elevated anxiety when under threat and minimal anxiety when not under threat. We can be confident in the stability of these results because of our intensive, repeated measurement of everyday social interactions in the same people over time.

We compared a sample of participants diagnosed with SAD using a well-validated clinical interview with a screened healthy control group. However, the majority of the SAD group met criteria for a comorbid diagnosis and thus EA is likely to be a transdiagnostic risk factor, a point reiterated by other researchers (Aldao et al., 2010; Hayes et al., 1996).

Study 1 was limited by the lack of multiple assessments of EA and social anxiety during social interactions, preventing us from conducting tests of directionality. Study 1 also measured social context by asking people about how social interaction partners behaved, rather than directly manipulating social context. We addressed these limitations in Study 2 by assessing EA and social anxiety over time and during the course of a social interaction experimentally manipulated to reflect the core fear of people with SAD. Namely, we used a social interaction task where two strangers were asked to answer questions that required gradual increases in self-disclosure such that their personality, emotions, interests, and values would be exposed and open to potential scrutiny. Unlike Study 1, the task assured the presence of a high-risk, high self-disclosure situation that we compared with a low-risk, low self-disclosure condition that created a situation where mundane small-talk dominated.

Study 2: Reactions to Experimental Interactions With Strangers

We examined the effects of EA during initial social encounters with a stranger. Participants were randomly assigned into dyads, and then each dyad was assigned to either a closeness-generating (high self-disclosure) or small-talk (low self-disclosure) conversation task (outlined in the Method section). To ensure that findings were more than retrospective summary judgments, assessments of EA and state social anxiety were taken in the middle of and immediately following the interaction. This methodology allowed us to examine the temporal relationship between EA and social anxiety within the context of a dynamic social situation. We hypothesized that greater EA during the social interaction would predict increases in social anxiety from the middle to the end of the interaction. We also hypothesized that EA would predict greater increases in social anxiety for those in the closeness-generating condition, where there is a higher likelihood of self-disclosure and thus, greater opportunities to be judged by interaction partners.

Method

Participants. The sample consisted of 106 undergraduates (55 female) in stable romantic relationships from diverse ethnic/racial backgrounds: Caucasian (53.8%), Asian American (21.7%), African American (9.4%), Middle-Eastern (4.7%), Hispanic (4.7%), and other categories (4.7%). Age ranged from 18 to 49 years (M = 22.11, SD = 5.79). This study was approved by the Institutional Review Board at George Mason University.

Procedure. Each participant was randomly paired with an opposite sex partner, then each dyad was randomly assigned to a 45-min closeness-generating or small-talk condition (adapted from Aron, Melinat, Aron, Vallone, & Bator, 1997). We wanted to capture interactions that evoke a wide range of variability in emotion, emotion regulation, and social behavior. Prior research suggests that when two women interact, both partners report greater comfort (e.g., less anxiety) and intimacy compared with two men interacting (e.g., Buhrke & Fuqua, 1987; Reis, Senchak, & Solomon, 1985). In lieu of collecting data across three experimental conditions (male–male, woman–woman, male–woman), we focused on mixed pairs to get the greatest variability in emotion, emotion regulation, and social behavior.

Instructions were identical for each condition with participants being told that their goal was to get to know the stranger next to them and the best way to do so was to reciprocally share personal information. To do this, each pair was given three sets of index cards with a single question on each card. The questions in each set were ordered such that one person picked up a card, asked the question, and answered, and then the other member of the pair answered the same question. Partners took turns asking questions first. In the closeness-generating condition, the amount of personal information required to answer questions gradually increased with each set of cards, such that by the end of the task, dyads talked about emotionally intense feelings and events. For example, a question from the first set was "Would you like to be famous? In what way?," a question from the second set was, "What role do love and affection play in your life?," and a question from the third set was "Of all the people in your family, whose death would you find most disturbing? Why?" To ensure that all pairs reached the intense emotional depth of the third set, after 15 min, the experimenter asked pairs to move to the next set regardless of the number of questions completed on that set. Partners were told to read each question aloud and take turns answering the questions. In the small-talk condition, minimal personal self-disclosure was necessary to answer questions and this level of superficiality remained the same across all three sets of index cards (e.g., "What did you

do this summer?" and "What gifts did you receive on your last birthday?").

To simulate an initial encounter with a stranger at a social gathering, groups of eight to 16 participants were run together in a single session regardless of condition. This was done to mimic what happens in the real-world when two people talk in a bar, restaurant, or social gathering. To prevent dyads from overhearing and mimicking the conversations of other dyads, we (a) placed participants in the room so that no two dyads were parallel or next to each other, and (b) included at least two empty desks, in every direction, between each dyad.

Participants completed demographic and personality questionnaires prior to the interaction, and they completed additional questionnaires during and after the interaction. Fifty-two and 54 participants were randomly assigned to the closeness-generating and small-talk conditions, respectively. After the second set of questions, participants completed a short survey to assess in situ social anxiety and EA of anxious thoughts and feelings. Following the 45 min of total conversation, dyads were separated and independently completed postinteraction questions. Participants returned 1 week later for a follow-up assessment but these data were not used in the current study. Data on the validity of the experimental conditions has been reported from a prior study by this team (Kashdan & Roberts, 2007) and an initial reporting of this dataset, with no overlapping questions (Kashdan, McKnight, Fincham, & Rose, 2011).

Social Interaction Measures

Experiential avoidance. Participants completed a four-item measure of EA (created by the first author) that was a slight deviation from the scale used in Study 1. To set a higher threshold for pain, we changed the word "bothered" to "distressed," leading to the item: "How upset and distressed over anxiety were you?" To be more specific, we added the word "struggle," leading to the item, "How much did you struggle to try and control your anxiety-related feelings or thoughts?," and, instead of "How much did you try to hide and/or conceal your anxiety from others?," we used the item, "How much effort did you put into making anxiety-related feelings or thoughts go away?"

Participants received the measure 15 min into the interaction ("Describe your feelings and thoughts about the interaction and your interaction partner") and immediately after the interaction ended ("Describe your feelings and thoughts about the overall interaction and your interaction partner"). The measure assessed the degree to which individuals were unwilling to feel anxious during and after the social interaction. Responses were recorded using a 7-point Likert scale from 1 = *not at all*, 4 = *moderately*, to 7 = *very much*. We report on the factor structure and reliability of these items in the Results section (Tables 2 and 3).

Social anxiety. After 15 min and at the conclusion of the task, participants completed a two-item measure of state social anxiety using a seven-point Likert scale from 1 = *not at all*, to 4 = *moderately*, to 7 = *very much*. This measure assessed individuals' *current* state level of anxiety. The items were, "I worried about what my partner thought of me" and "I was worried that I would say or do the wrong things." Unlike Study 1 in which participants recorded all face-to-face social interactions over a 14-day assessment period, in Study 2 participants interacted with a single participant for a 45-min experimental interaction. Thus, we modified the Kashdan and Steger (2006) items to reflect social anxiety about the exact person in the interaction. Because we interrupted people in the middle of the interaction for an assessment, we reduced the burden by removing one of the three social anxiety items from Study 1. Similar to the EA items, psychometric properties are reported in the Results section (Tables 2 and 3).

Table 2
Descriptive Statistics for State Measures of Social Anxiety and Experiential Avoidance (Study 2)

	M (*SD*)	Within-couple variability	Between-couple variability	Item-level reliability
Mid EA	1.69 (1.08)	.31	.69	.90
Mid SA	1.90 (1.29)	.19	.81	.90
Post EA	1.76 (1.17)	.29	.71	.91
Post SA	2.20 (1.53)	.22	.78	.88

Note. Mid = middle of interaction; Post = end of interaction; EA = experiential avoidance; SA = social anxiety.

Analytic strategy. The primary analyses focused on EA predicting temporal changes in anxiety. Our data had a multilevel structure with 108 participants (Level 1) nested within 54 dyads (Level 2), and analyzed with a series of multilevel models using the program HLM (Raudenbush et al., 2000). Our analyses followed guidelines and procedures described by Campbell and Kashy (2002).

Results

Psychometric properties of social interaction scales. We used identical analytic procedures as described in Study 1 to examine the structure of state EA and social anxiety items. The factor analyses with target rotation revealed that the two factor model fit the data adequately at midinteraction ($\chi^2_{(4)} = 6.99$, CFI = .98, RMSEA = .08), and considerably better than a model that assumed only one factor ($\chi^2_{(9)} = 59.67$, CFI = .67, RMSEA = .23). This was also true at postinteraction with the two factor model fitting well ($\chi^2_{(4)} = 1.09$, CFI >.99, RMSEA = .00) and considerably better than a model that assumed only one factor ($\chi^2_{(4)} = 66.6$, CFI = .72, RMSEA = .25). As shown in Table 3, the item factor loadings showed clear evidence of two factors where all EA items loaded on factor one (> .50) and both social anxiety items loaded on factor two (> .80), with low cross-factor loadings.

Based on the factor analytic results, we aggregated the two state social anxiety items into a scale and did the same for the four state EA items. As expected, this process produced two related but distinct scales, with a correlation of .61 at midinteraction and .65 at postinteraction. As illustrated in Table 2, both scales demonstrated acceptable reliability at both midinteraction (EA: .90; social anxiety: .90) and postinteraction (EA: .91; social anxiety: .88).

Experiential avoidance predicts changes in social anxiety. Following psychometric analyses, we moved to the primary question of whether EA in the middle of a social interaction predicts an increase in social anxiety over the remainder of the interaction, and if this relationship is moderated by condition (closeness-generating vs. small-talk). The availability of mid- and postinteraction data allowed us to capture the temporality of this relationship. We used a two-level model, with the mean of social anxiety (SA) and EA

Table 3
Scale Item Means and Factor Loadings Following Factor Analysis With Target Rotation (Study 2)

	Mean (*SD*)		Factor loading			
			Mid		Post	
	Mid	Post	Factor 1	Factor 2	Factor 1	Factor 2
EA Item 1. How upset and distressed over anxiety were you?	1.53 (1.03)	1.52 (.94)	0.61	0.22	0.53	0.33
EA Item 2. How much effort did you put into making anxiety-related feelings or thoughts go away?	1.82 (1.35)	1.93 (1.39)	0.87	−0.08	0.98	−0.07
EA Item 3. How much did you struggle to try and control your anxiety-related feelings or thoughts?	1.68 (1.19)	1.8 (1.39)	1.08	−0.15	1.03	−0.16
EA Item 4. To what degree did you give up saying or doing what you like (or mattered to you) in order to control and manage your anxiety?	1.74 (1.34)	1.82 (1.36)	0.75	0.13	0.80	0.09
Anxiety Item 1. I worried about what my partner thought of me.	1.95 (1.39)	2.02 (1.48)	−0.02	0.97	0.01	0.91
Anxiety Item 2. I worried about what my partner thought of me.	1.84 (1.3)	2.34 (1.71)	0.09	0.81	0.10	0.82

Note. EA = experiential avoidance; Mid = middle of interaction; Post = end of interaction.

measured in the middle of the interaction at Level 1 and Condition at Level 2. Social anxiety measured immediately following the interaction was the outcome. Condition was coded using a contrast variable (1 = closeness-generating, −1 = small talk). The model is shown below.

$$\text{Level 1: } y_{ij} = \beta 0_j + \beta 1_j(\text{Mid\_SA}) + \beta 2_j(\text{Mid\_EA})$$

$$\text{Level 2 } \beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Condition}_j)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Condition}_j)$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Condition}_j)$$

Results indicated that, controlling for midinteraction social anxiety, $B = .88$, $t(50) = 8.70$, $p < .001$, EA measured in the middle of the social interaction predicted postinteraction social anxiety immediately after the social interaction, $B = .376$, $t(50) = 3.63$, $p < .001$. This relationship was not bidirectional, such that after controlling for midinteraction EA, $B = .91$, $t(50)$, $p < .001$, midinteraction social anxiety did not predict postinteraction EA, $B = -0.11$, $t(50) = -0.182$, $p = .86$.

Context alters the association between experiential avoidance and social anxiety. We expected EA to be more problematic in a social context where there is a greater potential threat of social evaluation. The closeness-generating condition was designed for this purpose, and thus had a greater potential to elicit fear cues (e.g., potential scrutiny or rejection by others). Results supported this hypothesis with Condition emerging as a moderator of the relationship between midinteraction EA and postinteraction social anxiety (controlling for main effects), $B = .27$, $t(50) = 2.60$, $p < .05$. Upon decomposing this moderation effect by examining simple slopes, EA predicted increases in social anxiety for participants in the closeness-generating condition, $B = .48$, $t(52) = 5.10$, $p < .001$, but not in the small-talk condition, $B = .04$, $t(48) = .38$, $p = .70$. Notably, mean levels of EA did not differ between conditions at mid- or postinteraction, $B = .002$, $t(53) = .02$, $p = .98$, and $B = .05$, $t(52) = .43$, $p = .67$, respectively.

Discussion

The primary aim of Study 2 was to determine whether EA enhances the development of social anxiety over the course of a social interaction. Consistent with hypotheses, greater use of EA during an interaction was associated with greater social anxiety following the interaction, but this relationship was context-dependent. Specifically, EA predicted greater social anxiety in the closeness-generating condition but not in the small-talk condition, suggesting that EA is particularly relevant in social interactions where there is an opportunity for personal vulnerabilities to be visible, exposed, and easily evaluated by other people (Moscovitch, 2009). There was no evidence for the opposite direction with social anxiety during the interaction predicting greater use of experiential avoidance at the end of the interaction. These results provide reasonable evidence for the causal influence of EA on anxiety in a social interaction.

An interesting finding emerged such that the level of EA was similar across both social situations but the relationship between EA and social anxiety differed between the two social situations. This makes sense when you consider that EA is neither good nor bad on its own, it depends on the context. In a social situation where the core aspects of the self are visible and thus one is highly vulnerable (in the closeness-generating condition), the avoidance of anxiety functioned to increase social anxiety. In a more mentally challenging task, attempting to avoid anxiety is likely to exhaust the very resources needed to be successful. In contrast, in the small-talk condition, the conversation required fewer cognitive and social demands and thus EA had little functional relevance.

We replicated factor analytic findings from Study 1 that EA and social anxiety are related but distinct constructs. We addressed several limitations in Study 1 that add to this program of research.

First, we examined the temporal precedence of EA in relation to social anxiety symptoms during a social interaction. Second, we used a stronger operationalization of social threat with an experimental social interaction involving high levels of gradual self-disclosure, where the innermost self is publicly exposed to possible scrutiny—argued to be the core fear of SAD (Moscovitch, 2009).

Our second study was limited to opposite sex interactions with college students and it remains to be seen whether the temporal effects of EA on social anxiety will generalize to other initial encounters with partners varying in meaningful demographic variables. Although Study 2 involved an experimental manipulation that may not have adequately captured naturally occurring social encounters, we were able to conduct a more fine-grained, internally valid assessment of social context.

General Discussion

The current studies provide converging support that EA is a risk factor for the generation of emotional distress and is also influenced by situational factors. These findings are important because they suggest that although people use EA in hopes of reducing distress, EA is positively associated with social anxiety symptoms in healthy and disordered samples. Study 1 found that within naturalistic, everyday social interactions, greater use of EA predicted greater levels of social anxiety. The effect depended on context, with the link between experiential avoidance and social anxiety being strongest among people with a diagnosis of SAD. Further, the effect of EA was weakest in situations involving high social threat, and strongest in situations involving low social threat (i.e., a strong situation that trumped individual differences). Thus, in safe social situations, EA appears to have its most detrimental effect on social anxiety. Study 2 also demonstrated a moderation effect, one focusing on how EA affects opportunities for intimacy. Greater use of EA increased levels of social anxiety over the course of an initial encounter with a stranger, and this effect was moderated by contextual factors. Specifically, EA only predicted greater social anxiety when people engaged in a closeness-generating task with their partner, when there was a greater opportunity for personal characteristics to be exposed and judged (Moscovitch, 2009). EA did not predict an increase in social anxiety in the less intimate small-talk task. These two studies are unique in that they capture the harmful effects of EA during actual social interactions, rather than relying on retrospective reports of such effects. Both studies are also unique in that instead of assuming that EA is universally maladaptive, they considered the presence of disorder (Study 1), the negative and positive nature of daily interactions (Study 1), and the contextual effects of conversation topic (Study 2).

Our data provide empirical support for theoretical frameworks that implicate EA in the transition from normative emotions to emotional disturbances (Cisler et al., 2010; Hayes et al., 1996; Tull, Gratz, Salters, & Roemer, 2004) and extend upon prior work demonstrating a temporal relationship between EA and social anxiety (Farmer & Kashdan, 2012; Kashdan et al., 2010). Both of the current studies also highlight the importance of addressing contextual factors that affect when and how EA is associated with the presence of social anxiety symptoms. In Study 1, we examined the effects of EA within a clinical sample of individuals with SAD compared with a healthy control group. As expected, the use of EA predicted greater levels of social anxiety during social interactions regardless of SAD diagnosis. This supports prior work that suggests EA is a general psychological vulnerability for anxiety that can amplify symptoms even in individuals without a history of anxiety disorders (Cisler et al., 2010; Spira, Zvolensky, Eifert, & Feldner, 2004). However, the use of EA may be especially harmful for those with SAD. Our results show that, compared with the control group, individuals diagnosed with SAD had greater levels of EA and social anxiety, and their use of EA was more strongly tied to social anxiety. These findings complement recent work that identifies EA as an important determinant in the etiology and maintenance of anxiety disorders (Cisler et al., 2010; Heimberg et al., 2010).

As a testament to context, in Study 1, we found that when people relied on EA in everyday settings, they responded to more negative social situations with high levels of social anxiety. In contrast, people who did not rely on EA strategies tended to experience less social anxiety across social contexts, with an adaptive increase in social anxiety when the social situation was characterized by the presence of critical people. This suggests that EA is employed in situations deemed threatening or unsafe as an attempt to manage unwanted internal experiences and social evaluation.

To lend additional support for contextual influences, in Study 2, we found that EA was only positively associated with social anxiety when people spent 45 min sharing and disclosing their innermost emotions and thoughts, whereas EA had no association with social anxiety symptoms when people spent time in small-talk—when there is little or no opportunity for intimacy. This suggests that EA might be particularly intrusive in intimate social encounters that require self-disclosure, as they foster vulnerability and magnify the potential for feared scrutiny, negative evaluation, and rejection. Given that socially anxious individuals frequently employ EA when threatened by an evaluative social situation (Kashdan et al., 2006; Kashdan, Morina, & Priebe, 2009), an overreliance on EA might account for impairments in the development of friendships (Rodebaugh, 2009; Van Zalk, Van Zalk, Kerr, & Stattin, 2011) and romantic relationships (Hart, Jack, Turk, & Heimberg, 1999; Schneier et al., 1994; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992).

Interestingly, in Study 1, safe/positive social contexts (characterized by warm/friendly or interested interaction partners) were unrelated to social anxiety symptoms, and did not alter the association between EA with social anxiety symptoms (or SAD with everyday social anxiety symptoms). This is one of the first studies to examine the influence of negative and positive social contexts on risk factors related to the generation of social anxiety in social interactions. Thus, additional studies are needed that manipulate these different contextual factors in experimental settings and explore their influence on a wider range of emotional processing beyond subjective experiences such as facial-motor activity, physiological reactivity, approach behaviors, and safety behaviors. In terms of resiliency, there is a need to know what types of intrapersonal and environmental factors increase the likelihood that people with and without SAD experience enjoyable, engaging, and meaningful interactions. After all, these types of positive interactions are often the springboard for additional interactions with the same person and the development of healthy relationships.

Although our methods improved over global, trait assessments that dominate the empirical literature on EA, there are important caveats to our work. In both studies, we found low base rates of EA and social anxiety symptoms (even among the SAD group in Study 1). There have been relatively few studies of EA during the course of social interactions, thus, we are unsure of whether our findings are representative of human behavior. Regardless, in the absence of high, variable levels of EA and social anxiety, any inferences should be considered tentative until replication. In Study 1, over the 14-day assessment period, the average person reported approximately 10 social interactions; a base rate of face-to-face social interactions lower than prior experience-sampling studies. In terms of the number of interactions reported, there is no clear standard for how many face-to-face social interactions of 10 min or more in length adults from the community have each week, particularly those with SAD. The vast majority of social interaction diary studies have been conducted with college students, making it difficult to form point estimates of the frequency of interaction. Moreover, even if the number of interactions is lower than the number that occurred, it is not clear what sort of systematic bias might have been responsible for such underreporting. If there was no systematic bias, then the data are valid in the sense that they are representative of the social lives of our participants. Future research is necessary to determine the degree that the current rate of interactions deviates from a normal range.

The use of clinical (Study 1) and nonclinical (Study 2) samples suggest that our EA findings can be generalized. This is an important consideration in lieu of research suggesting that social anxiety is best understood as a single dimension from nonclinical social anxiety to severe SAD (Kollman, Brown, Liverant, & Hoffman, 2006; Ruscio, 2010; Weeks, Carleton, Asmundson, McCabe, & Antony, 2010; as opposed to a categorical model of normal behavior vs. mental disorder).

These studies provide new insights into the adverse effects of EA on social anxiety symptoms both in a laboratory setting and daily life. From both studies, we found clear evidence that EA is separate but related to social anxiety (from factor analyses), extending prior work on the distinction between emotion generation and regulation to understand psychopathology and well-being (Gross, 1998, 2013). The present article showed that EA temporally precedes the development of social anxiety, rather than merely co-occurring with it, or being a consequence (in Study 2). We also showed that an understanding of how and when EA is related to social anxiety symptoms requires a consideration of the task (i.e., opportunity for innermost parts of the self to be exposed and judged), the presence of disorder, and judgments about other people in the social situation (i.e., degree to which they are critical and there is conflict present). Future research should build on this contextualized approach to go beyond distress to examine how EA affects rewarding aspects of social interactions (e.g., enjoyment, success). For example, it may be that EA leads people to engage in unsatisfying small talk, reducing the likelihood of meaningful interpersonal outcomes such as intimacy, passion, satisfaction, trust, and commitment. Given that EA increases social anxiety within social situations, it is probable that assessing EA will help researchers and clinicians understand the pervasive quality of life problems shown in people suffering from social anxiety difficulties.

References

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30,* 217–237. doi:10.1016/j.cpr.2009.11.004

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: DSM–IV–TR.* Washington, DC: American Psychiatric Publishing, Inc.

Aron, A., Melinat, E., Aron, E. N., Vallone, R., & Bator, R. (1997). The experimental generation of interpersonal closeness: A procedure and some preliminary findings. *Personality and Social Psychology Bulletin, 23,* 363–377. doi:10.1177/0146167297234003

Bardone, A. M., Krahn, D. D., Goodman, B. M., & Searles, J. S. (2000). Using interactive voice response technology and timeline follow-back methodology in studying binge eating and drinking behavior: Different answers to different forms of the same question? *Addictive Behaviors, 25*(1), 1–11. doi:10.1016/S0306-4603(99)00031-3

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy, 42,* 676–688. doi:10.1016/j.beth.2011.03.007

Browne, M. (2001). An overview of analytic rotation in exploratory factor analysis. *Multivariate Behavioral Research, 36,* 111–150. doi:10.1207/S15327906MBR3601_05

Buhrke, R. A., & Fuqua, D. R. (1987). Sex differences in same-and cross-sex supportive relationships. *Sex Roles, 17,* 339–352. doi:10.1007/BF00288457

Butler, E. A., & Gross, J. J. (2004). Hiding feelings in social contexts: Out of sight is not out of mind. In P. Philippot & R. S. Feldman (Eds.), *The regulation of emotion* (pp. 101–126). Mahwah, New Jersey: Erlbaum.

Campbell, L., & Kashy, D. A. (2002). Estimating actor, partner, and interaction effects for dyadic data using PROC MIXED and HLM: A user–friendly guide. *Personal Relationships, 9,* 327–342. doi:10.1111/1475-6811.00023

Campbell-Sills, L., Barlow, D. H., Brown, T. A., & Hofmann, S. G. (2006). Acceptability and suppression of negative emotion in anxiety and mood disorders. *Emotion, 6,* 587–595. doi:10.1037/1528-3542.6.4.587

Chambers, R., Gullone, E., & Allen, N. B. (2009). Mindful emotion regulation: An integrative review. *Clinical Psychology Review, 29,* 560–572. doi:10.1016/j.cpr.2009.06.005

Chawla, N., & Ostafin, B. (2007). Experiential avoidance as a functional dimensional approach to psychopathology: An empirical review. *Journal of Clinical Psychology, 63,* 871–890. doi:10.1002/jclp.20400

Cisler, J. M., Olatunji, B. O., Feldner, M. T., & Forsyth, J. P. (2010). Emotion regulation and the anxiety disorders: An integrative review. *Journal of Psychopathology and Behavioral Assessment, 32,* 68–82. doi:10.1007/s10862-009-9161-1

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment.* (pp. 69–93). New York, NY: Guilford Press.

Di Nardo, P. A., Brown, T. A., & Barlow, D. H. (1994). *Anxiety disorders interview schedule for DSM–IV: Lifetime version (ADIS-IV-L).* San Antonio, TX: Psychological Corporation.

Farach, F. J., Mennin, D. S., Smith, R. L., & Mandelbaum, M. (2008). The impact of pretrauma analogue GAD and posttraumatic emotional reactivity following exposure to the September 11 terrorist attacks: A longitudinal study. *Behavior Therapy, 39,* 262–276. doi:10.1016/j.beth.2007.08.005

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. doi:10.1080/16506073.2012.666561

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2002). *Structured clinical interview for DSM–IV–TR Axis I disorders, research version, nonpatient ed*. New York, NY: Biometrics Research, New York State Psychiatric Institute.

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2,* 271–299. doi:10.1037/1089-2680.2.3.271

Gross, J. J. (2013). Emotion regulation: Taking stock and moving forward. *Emotion, 13,* 359–365. doi:10.1037/a0032135

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. doi:10.1037/0022-3514.85.2.348

Hart, T. A., Jack, M. A. S., Turk, C. L., & Heimberg, R. G. (1999). Issues for the measurement of social phobia. In H. G. M. Westenburg & J. A. den Boer (Eds.), *Social phobia: Recent trends and progress*. (pp. 133–155). Amsterdam, The Netherlands: Syn-Thesis Publishers.

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes, and outcomes. *Behaviour Research and Therapy, 44*(1), 1–25. doi:10.1016/j.brat.2005.06.006

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64,* 1152–1168. doi:10.1037/0022-006X.64.6.1152

Hayes, S. C., Strosahl, K. D., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., . . . Bergan, J. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record, 54,* 553–578.

Heimberg, R. G., Brozovich, F. A., & Rapee, R. M. (2010). A cognitive behavioral model of social anxiety disorder: Update and extension. In Stefan G. Hofmann & P. M. DiBartolo (Eds.), *Social anxiety: Clinical, developmental, and social perspective* (2nd ed., pp. 395–422). New York, NY: Elsevier. doi:10.1016/B978-0-12-375096-9.00015-8

Hildebrandt, M. J., & Hayes, S. C. (2012). The contributing role of negative affectivity and experiential avoidance to increased cardiovascular risk. *Social and Personality Psychology Compass, 6,* 551–565. doi:10.1111/j.1751-9004.2012.00448.x

Hofmann, S. G. (2007). Cognitive factors that maintain social anxiety disorder: A comprehensive model and its treatment implications. *Cognitive Behaviour Therapy, 36,* 193–209. doi:10.1080/16506070701421313

Hox, J. J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.). New York, NY: Routledge.

Juretic, J., & Zivcic-Becirevic, I. (2013). Social anxiety, beliefs about expressing emotions and experiencing positive emotions. In F. Durbano (Ed.), *New insights into anxiety disorders* (pp. 189–212). Milan: InTech. Retrieved from http://www.intechopen.com/books/new-insights-into-anxiety-disorders/social-anxiety-beliefs-about-expressing-emotions-and-experiencing-positive-emotions

Kamarck, T. W., Shiffman, S. M., Smithline, L., Goodie, J. L., Paty, J. A., Gnys, M., & Jong, J. Y.-K. (1998). Effects of task strain, social conflict, and emotional activation on ambulatory cardiovascular activity: Daily life consequences of recurring stress in a multiethnic adult sample. *Health Psychology, 17,* 17–29. doi:10.1037/0278-6133.17.1.17

Kashdan, T. B., Barrios, V., Forsyth, J. P., & Steger, M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. *Behaviour Research and Therapy, 44,* 1301–1320. doi:10.1016/j.brat.2005.10.003

Kashdan, T. B., & Breen, W. E. (2007). Materialism and diminished well-being: Experiential avoidance as a mediating mechanism. *Journal of Social and Clinical Psychology, 26,* 521–539. doi:10.1521/jscp.2007.26.5.521

Kashdan, T. B., Breen, W. E., Afram, A., & Terhar, D. (2010). Experiential avoidance in idiographic, autobiographical memories: Construct validity and links to social anxiety, depressive, and anger symptoms. *Journal of Anxiety Disorders, 24,* 528–534. doi:10.1016/j.janxdis.2010.03.010

Kashdan, T. B., Farmer, A. S., Adams, L. M., Ferssizidis, P., McKnight, P. E., & Nezlek, J. B. (2013). Distinguishing healthy adults from people with social anxiety disorder: Evidence for the value of experiential avoidance and positive emotions in everyday social interactions. *Journal of Abnormal Psychology, 122,* 645–655. doi:10.1037/a0032733

Kashdan, T. B., McKnight, P. E., Fincham, F. D., & Rose, P. (2011). When curiosity breeds intimacy: Taking advantage of intimacy opportunities and transforming boring conversations. *Journal of Personality, 79,* 1369–1402. doi:10.1111/j.1467-6494.2010.00697.x

Kashdan, T. B., Morina, N., & Priebe, S. (2009). Post-traumatic stress disorder, social anxiety disorder, and depression in survivors of the Kosovo War: Experiential avoidance as a contributor to distress and quality of life. *Journal of Anxiety Disorders, 23,* 185–196. doi:10.1016/j.janxdis.2008.06.006

Kashdan, T. B., & Roberts, J. E. (2007). Social anxiety, depressive symptoms, and post-event rumination: Affective consequences and social contextual influences. *Journal of Anxiety Disorders, 21,* 284–301. doi:10.1016/j.janxdis.2006.05.009

Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review, 30,* 865–878. doi:10.1016/j.cpr.2010.03.001

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. doi: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. doi:10.1016/j.cpr.2011.03.012

Kenny, D. A., Kaniskan, B., & McCoach, D. B. (2011). *The performance of RMSEA in models with small degrees of freedom*. Unpublished manuscript, University of Connecticut, Storrs, CT.

Kollman, D. M., Brown, T. A., Liverant, G. I., & Hoffman, S. G. (2006). A taxometric investigation of the latent structure of social anxiety disorder in outpatients with anxiety and mood disorders. *Depression and Anxiety, 23,* 190–199. doi:10.1002/da.20158

Leary, M. R. (2001). Social anxiety as an early warning system: A refinement and extension of the self-presentation theory of social anxiety. In S. G. Hofmann & P. M. DiBartolo (Eds.), *From social anxiety to social phobia: Multiple perspectives* (pp. 321–334). Needham Heights, MA: Allyn & Bacon.

Marsh, H., Asparouhove, T., Ludtke, O., Robitzsch, A., Morin, A., & Trautwein, U. (2009). Exploratory structural equation modeling, Integrating CFA and EFA: Applications to students evaluations of university teaching. *Structural Equation Modeling, 16,* 439–476. doi:10.1080/10705510903008220

Marsh, H., Balla, J. R., & McDonald, R. P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. *Psychological Bulletin, 103,* 391–410. doi:10.1037/0033-2909.103.3.391

Marx, B. P., & Sloan, D. M. (2005). Peritraumatic dissociation and experiential avoidance as predictors of posttraumatic stress symptomatology. *Behaviour Research and Therapy, 43,* 569–583. doi:10.1016/j.brat.2004.04.004

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

McDonald, R. P., & Marsh, H. W. (1990). Choosing a multivariate model: Noncentrality and goodness of fit. *Psychological Bulletin, 107,* 247–255. doi:10.1037/0033-2909.107.2.247

Morrison, A. S., & Heimberg, R. G. (2013). Social anxiety and social anxiety disorder. *Annual Review of Clinical Psychology, 9,* 249–274. doi:10.1146/annurev-clinpsy-050212-185631

Moscovitch, D. A. (2009). What is the core fear in social phobia? A new model to facilitate individualized case conceptualization and treatment. *Cognitive and Behavioral Practice, 16,* 123–134. doi:10.1016/j.cbpra.2008.04.002

Muthén, B. O., & Muthén, L. K. (2010). *Mplus (Version 3)*. Los Angeles, CA: Muthén & Muthén.

Nezlek, J. B. (2001). Multilevel random coefficient analyses of event- and interval-contingent data in social and personality psychology research. *Personality and Social Psychology Bulletin, 27,* 771–785. doi:10.1177/0146167201277001

Nezlek, J. B. (2007). A multilevel framework for understanding relationships among traits, states, situations and behaviours. *European Journal of Personality, 21,* 789–810. doi:10.1002/per.640

Nezlek, J. B. (2011). *Multilevel modeling for social and personality psychology*. London, UK: Sage.

Nezlek, J. B. (2012). *Diary methods for social and personality psychology*. London, UK: Sage.

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

Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., & Congdon, R. T. (2000). *HLM* (Version 6.0). Lincolnwood, IL: Scientific Software International.

Reddy, M. K., Pickett, S. M., & Orcutt, H. K. (2006). Experiential avoidance as a mediator in the relationship between childhood psychological abuse and current mental health symptoms in college students. *Journal of Emotional Abuse, 6,* 67–85. doi:10.1300/J135v06n01_04

Reis, H. T., Senchak, M., & Solomon, B. (1985). Sex differences in the intimacy of social interaction: Further examination of potential explanations. *Journal of Personality and Social Psychology, 48,* 1204–1217. doi:10.1037/0022-3514.48.5.1204

Richards, J. M., & Gross, J. J. (1999). Composure at any cost? The cognitive consequences of emotion suppression. *Personality and Social Psychology Bulletin, 25,* 1033–1044. doi:10.1177/01461672992511010

Rodebaugh, T. L. (2009). Social phobia and perceived friendship quality. *Journal of Anxiety Disorders, 23,* 872–878. doi:10.1016/j.janxdis.2009.05.001

Ruscio, A. M. (2010). The latent structure of social anxiety disorder: Consequences of shifting to a dimensional diagnosis. *Journal of Abnormal Psychology, 119,* 662–671. doi:10.1037/a0019341

Schneier, F. R., Heckelman, L. R., Garfinkel, R., Campeas, R., Fallon, B. A., Gitow, A., . . . Liebowitz, M. R. (1994). Functional impairment in social phobia. *Journal of Clinical Psychiatry, 55,* 322–331.

Schneier, F. R., Johnson, J., Hornig, C. D., Liebowitz, M. R., & Weissman, M. M. (1992). Social phobia: Comorbidity and morbidity in an epidemiologic sample. *Archives of General Psychiatry, 49,* 282–288. doi:10.1001/archpsyc.1992.01820040034004

Spira, A. P., Zvolensky, M. K., Eifert, G. H., & Feldner, M. T. (2004). Avoidance-oriented coping as a predictor of anxiety-based physical stress: A test using biological challenge. *Journal of Anxiety Disorders, 18,* 309–323. doi:10.1016/S0887-6185(02)00249-9

Spokas, M., Luterek, J. A., & Heimberg, R. G. (2009). Social anxiety and emotional suppression: The mediating role of beliefs. *Journal of Behavior Therapy and Experimental Psychiatry, 40,* 283–291. doi:10.1016/j.jbtep.2008.12.004

Stein, M. B., & Stein, D. J. (2008). Social anxiety disorder. *The Lancet, 371,* 1115–1125. doi:10.1016/S0140-6736(08)60488-2

Tull, M. T., Gratz, K. L., Salters, K., & Roemer, L. (2004). The role of experiential avoidance in posttraumatic stress symptoms and symptoms of depression, anxiety, and somatization. *Journal of Nervous and Mental Disease, 192,* 754–761. doi:10.1097/01.nmd.0000144694.30121.89

Turk, C. L., Heimberg, R. G., Luterek, J. A., Mennin, D. S., & Fresco, D. M. (2005). Emotion dysregulation in generalized anxiety disorder: A comparison with social anxiety disorder. *Cognitive Therapy and Research, 29,* 89–106. doi:10.1007/s10608-005-1651-1

Van Zalk, N., Van Zalk, M., Kerr, M., & Stattin, H. (2011). Social anxiety as a basis for friendship selection and socialization in adolescents' social network. *Journal of Personality, 79,* 499–525. doi:10.1111/j.1467-6494.2011.00682.x

Weeks, J. W., Carleton, R. N., Asmundson, G. J. G., McCabe, R. E., & Antony, M. M. (2010). "Social anxiety disorder carved at its joints:" Evidence for the taxonicity of social anxiety disorder. *Journal of Anxiety Disorders, 24,* 734–742. doi:10.1016/j.janxdis.2010.05.006

Weeks, J. W., Heimberg, R. G., & Rodebaugh, T. L. (2008). The fear of positive evaluation scale: Assessing a proposed cognitive component of social anxiety. *Journal of Anxiety Disorders, 22,* 44–55. doi:10.1016/j.janxdis.2007.08.002

Weiss, H. M., Beal, D. J., Lucy, S. L., & MacDermid, S. M. (2004). *Constructing EMA studies with PMAT: The Purdue Momentary Assessment Tool user's manual*. West Lafayette, IN: Military Research Institute at Purdue University.

Werner, K., Goldin, P., Ball, T., Heimberg, R., & Gross, J. (2011). Assessing emotion regulation in social anxiety disorder: The emotion regulation interview. *Journal of Psychopathology and Behavioral Assessment, 33,* 346–354. doi:10.1007/s10862-011-9225-x

Received September 4, 2013
Revision received December 31, 2013
Accepted January 13, 2014 ■