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Social anxiety and emotional suppression: The mediating role of beliefs

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ABSTRACT

There is mounting evidence to suggest that social anxiety is associated with the suppression of emotional expression. The current study examined self-reported emotional suppression and beliefs about expressing emotions among undergraduate students ($n = 95$). Socially anxious undergraduates reported greater use of emotional suppression compared to their non-socially anxious peers. They also reported greater ambivalence about emotional expression, more difficulties in emotional responding, more fears of emotional experiences, and more negative beliefs about emotional expression. Believing that emotional expression must be kept in control and is a sign of weakness partially mediated the association between social anxiety and emotional suppression.

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Social anxiety is the excessive fear of being embarrassed and/or rejected by others. Socially anxious individuals may suppress the expression of their emotional experiences as a way to avoid potential rejection. If less emotion is displayed, there is less observable material that might be rejected by others. As [Kashdan and Steger \(2006\)](#) suggest “by not genuinely expressing themselves, [socially anxious individuals] reduce the likelihood that they will make an egregious social error leading to outright rejection” (p. 125).

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There is mounting evidence to suggest that social anxiety is indeed associated with the suppression of emotional expression. For example, social anxiety is associated with an interpersonal style characterized by an avoidance of expressing emotion (Davila & Beck, 2002; Grant, Beck, Farrow, & Davila, 2007) and a general tendency to inhibit or control the expression of emotions (Kashdan & Breen, 2008; Kashdan & Steger, 2006). In addition, socially anxious individuals reported less expressivity of positive emotions than a non-clinical control group and individuals with generalized anxiety (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005). And although individuals with social anxiety disorder reported higher levels of anger than community control participants, they also reported more suppression of their expression of anger (Erwin, Heimberg, Schneier, & Liebowitz, 2003). Finally, a treatment-seeking clinical sample, the majority of which had a diagnosis of social anxiety disorder, reported that they were more likely to hold back emotional reactions when viewing an anxiety-provoking film clip than a non-clinical control group (Campbell-Sills, Barlow, Brown, & Hofmann, 2006).

Other studies have demonstrated that socially anxious individuals tend to limit self-disclosure in conversations (Alden & Bieling, 1998; DePaulo, Epstein, & LeMay, 1990; Leary, Knight, & Johnson, 1987; Meleshko & Alden, 1993; Snell, 1989). Furthermore, this suppression becomes more pronounced when the person expects to be evaluated. For instance, DePaulo et al. (1990) found that socially anxious individuals who expected to be evaluated by an interviewer told shorter, less revealing stories about themselves and chose topics about more commonplace events than non-anxious individuals who expected to be evaluated or non-anxious and socially anxious individuals who did not expect to be evaluated by the interviewer. Alden and Bieling (1998) found that when socially anxious individuals were instructed to focus on the critical nature of a confederate in a structured interaction, they disclosed information about less intimate topics than did non-socially anxious individuals.

The majority of the studies investigating emotional functioning in social anxiety have focused on the tendency to suppress the expression of one's emotions. However, there is also mounting evidence to suggest that socially anxious individuals have additional difficulties regulating emotional responding. Previous self-report research suggests that compared to non-anxious controls, socially anxious individuals pay less attention to their emotions, have more difficulty identifying and describing their emotional experiences, and fear not only anxiety, but also feelings of depression, anger and positive emotions (Turk et al., 2005). Given efforts to dampen or suppress the expression of such emotions, socially anxious individuals may be particularly fearful and avoidant of a broad range of emotional experiences because of the feared social consequences of emotional expression. Thus, investigating beliefs socially anxious individuals hold about emotional expression may be beneficial in terms of delineating the nature of emotional suppression among socially anxious individuals. Strategic attempts to suppress emotional expression may be associated with beliefs that such expression increases the likelihood of negative evaluation.

The first aim of the current study was to investigate this possibility by examining beliefs about emotional expression across individuals with varying levels of social anxiety. It was expected that the current study would replicate previous findings (e.g., Turk et al., 2005) and socially anxious individuals would report more suppression of emotional expression, more problems identifying, discriminating, and describing their emotional experiences, as well as more fear of a range of discrete emotional experiences than individuals with mild to moderate levels of social anxiety. In addition, socially anxious individuals were expected to report more ambivalence about the expression of both positive and negative emotions, highlighting the notion that these individuals experience tension over emotional expression and as a result, suppress their emotional expression (King & Emmons, 1990). Furthermore, it was expected that negative beliefs about emotional expression would also increase as a function of social anxiety. Compared to those with lower levels of social anxiety, those with high levels of social anxiety were expected to more strongly endorse the belief that emotional expression leads to social rejection, consider emotional expression a sign of weakness, and endorse the importance of keeping emotions in control.

There has been little attention to factors that may mediate the association between social anxiety and emotional suppression in the existing literature. As mentioned earlier, the tendency to suppress one's emotions may be driven by an expectation that expressing one's emotions increases the likelihood of negative evaluation. Studies illustrate that socially anxious individuals inhibit their self-disclosure to a greater extent when they expect to be evaluated by others (Alden & Bieling, 1998;

DePaulo et al., 1990), and such findings suggest the importance of considering the beliefs socially anxious individuals hold about the consequences of their emotional expression. Therefore, the second aim of the current study was to examine the potential role of negative beliefs about emotional expression in mediating this relation. It was hypothesized that believing that it is important to keep emotions in control and that emotional expression leads to social rejection and is a sign of weakness would mediate the association between social anxiety and emotional suppression. To conduct a stringent test of the mediating role of beliefs, two measures of emotional responding were also examined as potential mediators. Inclusion of these variables allowed us to examine an alternative model: problems describing one's emotions and difficulty attending to one's emotions can help explain the association between social anxiety and emotional suppression. These two variables were selected on the basis of the findings of Turk et al. (2005), who demonstrated that socially anxious individuals reported more difficulty describing their emotions and attending to their feelings, in comparison to not only non-anxious controls, but also in comparison to a group of individuals with generalized anxiety disorder. These findings suggest the unique association of these aspects of emotional responding with social anxiety versus other forms of anxiety.

1. Method

1.1. Participants

Ninety-five undergraduate students participated in the current study and completed the battery of measures described below. Participants were initially screened and recruited for the study so that there were relatively equal numbers of persons who reported low, mild to moderate, and high levels of social anxiety, based on the Social Interaction Anxiety Scale (see below). The majority of the sample was female (65.3%), and the mean age was 18.75 ($SD = 3.17$). The ethnic/racial composition of the sample was as follows: 50.5% Caucasian, 29.3% African-American, 4.0% Hispanic, 4.0% Asian, and 8.1% identified as "other" race or did not report their racial/ethnic background. Participants received course credit in their introductory psychology course for participating in the study. This study received approval from the university's Institutional Review Board.

1.2. Measures

The *Social Interaction Anxiety Scale* (SIAS; Mattick & Clarke, 1998) assesses anxiety in dyads and groups. The SIAS consists of 20 items which are scored on a 5-point Likert-type rating scale ranging from "Not at all characteristic or true of me" to "Extremely characteristic or true of me." The SIAS has strong internal consistency in clinical, community and undergraduate samples (α s range from .88 to .94), and a strong 2-week test-retest correlation has been reported in a sample of undergraduates ($r = .86$, Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992). There is also support for the convergent and discriminant validity of the SIAS (Heimberg et al., 1992; Peters, 2000). In the current investigation, the SIAS had high internal consistency ($\alpha = .92$).

Individuals with social anxiety disorder score significantly higher on the SIAS than individuals with other anxiety disorders (Brown et al., 1997; Mattick & Clarke, 1998; Peters, 2000), community controls (Brown et al., 1997; Heimberg et al., 1992; Mattick & Clarke, 1998), and undergraduate students (Heimberg et al., 1992; Mattick & Clarke, 1998). Heimberg et al. (1992) suggested that a score of 34 on the SIAS, one standard deviation above the mean of a community control sample, signifies clinically significant social anxiety. They reported that 82% of individuals with social anxiety disorder were correctly classified using this cut-off score, whereas only 18% of the community control participants were incorrectly classified. Brown et al. (1997) replicated these findings in a clinical sample of individuals with social anxiety disorder, individuals with other anxiety disorders, and a control sample of individuals with no Axis I diagnosis, based on structured diagnostic interview. Therefore, a cut-off score of 34 on the SIAS was used in this study to classify participants in the high social anxiety group. Heimberg et al. (1992) further suggested that a cut-off score of 20, which was the mean of the community sample, would lead to the selection of a sample with normative levels of social anxiety. Therefore, a score of 20 on the SIAS was used to classify participants in the low social anxiety group.

Participants who scored 21–33 on the SIAS were included as a third group of participants with mild to moderate social anxiety.

The emotional inhibition subscale of the *Emotional Control Questionnaire* (ECQ; Roger & Najarian, 1989) was used to assess the tendency suppress emotional expression. The subscale includes 14 items such as “When someone upsets me, I try to hide my feelings” and “I seldom show how I feel about things.” Items are rated by the respondent as true or false. The emotional inhibition subscale of the ECQ has been shown to be internally consistent ($\alpha = .77$), and test–retest reliability over a 7-week interval in an undergraduate sample was satisfactory ($r = .79$; Roger & Najarian, 1989). Within the current sample, the emotional inhibition subscale was internally consistent ($\alpha = .85$).

The *Toronto Alexithymia Scale* (TAS-20; Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994) is a 20-item measure assessing difficulty in identifying and describing emotions. The measure includes three factor-analytically derived subscales. Two of the subscales were included in the current analyses: 1) difficulty identifying feelings and distinguishing them from bodily sensations (e.g., “When I am upset, I don’t know if I am sad, frightened, or angry”), and 2) difficulty describing one’s feelings to others (e.g., “It is difficult for me to find the right words for my feelings.”). The subscales have been shown to be internally consistent (Bagby, Parker, et al., 1994), and they correlate negatively with measures of access and openness to one’s feelings (Bagby, Taylor, et al., 1994). Within the current sample, both subscales were internally consistent ($\alpha s > .82$). The *Trait Meta-Mood Scale* (TMMS; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995) is a 30-item scale which measures perceived emotional intelligence, or the ability to be aware and manage one’s emotions. All three of the TMMS subscales were included in the current analyses: 1) the ability to attend to one’s emotions (e.g., “I pay a lot of attention to how I feel.”), 2) the ability to discriminate among feelings (e.g., “I am usually very clear about my feelings.”), and 3) the ability to manage one’s mood (e.g., “When I become upset I remind myself of all the pleasures in life.”). The subscales have been shown to be internally consistent, and they significantly correlate with other measures of mood management, coping, and psychophysiological responses to stress (Salovey et al., 1995; Salovey, Shroud, Woolrey, & Epel, 2002). The subscales were internally consistent in the current sample ($\alpha s > .83$).

The *Affective Control Scale* (Williams, Chambless, & Ahrens, 1997) is a 42-item measure assessing fears of emotional experiences and feared ability to control emotional experiences. Subscales include 1) fear of anxiety; 2) fear of depression; 3) fear of anger; and 4) fear of positive emotions. Items such as “Once I get nervous, I think that my anxiety might get out of hand” are rated on a 7-point Likert-type scale. Among college samples, the subscales are internally consistent (αs range from .72 to .92). Satisfactory 2-week test–retest reliability ($r = .78$), and convergent and divergent validity has also been demonstrated (Berg, Shapiro, Chambless, & Ahrens, 1998; Williams et al., 1997). All four subscales were internally consistent in the current sample, with αs between .74 and .92.

The *Ambivalence over Emotional Expressiveness Questionnaire* (AEQ, King & Emmons, 1990) was developed to distinguish between inexpressive individuals who are comfortable with their inexpressiveness and those who are tense, inhibited, and at risk for psychological distress and physical symptoms. The AEQ assesses ambivalence over the expression of both positive (e.g., “I would like to express my affection more physically but I am afraid others will get the wrong impression”) and negative emotions (e.g., “I worry that if I express negative emotions such as fear and anger, other people will not approve of me”). The measure includes 28 items rated on a 5-point scale from “Not at all characteristic or true of me” to “Extremely characteristic or true of me.” The AEQ had high internal consistency ($\alpha = .89$), and 6-week test–retest reliability ($r = .78$) in an undergraduate sample (King & Emmons, 1990). Both subscales of the AEQ were internally consistent within this sample ($\alpha s > .86$).

The *Attitudes Towards Emotional Expression Questionnaire* (AEEQ; Joseph, Williams, Irwing, & Cammock, 1994) is a 20-item measure which examines beliefs and behaviors regarding emotional expression. Three subscales were used to examine negative beliefs about emotional expression: 1) beliefs about emotional expression being a sign of weakness (e.g., “I think getting emotional is a sign of weakness”), 2) beliefs about emotional expression leading to social rejection (e.g., “Other people will reject you if you upset them”), and 3) beliefs about the importance of keeping one’s emotional expression in control (e.g., “You should always keep your feelings to yourself”). In addition, a fourth subscale of emotional suppression (e.g., “When I’m upset, I bottle up my feelings”) was used as an additional measurement of the tendency to suppress emotional expression.

Items are rated on a 5-point scale from “disagree very much” to “agree very much.” Principal component analyses have confirmed the subscale structure of the scale in both undergraduate (Joseph et al., 1994; Laghai & Joseph, 2000) and police force samples (Mitchell-Gibbs & Joseph, 1996). The subscales have been shown to be internally consistent with undergraduate samples, with α s ranging from .70 to .88 (Joseph et al., 1994). Within the current sample, the internal consistency of the subscales was satisfactory (α s range from .79 to .90).

2. Results

2.1. Social anxiety and emotional suppression

Participants were classified into three groups based on pre-determined cut-off scores on the SIAS (Brown et al., 1997; Heimberg et al., 1992). Thirty-three participants were classified as high social anxiety ($M = 42.97$, $SD = 7.13$), 31 participants were classified as low social anxiety ($M = 12.06$, $SD = 4.40$), and the remaining 31 participants were classified as mild to moderate social anxiety ($M = 26.10$, $SD = 3.82$). Ratings of emotional suppression, emotional functioning, and beliefs about emotional expression among each group are presented in Table 1.

The three groups were compared on their ratings of emotional suppression using analyses of variance (ANOVA) with planned linear contrasts. A Bonferroni correction was used to account for multiple tests, $p = .025$ ($.05/2$). The effect of social anxiety on the emotional inhibition subscale of the ECQ was significant, with a significant linear trend, $F(1, 92) = 31.19$, $p < .05$. There was also a significant effect on the emotional suppression subscale of the AEEQ, with a significant linear

Table 1

Emotional expression ratings across social anxiety groups, M (SD).

	Low social anxiety ($n = 31$)	Mild-moderate social anxiety ($n = 31$)	High social anxiety ($n = 33$)	Group differences	Significance test
Emotional Suppression					
ECQ, Emotional Inhibition	3.71 (2.24)	5.58 (3.39)	8.18 (3.74)	$F(2, 92) = 15.79$	$p < .001$
AEEQ, Emotional Suppression	3.99 (0.72)	4.94 (0.89)	4.79 (0.83)	$F(2, 92) = 14.23$	$p < .001$
Emotional Responding					
TAS-20, Identifying Feelings	11.84 (3.81)	15.16 (5.60)	15.58 (5.29)	$F(2, 84.89) = 5.37$	$p < .01$
TAS-20, Describing Feelings	11.90 (4.04)	13.16 (4.24)	17.00 (4.16)	$F(2, 92) = 13.19$	$p < .001$
TMMS, Attending to Feelings	4.07 (0.44)	3.89 (0.52)	3.70 (0.60)	$F(2, 92) = 3.95$	$p = .02$
TMMS, Clarity in Discriminating	3.82 (0.62)	3.52 (0.76)	3.13 (0.69)	$F(2, 92) = 8.08$	$p = .001$
TMMS, Mood Repair	3.89 (0.44)	3.45 (0.86)	3.00 (1.03)	$F(2, 73.55) = 9.61$	$p < .001$
Fears of Controlling					
Emotional Expression					
ACS, Fear of Anxiety	2.61 (0.80)	3.39 (0.85)	3.84 (1.04)	$F(2, 92) = 15.12$	$p < .001$
ACS, Fear of Depression	2.30 (0.94)	3.45 (1.01)	3.44 (1.43)	$F(2, 92) = 10.30$	$p < .001$
ACS, Fear of Anger	2.88 (0.77)	3.52 (0.99)	3.73 (0.86)	$F(2, 92) = 7.92$	$p = .001$
ACS, Fear of Positive Emotion	2.46 (0.73)	2.84 (0.64)	3.17 (0.83)	$F(2, 92) = 7.61$	$p = .001$
Ambivalence over					
Emotional Expression					
AEQ, Positive	1.80 (0.41)	2.56 (0.65)	3.05 (0.74)	$F(2, 80.53) = 32.87$	$p < .001$
AEQ, Negative	1.71 (0.45)	2.41 (0.62)	2.80 (0.70)	$F(2, 91) = 7.61$	$p < .001$
Beliefs about					
Emotional Expression					
AEEQ, Social Rejection	8.90 (2.27)	11.58 (3.99)	14.58 (4.10)	$F(2, 79.21) = 20.48$	$p < .001$
AEEQ, Sign of Weakness	7.16 (2.27)	9.03 (3.26)	10.94 (4.10)	$F(2, 79.68) = 10.63$	$p < .001$
AEEQ, Keep in Control	11.26 (3.22)	13.23 (3.43)	14.82 (3.64)	$F(2, 92) = 8.58$	$p < .001$

Note. ECQ, Emotional Control Questionnaire; AEEQ, Attitudes Towards Emotional Expression Questionnaire; TAS-20, Toronto Alexithymia Scale-20 item version; TMMS, Trait Meta-Mood Scale; ACS, Affective Control Scale; AEQ, Ambivalence over Emotional Expressiveness Questionnaire. Adjusted degrees of freedom represent the use of the Brown-Forsythe F statistic to account for unequal variances.

trend, $F(1, 92) = 28.07, p < .05$. In both cases, as social anxiety increased, the tendency to suppress emotions also increased.

2.2. Social anxiety and difficulty identifying, describing, and managing emotions

A Bonferroni correction (.05/5) was used to account for multiple tests in this domain. There was a significant effect of social anxiety on four of the subscales examined, and all four demonstrated significant linear trends. As social anxiety increased, the following self-reported difficulties increased: identifying feelings and distinguishing them from bodily sensations, $F(1, 92) = 9.05, p < .01$; describing feelings to others, $F(1, 92) = 24.36, p < .001$; clarity in distinguishing among feelings, $F(1, 92) = 16.01, p < .001$, and ability to repair one's mood, $F(1, 92) = 18.96, p < .001$. The effect of social anxiety on paying attention to one's feelings failed to reach significance at the corrected level ($p = .02$); however the linear trend was significant, $F(1, 92) = 7.90, p < .01$.

2.3. Social anxiety and fears of emotional experiences

Group differences in fears of experiencing and losing control over one's emotions (ACS subscales) were examined using a Bonferroni correction, $p = .0125 (.05/4)$. There was a significant effect of social anxiety on all four subscales, and all demonstrated significant linear trends: fear of losing control over anxiety, $F(1, 92) = 29.68, p < .05$, depression, $F(1, 92) = 15.57, p < .05$, anger, $F(1, 92) = 14.77, p < .05$, and positive emotions, $F(1, 92) = 15.22, p < .05$. Thus, as social anxiety increased, the fears of losing control over one's emotions increased.

2.4. Social anxiety and ambivalence about emotional expression

The effect of social anxiety on ambivalence towards emotional expression was also examined using a Bonferroni correction, $p = .025 (.05/2)$. There was a significant effect of social anxiety on ambivalence over positive and negative emotional expression with significant linear trends: positive, $F(1, 91) = 63.70, p < .001$; negative, $F(1, 91) = 50.99, p < .001$. As social anxiety increased, ambivalence over positive and negative emotional expression increased.

2.5. Social anxiety and beliefs about emotional expression

The effect of social anxiety on beliefs about emotional expression (AEEQ subscales) was examined using a Bonferroni correction, $p = .017 (.05/3)$. Social anxiety had a significant effect on all three belief subscales, with significant linear trends. As social anxiety increased, the following maladaptive beliefs about emotional expression increased: beliefs that social rejection is a consequence of emotional expression, $F(1, 92) = 40.43, p < .05$; beliefs that emotional expression is a sign of weakness, $F(1, 92) = 20.89, p < .05$; and beliefs about the importance of keeping emotional expression in control, $F(1, 92) = 17.13, p < .05$.

2.6. The mediating role of beliefs

Because scores on the ECQ-Emotional Inhibition subscale and AEEQ-Emotional Suppression subscale were significantly correlated ($r = .81$), they were combined into a composite score. A composite score was preferred as it provides the most comprehensive representation of the underlying construct and reduces the number of statistical tests. When forming the composite score, the subscale scores were standardized and then summed.

Three subscales of the AEEQ were included in the analysis: 1) believing *social rejection* is a consequence of emotional expression and 2) believing emotional expression is a *sign of weakness*, and 3) endorsing the importance of *keeping emotional expression in control*. In addition, two subscales were included as measures of emotional responding difficulties: 1) difficulty *describing* one's feelings to others (TAS-20), and 2) difficulties *attending* to one's feelings (TMMS). These five variables were examined as mediators using a bootstrapping procedure for multiple mediators (Preacher &

Hayes, 2008). This method was chosen over the commonly used method outlined by Baron and Kenny (1986) because bootstrapping can avoid the power problems associated with non-normality in the sampling distribution (Preacher & Hayes, 2004; Shrout & Bolger, 2002). The SPSS macro for bootstrapping with multiple mediators written by Preacher and Hayes (2008) was used. The output provides the 95% confidence interval of the indirect effects, controlling for the effects of the other variables. If zero is not included in the confidence interval, the effect is considered significant. The overall model was significant: $R^2 = .77$, $F(6, 88) = 49.21$, $p < .001$. In addition, several indirect effects were significant: endorsing the importance of *keeping emotional expression in control* (bias corrected 95% CI = .007–.04), believing emotional expression is a *sign of weakness* (corrected 95% CI = .002–.02), and the ability to *describe* one's emotions to others (bias corrected 95% CI = .01–.04). The indirect effects through the belief that *social rejection* is a consequence of emotional expression (bias corrected 95% CI = –.02–.004) and through the ability to *attend to one's emotions* (bias corrected 95% CI = –.004–.009) were non-significant. After accounting for the effects of these variables, the direct effect of social anxiety on emotional suppression remained significant, $p < .05$.

3. Discussion

The current study replicated previous findings (e.g., Turk et al., 2005) and found that socially anxious individuals report greater suppression of their emotional experiences, less ability to attend to, discriminate, and describe their emotions, as well as greater fears of experiencing and losing control over various emotions. Socially anxious individuals also reported more ambivalence about emotional expression, suggesting that the use of emotional suppression is associated with tension about expressing emotions. Such findings have important implications. The strategic use of emotional suppression has been associated with dampening or diminishing the experience of positive emotion (Gross & Levenson, 1997; Kashdan & Breen, 2008; Strack, Martin, & Stepper, 1988). Further, compared to other forms of emotion regulation, emotional suppression has been associated with increased sympathetic activation of the cardiovascular system (Gross & Levenson, 1997), as well as negative social consequences such as poorer social support, reduced relationship closeness and sharing, and reduced feelings of rapport (Butler et al., 2003; Gross & John, 2003). Thus, such a pattern of emotional suppression is likely to interfere with the development and maintenance of interpersonal relationships and one's sense of social connectedness. Kashdan and Breen (2008) proposed that excessive social anxiety and habitual attempts at emotional suppression may result in a toxic combination, such that the harmful consequences of emotional suppression may be amplified in individuals with high levels of social anxiety. Furthermore, the present findings suggest that even those with moderate levels of social anxiety may be at risk for functional impairment since this group evidenced deficits in emotional functioning that were not always clearly distinguished from the high social anxiety group.

The current study is among the first to illustrate that socially anxious individuals hold dysfunctional beliefs about emotional expression. Specifically, those high in social anxiety endorsed the beliefs that it is important to keep emotional expression in control, social rejection is a consequence of emotional expression, and expressing one's emotions is a sign of weakness. These beliefs are paradoxical in nature given the evidence that emotional suppression is associated with poorer relationships (e.g., Gross & John, 2003). In addition, believing that it is important to keep emotional expression in control and that emotional expression is a sign of weakness partially explains the relation between social anxiety and emotional suppression. Furthermore, these beliefs remained significant mediators of this association, even after controlling for the effects of the ability to describe one's emotions to others and the ability to attend to one's emotions. Detecting significant indirect effects after controlling for emotional responding deficits strongly supports the important mediating role of beliefs about emotional expression. Socially anxious individuals may suppress the expression of their emotions partly because they expect others to view such expression negatively.

The current findings also suggest that when emotional suppression is associated with impaired functioning, interventions might focus on developing more accurate and functional beliefs about the meaning of emotional expression. Monitoring beliefs about emotional expression in future trials of the treatment of social anxiety disorder may provide additional information about the effects of treatment on emotional functioning. Interestingly, although these negative beliefs accounted for a substantial

proportion of the association between social anxiety and emotional suppression, the direct effect of social anxiety on emotional suppression remained significant. This finding suggests that emotional suppression may be, in part, a direct consequence of social anxiety. If this is the case, reducing social anxiety in treatment may result in an increased willingness to express emotions.

There are several limitations to the current study. The sample was composed of an undergraduate, convenience sample, and therefore the applicability of the findings to clinical or community samples is unknown and deserves further attention. In addition, the data were cross-sectional. Therefore we cannot truly draw mediational conclusions about processes that unfold over time. However, the current analyses represent preliminary evidence for the importance of exploring one's beliefs about the consequences of emotional expression in the context of social anxiety. Additional exploration using longitudinal designs is necessary to draw causal conclusions.

Finally, the data obtained were based entirely on participants' self-report. Self-report questionnaires have been prominent assessment tools as they provide a quick and low cost assessment of potential deficits in emotional responding. Although these measures are useful, they are potentially subject to considerable bias (Plutchik, 2003; Westen, 1994). Self-report assessment of emotional responding relies on a participant's knowledge, awareness, and memory of his or her own previous emotional responses. This may be particularly problematic among socially anxious individuals who have difficulties identifying and describing their emotional experiences (Cox, Swinson, Shulman, & Bourdeau, 1995; Fukunishi, Kikuchi, Wogan, & Takubo, 1997; Turk et al., 2005) and pay less attention to their emotional experiences (Turk et al., 2005) than non-socially anxious individuals. Thus, the ability of the current participants to accurately describe patterns of emotional expression is open to question, limiting the generalizability of our conclusions. Rather than relying solely on retrospective recall of emotional expression, future research focused on assessing emotional responses within a laboratory context in response to emotion-eliciting stimuli (e.g., Campbell-Sills et al., 2006) or in one's daily life using experience sampling methods (e.g., Kashdan & Steger, 2006) would likely be fruitful. In addition, utilizing additional assessments of emotional responding such as psychophysiological measures and/or reports made by friends or peers of socially anxious individuals could greatly enhance our understanding in this area.

Another avenue of exploration is whether limited emotional expression contributes to impaired memory for the social environment in socially anxious individuals (e.g., Hope, Heimberg, & Klein, 1990). Richards and Gross (2000) found that individuals who endorsed the habitual use of emotional suppression performed worse on memory tasks within their natural environment than those who reported regulating their emotions with reappraisal. These findings along with those of the current study suggest that socially anxious individuals may utilize cognitive resources to down-regulate their emotional expression, thus attending to their self-presentation more than the social environment, which could result in problems encoding information.

In sum, the current study demonstrates that socially anxious individuals report the use of emotional suppression and fears associated with experiencing emotions more than their non-socially anxious peers. They also report more negative beliefs about the consequences of emotional expression, and these beliefs may partially explain their use of emotional suppression. Replication of these findings in clinical samples and using different methodologies to assess emotional responding is warranted.

References

- Alden, L. E., & Bieling, P. (1998). Interpersonal consequences of the pursuit of safety. *Behaviour Research and Therapy*, 36, 53–64.
- Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia Scale: I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, 38, 23–32.
- Bagby, R. M., Taylor, G. J., & Parker, J. D. A. (1994). The twenty-item Toronto Alexithymia Scale: II. Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research*, 38, 33–40.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Berg, C. Z., Shapiro, N., Chambless, D. L., & Ahrens, A. (1998). Are emotions frightening? II: an analogue study of fear of emotion, interpersonal conflict and panic onset. *Behaviour Research and Therapy*, 36, 3–15.
- 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.
- Butler, E. A., Egloff, B., Wilhelm, F. H., Smith, N. C., Erickson, E. A., & Gross, J. J. (2003). The social consequences of expressive suppression. *Emotion*, 3, 48–67.

- 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.
- Cox, B. J., Swinson, R. P., Shulman, I. D., & Bourdeau, D. (1995). Alexithymia in panic disorder and social phobia. *Comprehensive Psychiatry*, 36, 195–198.
- Davila, J., & Beck, J. G. (2002). Is social anxiety associated with impairment in close relationships? A preliminary investigation. *Behavior Therapy*, 33, 427–446.
- DePaulo, B. M., Epstein, J. A., & LeMay, C. S. (1990). Responses of the socially anxious to the prospect of interpersonal evaluation. *Journal of Personality*, 58, 623–640.
- Erwin, B. A., Heimberg, R. G., Schneier, F. R., & Liebowitz, M. R. (2003). Anger experience and expression in social anxiety disorder: pretreatment profile and predictors of attrition and response to cognitive-behavioral treatment. *Behavior Therapy*, 34, 331–350.
- Fukunishi, I., Kikuchi, M., Wogan, J., & Takubo, M. (1997). Secondary alexithymia as a state reaction in panic disorder and social phobia. *Comprehensive Psychiatry*, 38, 166–170.
- Grant, D. M., Beck, J. G., Farrow, S. M., & Davila, J. D. (2007). Do interpersonal features of social anxiety influence the development of depressive symptoms? *Cognition and Emotion*, 21, 646–663.
- 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.
- Gross, J. J., & Levenson, R. W. (1997). Hiding feelings: the acute effects of inhibiting positive and negative emotions. *Journal of Abnormal Psychology*, 106, 95–103.
- Heimberg, R. G., Mueller, G. P., Holt, C. S., Hope, D. A., & Liebowitz, M. R. (1992). Assessment of anxiety in social interaction and being observed by others: the Social Interaction Anxiety Scale and the Social Phobia Scale. *Behavior Therapy*, 23, 53–73.
- Hope, D. A., Heimberg, R. G., & Klein, J. R. (1990). Social anxiety and the recall of interpersonal information. *Journal of Cognitive Psychotherapy: An International Quarterly*, 4, 185–195.
- Joseph, S., Williams, R., Irwing, P., & Cammock, T. (1994). The preliminary development of a measure to assess attitudes towards emotional expression. *Personality and Individual Differences*, 16, 869–875.
- 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.
- Kashdan, T. B., & Steger, M. F. (2006). Expanding the topography of social anxiety. *Psychological Science*, 17, 120–128.
- King, L. A., & Emmons, R. A. (1990). Conflict over emotional expression: psychological and physical correlates. *Journal of Personality and Social Psychology*, 58, 864–877.
- Laghai, A., & Joseph, S. (2000). Attitudes towards emotional expression: factor structure, convergent validity and associations with personality. *British Journal of Medical Psychology*, 73, 381–384.
- Leary, M., Knight, P. D., & Johnson, K. A. (1987). Social anxiety and dyadic conversation: a verbal response analysis. *Journal of Social and Clinical Psychology*, 5, 34–50.
- 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.
- Meleshko, K. G. A., & Alden, L. E. (1993). Anxiety and self-disclosure: toward a motivational model. *Journal of Personality and Social Psychology*, 64, 1000–1009.
- Mitchell-Gibbs, J., & Joseph, S. (1996). Assessment of attitudes towards emotional expression: a brief psychometric note. *Crisis Intervention*, 2, 193–198.
- Peters, L. (2000). Discriminant validity of the Social Phobia and Anxiety Inventory (SPAI), the Social Phobia Scale (SPS), and the Social Interaction Anxiety Scale (SIAS). *Behaviour Research and Therapy*, 38, 943–950.
- Plutchik, R. (2003). *Emotions and life: Perspectives from psychology, biology, and evolution*. Washington, DC: American Psychological Association.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, 36, 717–731.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891.
- Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: the cognitive cost of keeping one's cool. *Journal of Personality and Social Psychology*, 79, 410–424.
- Roger, D., & Najarian, B. (1989). The construction and validation of a new scale for measuring emotional control. *Personality and Individual Differences*, 10, 845–853.
- Salovey, P., Mayer, J. D., Goldman, S., Turvey, C., & Palfai, T. (1995). Emotional attention, clarity, and repair: exploring emotional intelligence using the Trait Meta-Mood Scale. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (pp. 125–154). Washington, DC: American Psychological Association.
- Salovey, P., Shroud, L. R., Woolrey, A., & Epel, E. S. (2002). Perceived emotional intelligence, stress reactivity, and symptom reports: further explorations using the Trait Meta-Mood Scale. *Psychology and Health*, 17, 611–627.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: new procedures and recommendations. *Psychological Methods*, 7, 422–445.
- Snell, W. E., Jr. (1989). Willingness to self-disclose to female and male friends as a function of social anxiety and gender. *Personality and Social Psychology Bulletin*, 15, 113–125.
- Strack, F., Martin, L. L., & Stepper, S. (1988). Inhibiting and facilitating conditions of the human smile: a nonobtrusive test of the facial feedback hypothesis. *Journal of Personality and Social Psychology*, 54, 768–777.
- Turk, C. L., Heimberg, R. G., Luterek, J. A., Mennin, D. S., & Fresco, D. M. (2005). Delineating emotion regulation deficits with generalized anxiety disorder: a comparison with social anxiety disorder. *Cognitive Therapy and Research*, 29, 89–106.
- Westen, D. (1994). Toward an integrative model of affect regulation: applications to social-psychological research. *Journal of Personality*, 62, 641–667.
- Williams, K. E., Chambless, D. L., & Ahrens, A. (1997). Are emotions frightening? An extension of the fear of fear construct. *Behaviour Research and Therapy*, 35, 239–248.