How Awkward! Social Anxiety and the Perceived Consequences of Social Blunders

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Abstract

Seventy high socially anxious (HSA) and 74 low socially anxious (LSA) participants rated perceived interpersonal and emotional consequences of both (a) autobiographical social blunders recalled from their own lives and (b) imagined blunders presented in standardized hypothetical social scenarios. Ratings of participants' autobiographical blunders were also provided by research assistants who were blind to hypotheses. Results indicated that HSA participants overestimated the negative consequences of their own autobiographical blunders. These negative perceptions among HSA participants extended to imagined blunders, even when participants were instructed to imagine a third party other than themselves as the person committing the blunder. This pattern of results suggests the conclusion that the perceived consequences of social blunders among HSA individuals are driven by the belief that social standards are high, inflexible, or both.

Keywords

Social anxiety disorder; social phobia; social cost; CBT; exposure therapy

Social blunders are, unfortunately, a part of life. To the best of our knowledge, everyone has regrettable experiences of unexpectedly and unintentionally behaving in ways that violate culturally-accepted rules of social etiquette or conduct. But even if such experiences are universal, the *way* they are experienced is probably not. We expect that people are likely to differ from one another in their level of concern about the perceived risks or consequences of committing a social blunder, and that social anxiety plays an important role in helping to account for such differences.

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[4]An alternative method of analysis would be to use hierarchical linear regression. It should be noted that in simultaneous linear regression, the significance level of the parameters for each predictor is the same as the significance for the change in R^2 if that predictor were entered in the last step of a hierarchical linear regression. Further, the part *r* associated with each predictor can be squared to determine the size of the change in R^2 that would occur if that predictor had been entered in the last step of a hierarchical linear regression.

Theoretical models suggest that high socially anxious (HSA) individuals are particularly attuned to the risk of social mishaps and to the negative evaluation that they imagine may occur as a result (Clark & Wells, 1995; Hofmann, 2007; Moscovitch, 2009; Rapee & Heimberg, 1997). Social anxiety is expected to confer stronger beliefs that committing a social blunder will publicly expose social incompetence or unacceptability (e.g., Moscovitch & Huyder, 2011), leading to criticism or rejection (e.g., Rodebaugh, 2009). In accordance with such models, researchers have increasingly focused their work on the tendency of HSA individuals to overestimate the likelihood and costs of negative social outcomes (Foa, Franklin, Perry, & Herbert, 1996) and the extent to which decreases in social cost estimates among individuals with social anxiety disorder (SAD) may mediate the anxiolytic effects of cognitive behavioral therapy (CBT; Hofmann, 2004; Foa et al., 1996; McManus, Clark, & Hackmann, 2000; Smits, Rosenfield, McDonald, & Telch, 2006; Taylor & Alden, 2008). Encouraged by the possibility that social cost overestimation may represent a core cognitive process underlying the persistence of social anxiety symptoms, some clinical researchers have advocated for the integration of *intentional social mishap exposures* into CBT protocols for SAD (e.g., Hofmann, 2007). In such exercises, patients are instructed to commit purposeful social blunders during treatment in the service of correcting inflated cost estimates as they are confronted with objective evidence concerning the discrepancy between predicted social costs, which are imagined to be catastrophic, and observed (or felt) costs, which are typically quite minimal and short-lived.

Although social mishap exposures are based on sound theoretical premises and are associated with promising preliminary clinical outcomes (Hofmann & Scepkowski, 2006), there are very few studies that have investigated the impact of social anxiety on perceived risks and consequences of social blunders (see Arkin & Appelman, 1983; Edelmann, 1985a). It seems essential to elaborate the empirical justification for these clinical applications. In particular, studies are needed to establish how HSA individuals misinterpret social blunders. A better understanding of these misinterpretations would, in turn, benefit CBT clinicians who wish to implement social mishap exposures in their treatment of socially anxious patients.

The present study, therefore, was designed to examine the nature of perceived interpersonal and emotional consequences associated with committing both recalled (actual) and imagined social blunders in HSA and low socially anxious (LSA) individuals. Participants were selected based on a validated screening measure for SAD; the two groups, therefore, represent analogues of patient and normal control groups. We hypothesized, first, that HSA participants would perceive their own past blunders as being more emotionally[1] and interpersonally costly than would LSA participants and objective raters. Second, we predicted that relative to their LSA counterparts, HSA participants would overestimate the costs of blunders described in hypothetical scenarios in which they imagined themselves as the central character. Third, on the basis of research suggesting that socially anxious individuals may apply a double standard in their judgments of social behavior by applying more stringent rules to evaluations of their own behaviors than evaluations of the behavior

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[1]Normative responses to social blunders may include several potentially distinct emotional reactions, including shame and embarrassment. Edelmann (1985b, p. 196) proposed differences between these two affective states, defining embarrassment as "a feeling of concern with one's public image and with reactions from real or imagined others to inappropriate behavior" and shame as "a feeling of self-blame or self-disgust." Tangney, Miller, Flicker and Barlow (1996) concluded that shame is a much more negative, intense, and enduring feeling than embarrassment, which is less negative overall and tends to be associated with a rapid recovery to baseline and with less need for reparative actions in psychologically healthy individuals. Complimentary research by Sabini, Garvey and Hall (2001) concluded that a revelation of some characterological flaw incited both embarrassment and shame, but if a situation did not involve revelation of a characterological flaw, people felt embarrassment to a much greater degree than shame. Given these theoretical assumptions and associated research findings, it seems plausible that HSA individuals, who are more likely to believe that they are inept or otherwise characterologically flawed (Clark & Wells, 1995; Hofmann, 2007; Moscovitch, 2009; Rapee & Heimberg 1997; Rodebaugh, 2009), should also be more likely to experience shame as a result of social blunders.

of others (e.g., Amir, Foa, & Coles, 1998; Voncken, Alden, & Bögels, 2006), we predicted that HSA and LSA participants would not differ in their perception of the consequences associated with blunders committed by an imagined third person. Finally, given the well-documented overlap between symptoms of social anxiety and depression in their relation to negative self-relevant cognitions within social and interpersonal contexts (e.g., Dozois & Frewen, 2006), we were interested in the extent to which the perceived consequences of social blunders may be driven by symptoms of social anxiety, symptoms of depression, or both. In this regard, because of evidence that changes in perceived cost of negative social outcomes mediates treatment outcome in social anxiety disorder (Hofmann, 2004), we were particularly interested in whether social anxiety was uniquely related to perceived costs of social blunders. Thus, we hypothesized that although both symptoms of social anxiety and depression would each likely account for some of the variance in perceived costs of autobiographical and imagined social blunders, symptoms of social anxiety would maintain a unique relationship with cost, above and beyond depression.

Method

Participants

Undergraduate psychology students at a large, urban Canadian university were prescreened with the Social Phobia Inventory (SPIN; Connor, Davidson, Churchill, Sherwood, Foa & Weisler, 2000), a well-validated measure of social anxiety symptoms (see description in *Measures*, below). Individuals who scored 30 or above (HSA) and 12 or below (LSA) on the SPIN were invited to participate in the current study. One hundred forty four (70 HSA) individuals comprised the final sample, all of whom received partial course credit in exchange for their participation. One additional participant failed to complete measures for more than one of the imagined scenarios and was thus excluded. The study was completed online through a secure webpage hosted by the university and all procedures were approved by the university's Research Ethics Board. Descriptive sample characteristics are listed in Table 1.

Measures

Social Phobia Inventory (SPIN; Connor et al., 2000)—This 17-item questionnaire was originally constructed to serve as a screening tool for SAD. Respondents indicate the extent to which each of the 17 SPIN items (e.g., *I am afraid of people in authority*) has bothered them over the past week on a five-point Likert-type scale, ranging from 0 (not at all bothersome) to 4 (extremely bothersome), with possible scores ranging from 0-68. The SPIN has been shown to be an excellent measure of social anxiety, with good test-retest reliability, strong convergent and divergent validity, good construct validity and high levels of internal consistency (Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006; Connor et al., 2000). Although Connor and colleagues (2000) proposed a cut-off score of 19 and higher to select participants likely to have SAD, others (e.g., Moser, Hajcak, Huppert, Foa & Simons, 2008) have expressed a preference for using a more stringent cut-off score of 30, which we also used in the present study. We selected a cut-off score of 12 or below for controls because Connor et al. (2000) reported that their nonpsychiatric control group had a mean SPIN total score of 12.1. This cut-off score resembles the score of 10 or below that has been used by Moser et al. (2008) to identify low anxious controls. The SPIN was administered prior to the current study to screen participants; the resulting screening score was also used for the analyses in the current study.

Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996)—This measure, which assesses depressive symptoms in both the psychiatric and healthy population, consists of 21 groups of statements (i.e. Sadness: 0 – I do not feel sad, 1 – I feel

sad much of the time, 2 – I am sad all the time, 3 – I am so sad or unhappy that I can't stand it), for which participants select the corresponding option that best describes their emotional state. Scores on the measure can range from 0 – 63 and cut-offs have been determined to reflect minimal (0-13), mild (14-19), moderate (20-28), and severe (29-63) levels of depression. The scale's Cronbach's alpha has been reported at .89 for a student population (Whisman, Perez & Ramel, 2000). The BDI-II has demonstrated good reliability, validity (e.g., convergent), and high internal consistency (Beck, Steer, & Garbin, 1988; Steer, Rissmiller & Beck, 2000). The BDI-II was administered during screening, along with the SPIN and other measures (not used here).

Assessment of Autobiographical Blunders—Participants were instructed to recall and describe a specific event in their lives in which they committed what they would call a *social blunder*. First, participants were asked to describe the blunder (see Appendix A for some specific examples of participants' responses). Next, they were asked to rate on a 5-point scale from 0 (not at all) to 4 (extremely) the extent to which they were privately concerned about the social costs of the blunder (At the time of the event, I felt privately concerned about the social costs of my blunder), how embarrassed they felt afterward (*I felt embarrassed about my blunder*), how ashamed they felt afterward (*I felt ashamed about my blunder*) and the extent to which they believed that others who witnessed the blunder reacted negatively toward them (Others who witnessed the blunder reacted negatively toward me). The embarrassment and shame items were presented in a counterbalanced order across participants in order to control for potential carryover effects between these two related constructs.

Assessment of Imagined Blunders—Eight hypothetical social blunder scenarios, consisting of both social interaction and social performance situations (see Appendix B), were constructed by the third author in close consultation with the first and second authors, both of whom have established expertise in social anxiety research and treatment. These eight scenarios were presented to participants one at a time in counterbalanced order. In six of the scenarios, participants were instructed to imagine themselves as the actor or central character who commits the blunder, whereas in the other two scenarios, participants imagined themselves as observers of a third person who commits the blunder. Respondents were instructed to think honestly about their most likely reaction to each event and, as described above, to rate on a 5-point scale from 0 (not at all) to 4 (extremely) the extent to which (in regard to situations they were instructed to imagine had happened to them) they were privately concerned about the social costs of the imagined blunder, how embarrassed and ashamed they would have felt afterward, and the extent to which they would have believed that others who witnessed the blunder reacted negatively toward them.[2] When rating blunders described as occurring to another person, the participant was asked to rate their beliefs regarding what would be true for that person (e.g., s/he felt privately concerned

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[2]We conducted a confirmatory factor analysis (CFA) in the current sample combined with a separate sample of participants with mid-range levels of social anxiety from the same population (total N = 264). The model included Cost, Embarrassment, Shame, and Negative Response substantive factors defined across scenarios in which the participants were asked to imagine the situation had occurred to them, as well as method factors for each scenario (scenarios in which participants imagined others committing the blunders could not be tested because there were not enough of them). Each item loaded on both a substantive factor and a method factor, and method factors were not permitted to correlate, whereas substantive factors were permitted to correlate with one another (see Ward, 2006, and Rodebaugh et al., 2004, for other examples of similar models). The factor structure was tested in Mplus 6.1 (Muthén & Muthén, 1998-2010) using the robust weighted least squares estimator, which is appropriate for categorical variables; all variables were treated as categorical. Missing data were estimated by Mplus, but results were similar when partially missing data were deleted listwise (see **Missing Data** section). The model fit well (e.g., Comparative Fit Index [CFI; Bentler, 1995] = .97; Root Mean Square Error of Approximation [RMSEA; Steiger & Lind, 1980] = .06). Substantive factors showed intercorrelations ranging from medium (Embarrassment with Negative Response, r = .38, p < .001) to large (Embarrassment with Cost, r = .82). Such correlations imply that the measured constructs are moderately to highly related, but not isomorphic. Additional models, including one-factor models and models in which embarrassment and shame items loaded onto the same factor, were tested and found to have relatively poor fit. Full details of these analyses are available from the second author (TLR).

about the social costs; s/he felt embarrassed/ashamed, etc.). The order of presentation of the embarrassment and shame items was counterbalanced across participants.

Procedure

Screening and Selection—Based on their responses to the prescreening SPIN, eligible participants (SPIN scores 30 or above, or 12 and below) who were recruited for the present study logged onto a secure online site and completed the assessment of autobiographical blunders, the assessment of imagined blunders, and other measures not used in the present study.

Objective Raters—Four senior undergraduate research assistants who were blind to the purpose of the study and the symptom status of each participant were trained as objective raters. They rated participants' reported autobiographical events on a 5-point scale (0 = not at all to 4 = extremely) for each of the same four response dimensions as those rated by the participants themselves (social cost, embarrassment, shame, and negative response from others). Raters also provided a global rating (0-4) on the extent to which they would define each reported autobiographical as a blunder.

Training focused on establishing reasonable reliability while maintaining a jury of peers approach. That is, we wished to retain the *coders' own judgments* regarding social blunders and not replace these judgments with a specific set of criteria that might render ratings less ecologically valid. Training involved a 3-hour initial meeting with two of the researchers (DAM and BDH) and all four raters together, during which practice scenarios analogous to the autobiographical situations provided by participants were reviewed and rated, discrepancies between the raters were discussed, and the raters collaboratively developed some criteria to guide subsequent ratings. Following the initial three situations, raters completed seven more scenarios without the researchers' involvement. After each practice scenario, the raters compared ratings in the presence of the researchers. When items had discrepant ratings, the researchers asked the raters to discuss the discrepancies and resolve them without the researchers present in the room.

After the training session, raters were instructed to complete their ratings independently over a secure, password and identity-protected online forum set up by the researchers, in which each rater was able to view the collated autobiographical blunders one at a time in random order. Raters independently completed their ratings at their own convenience over a 2-week period and were not permitted to communicate about the project with each other or the researchers during this time. The task took each rater approximately 15 total hours to complete. Two-way random Intraclass Correlation Coefficients (ICC) were computed for absolute agreement of the average rating (because the average rating, and no individual rater's rating, was the intended unit of analysis). Results indicated strong inter-observer reliability for each of the main dependent variables in the study: social cost, ICC(A, 4) = .82; embarrassment, ICC(A, 4) = .84; shame, ICC(A, 4) = .84; and negative response from others, ICC(A, 4) = .83 (all ps < .001).

Composite Scores

Composite scores were created for (a) imagined blunders, by summing across each item in the six 'imagined self' scenarios, and for (b) imagined observer blunders, by summing across each item in the two 'imagined other' scenarios. Cronbach's alpha was calculated for each of the composite scores. For imagined scenarios with participants as the central character, alpha coefficients were .84, .76, .87, and .77 for Social Cost, Embarrassed, Ashamed, and Negative Response from Others, respectively. For imagined scenarios with participants as observers, alpha coefficients for these four composite dependent variables

were .76, .71, .73, and .58. Thus, with the exception of the composite Negative Response variable in the observer scenarios, internal consistency ranged from acceptable to good. We chose to retain the single variable with less acceptable reliability in order to enable comparisons on this outcome measure across study scenarios (autobiographical, imagined self, and imagined other).

Missing Data

A total of 21 participants (15%) provided partial data; most participants provided most data points, with the maximum amount of missing data for any single variable analyzed being 7%. These missing data cannot be considered missing at random because participants were required either to answer each item or indicate that they preferred not to answer. Thus, any missing data point in the present study represents an explicit choice by the participant not to answer that item. It therefore seems quite likely that missing data for any given item is related to the response the participant had to the content of the question itself. In other words, missing data are likely to be related to what the participant's response would have been, if the participant had reported it. This situation violates the assumptions of most missing data estimation methods (Schafer & Graham, 2002); there is, therefore, no ideal way to handle these missing data. Thus, we used two methods of evaluating the data: Listwise deletion by analysis and handling of missing data via the missing data estimation methods available in Mplus. These methods ultimately led to the same conclusions; the more easily interpretable results supplied by the former are therefore presented here. Available ns are reported for each analysis. Full results of the analyses conducted using Mplus, which used latent variables whenever possible, are available from the second author (TLR).

Analytic Procedure

Where possible, we conducted omnibus tests of effect using multivariate methods. Significant omnibus effects were followed up by specific univariate tests via ANOVA and *t*-tests in order to describe the nature of the effects. Non-significant multivariate effects are not explored further.

Results

Test of Demographic Differences

Table 1 displays the characteristics of the groups and associated tests of equivalence. As expected, the groups differed on depression symptoms as well as social anxiety symptoms; this difference in depression symptoms was further explored below as an alternative explanation of results. Also, as might be expected, the groups were not equivalent in terms of ethnicity, such that the HSA group had a higher percentage of participants identifying as Asian. This finding is consistent with a variety of studies finding that college students of Asian descent report higher social anxiety (Hong & Woody, 2007). We tested the possibility that this difference might qualify our results (see footnote 3).

Group Differences

We conducted four MANOVAs and associated follow-up tests. In the first MANOVA[3], we examined the effects of group (HSA vs. LSA) on the four dependent variables in the

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[3]We examined whether ethnicity (Caucasian vs. Asian descent) moderated the effects observed in the primary MANOVAs by conducting MANCOVAs with ethnicity entered as a covariate (including only the participants who identified their ethnicity as Caucasian or Asian). Although ethnicity showed some effects in these analyses, no interaction effect of group with ethnicity, mulivariate or univariate, approached significance (all *p*s > .20) and all effects of concern remained significant in the reduced sample with ethnicity included in the model as a competing predictor variable.

autobiographical blunder scenarios (social cost, embarrassed, ashamed, and negative response). This test revealed a nearly large effect for group, $\Lambda = .87$, $F(4, 130) = 4.74$, $p = .001$, $\eta^2 = .13$, $n = 135$. Univariate ANOVAs produced the same result as t-tests, as shown in the top third of Table 2: HSA relative to LSA participants recalled their own past social blunders as being more socially costly, embarrassing, and shame-inducing (all ps $\leq$ .01), but not as having induced a more negative response from others ($p = .15$).

A second MANOVA was conducted on the composite dependent variables for the imagined blunders, and this showed a very large effect for group, $\Lambda = .80$, $F(4, 126) = 7.70$, $p < .001$, $\eta^2 = .20$, $n = 131$. Again, univariate ANOVAs showed the same pattern as can be discerned from follow-up t-tests, which are outlined in the bottom two-thirds of Table 2: HSA relative to LSA participants viewed imagined blunders as being more costly, embarrassing, and shame-inducing, and more likely to elicit negative responses from others (all ps $\leq$ .01). This pattern of results also extended to those scenarios in which participants imagined observing a third party as the 'central character' who commits the blunders, which was tested in a third MANOVA, $\Lambda = .81$, $F(4, 132) = 7.90$, $p < .001$, $\eta^2 = .19$, $n = 137$. Univariate ANOVAs showed the same pattern in each dependent variable (all ps $\leq$ .01).

Fourth, a repeated-measures MANOVA was conducted in which group was entered as a between-participants factor (HSA vs. LSA) and rater (participant vs. rater) was entered as a within-participant factor. Ratings drawn from the autobiographical scenarios were the dependent variables; the within-participant factor allowed us to analyze ratings from the participants and raters in the same test. In this case, a significant interaction effect between group and rater would be consistent with the hypothesis that HSA participants would show more of a discrepancy between their own ratings and the raters' ratings. A large effect was found for that interaction, $\Lambda = .86$, $F(4, 130) = 5.25$, $p < .001$, $\eta^2 = .15$, $n = 135$. Notably, however, when univariate results were examined via ANOVA, the interaction obtained statistical significance for all items (ps $< .01$) except the item concerning how negative the described event was ($p = .14$). Examination of means indicated that the interaction was in the direction expected and thus supported the hypothesis. In particular, as shown in Table 3, paired t-tests examining rater vs. participant judgments were significant across all four dependent variables in the HSA group, ts(63-67) > 3.32, ps $< .01$, but for none of the variables in the LSA group, ts(70-72) < 1.40, ps $> .17$. Overall, then, the differences between raters and participants were largely confined to the HSA group, supporting the hypothesis that HSA participants differed from raters more so than did LSA participants. However, the degree of difference could also be tested in an additional way. When the difference between rater and participant on each variable was computed as a simple difference score, t-tests for all rating types except for *negative response* showed significantly greater rater-participant differences for the HSA group than the LSA group, ts(137-142) > 2.78, ps $< .01$ (for *negative response*, $p = .15$). In contrast, when rater ratings were compared across groups, none of the differences approached significance (ps $= .10 - .97$), suggesting that differences in perceived consequences between the two groups were not due to the recall of events being associated with objectively more negative consequences among HSA participants. Indeed, raters actually classified the events reported by LSA participants as being more consistent with what they would define as being a blunder than those reported by HSA participants ($p < .05$).

Social Anxiety vs. Depression in Relation to Perceived Social Costs

To investigate the relation between symptoms of social anxiety vs. depression and perceived social costs, three multiple regression analyses were run with SPIN and BDI-II scores entered simultaneously as predictor variables and perceived social costs as the dependent variable for autobiographical, imagined actor, and imagined observer blunders. In the first model, symptoms of social anxiety and depression accounted for 15% of the variance in

perceived social costs associated with autobiographical blunders, $F(2, 136) = 13.56$, $p < .001$, $n = 139$. Both SPIN scores (Beta = .21, $t = 2.29$, $p = .024$, partial $r = .19$) and BDI-II scores (Beta = .26, $t = 2.90$, $p = .004$, partial $r = .24$) uniquely predicted social costs. In the second model, symptoms of social anxiety and depression accounted for 13.8% of the variance in perceived social costs associated with imagined blunders committed by another person, $F(2, 139) = 12.24$, $p < .001$, $n = 142$. In slight contrast to model 1, SPIN scores accounted for a significant amount of variance in social costs (Beta = .31, $t = 3.42$, $p = .001$, partial $r = .28$), whereas BDI-II scores did not (Beta = .12, $t = 1.37$, $p = .17$, partial $r = .11$). Finally, in the third model, symptoms of social anxiety and depression accounted for 14.5% of the variance in perceived social costs associated with imagined blunders committed by the participant, $F(2, 135) = 16.66$, $p < .001$. Consistent with model 1, SPIN scores accounted for a significant amount of variance in social costs (Beta = .31, $t = 3.48$, $p = .001$, partial $r = .27$), as did BDI-II scores (Beta = .20, $t = 2.23$, $p = .03$, partial $r = .17$). Examination of assumptions of regression indicated that they were met for each model, despite possible concerns regarding the distribution of SPIN scores. Notably, conclusions were identical when group (HSA vs. LSA) was examined instead of SPIN scores.[5]

Discussion

Although experience tells us that everyone endures social mishaps from time to time, their perceived meaning and impact appear to vary significantly depending on one's level of social anxiety. Our findings suggest that HSA individuals are more likely than LSA individuals to be consumed with feelings of embarrassment and shame about their blunders, and to worry about their potential social and interpersonal costs. This pattern of results emerged in the present study specifically for blunders that participants were instructed to think about rather than experience directly per se, in the form of both past autobiographical memories and imagined hypothetical scenarios in which either the participants themselves or a third person was described as the central character who commits the blunders. Future experimental or naturalistic studies are required to investigate whether the observed pattern of results in emotional, cognitive, and behavioral responses would generalize to actual social blunders as they unfold in real time amongst anxious and non-anxious participants.

Relative to objective raters, HSA participants rated their past autobiographical blunders as significantly more socially costly, embarrassing, shame-inducing, and more likely to elicit negative responses from others than LSA participants. These results support past research (e.g., Moscovitch & Hofmann, 2007; Rapee & Lim, 1992), which has shown in laboratory-

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[5]Given the special status of perceived social costs in social anxiety research (as described in the Introduction) and to minimize the overall number of analyses performed, *perceived social costs* was the only outcome variable that we planned to examine in the regression analyses. Nevertheless, in order to explore the relation between symptoms of social anxiety vs. depression and the remaining dependent variables, nine additional multiple regression analyses were performed. SPIN and BDI-II scores were entered simultaneously as the predictor variables and each of the three dependent variables (embarrassed, ashamed, negative response from others) was each entered separately for the autobiographical, imagined self, and imagined other scenarios. All nine omnibus models were significant, with symptoms of social anxiety and depression together accounting for a significant amount (6-21%) of variance overall in each of the dependent variables, all Fs > 5.27, all ps < .006, ns = 136-142. For the *autobiographical* scenarios, SPIN scores did not account for significant variance in any of the three remaining dependent variables (all ps > .17), whereas BDI-II accounted for significant variance in embarrassment (Beta = .22, $t = 2.32$, $p = .022$, partial $r = .19$), shame (Beta = .20, $t = 2.14$, $p = .034$, partial $r = .18$), and negative response from others (Beta = .30, $t = 3.14$, $p = .002$, partial $r = .26$). For the three remaining dependent variables in the *imagined self* scenarios, significant variance in embarrassment was accounted for by both SPIN scores (Beta = .27, $t = 3.07$, $p = .003$, partial $r = .25$) and BDI-II scores (Beta = .22, $t = 2.47$, $p = .015$, partial $r = .21$). Significant variance in shame was also accounted for by both SPIN scores (Beta = .33, $t = 3.83$, $p < .001$, partial $r = .31$) and BDI-II scores (Beta = .20, $t = 2.35$, $p = .020$, partial $r = .20$). In addition, BDI-II scores (Beta = .22, $t = 2.33$, $p = .021$, partial $r = .19$), but not SPIN scores ($p = .21$) accounted for significant variance negative response from others. Finally, for the three remaining dependent variables in the *imagined other* scenarios, SPIN scores accounted for nearly significant variance in embarrassment (Beta = .17, $t = 1.77$, $p = .08$, partial $r = .15$), for significant variance in shame (Beta = .34, $t = 3.77$, $p < .001$, partial $r = .31$), and for significant variance in negative response from others (Beta = .20, $t = 2.11$, $p = .04$, partial $r = .18$). In contrast, BDI-II scores did not account for significant variance in any of these three dependent variables (all ps > .13).

based social situations that individuals with high levels of social anxiety conflate their impressions of self with their perception of the imagined critical audience evaluator, thereby judging themselves much more harshly than an objective perspective would warrant. However, the present study was novel in that it examined these beliefs in the context of real, autobiographical blunders that were recollected by participants, whose actual impressions of the consequences of these events were compared with those of objective raters.

What factors might be responsible for driving the group differences observed in the primary analyses? First, these effects cannot be easily attributed simply to HSA participants' tendency to remember more negative autobiographical events, because: (a) the effects extended to imagined events; and (b) objective raters actually rated the autobiographical blunders reported by HSA participants as being significantly milder (i.e., less blunder-like) than those reported by LSA participants. A second potential explanation concerns HSA participants' tendency to view themselves as less capable of effectively managing negative social events or as having low social currency in the eyes of others. Such tendencies might lead them to make inflated estimates of the impact and cost of events *in their own lives* or to make inflated estimates of the extent to which an evaluative audience would scrutinize or criticize *their own behavior*. The current results cannot be easily explained by that factor alone because such beliefs lead to expectations that one's *own behavior* has greater costs, yet our results extended to imagined scenarios in which a person other than the participant was described as committing the blunders. The pattern of findings thus suggests that HSA participants may have viewed the standard of evaluation for people in general as being higher or less flexible than LSA participants and, therefore, believed that failure to conform to that standard would be costly for *anyone*. We do not argue that HSA individuals fail to see themselves at a particular disadvantage in terms of social currency (indeed, we have argued elsewhere that they do tend to view themselves as inferior; e.g., Moscovitch, 2009; Rodebaugh, 2009; see below). Rather, we contend that this explanation alone cannot explain our current results, whereas a belief related to social anxiety that social standards are high, inflexible, or both would explain the results. This explanation is consistent with the view that HSA individuals are highly motivated to make a good impression on others, but believe that their efforts will fall short (Clark & Wells, 1995; Rapee & Heimberg, 1997; Schlenker & Leary, 1982). We expect that the belief that one will fall short is generated both by a perception that one is at a particular disadvantage as well as a perception that standards are high, inflexible, or both.

Moscovitch (2009) recently argued that social anxiety is fundamentally driven by the perception of one's self-attributes as deficient or contrary to perceived societal expectations or norms. In a similar vein, Rodebaugh (2009) proposed that socially anxious individuals hold a *core extrusion schema*, characterized by the thought: Based on my experience, if people really knew me, they would reject me: therefore, I will attempt to hide my true self and avoid scrutiny. Although we did not assess behavioral responses to social blunders in the present study, we expect that HSA individuals, as a result of holding these negative beliefs about themselves, might engage in fewer reparative actions (Brown & Garland, 1971) than would LSA individuals after experiencing a social blunder. Essentially, in the aftermath of a blunder, LSA individuals might be more likely to view themselves as apologizing for a transient *mistake*, whereas HSA individuals might perceive a need to apologize for, or otherwise repair, a permanent aspect of *themselves*. It seems plausible that from the perspective of HSA individuals, evaluative others might excuse a transient error, whereas gaining acceptance of a flawed self would be hopeless.

As described in the Results section and in footnote 5, regression analyses examining the relation between symptoms of social anxiety versus depression and the primary dependent variables revealed, perhaps not surprisingly, that both types of symptoms accounted for

shared and unique variance observed in participants' perceived consequences of autobiographical and imagined (self and other) social blunders. For autobiographical blunders, social anxiety symptoms were associated with perceived negative social costs but none of the other dependent variables, whereas depression symptoms were associated with perceived negative consequences across all of the dependent variables. For blunders that participants imagined happening to them, social anxiety symptoms were associated with perceived negative social costs, perceived embarrassment, and perceived shame, whereas depression symptoms were associated with perceived embarrassment, perceived shame, and perceived negative responses from others. Finally, for blunders that participants imagined happening to others, social anxiety symptoms were significantly or nearly significantly associated with perceived negative consequences across all of the dependent variables, whereas depression symptoms were associated with perceived negative social costs but none of the other dependent variables.

Overall, these results are consistent with the notion that both social anxiety and depression symptoms impact perceived negative consequences of social blunders, but in slightly different patterns depending on the types of subjective consequences measured and the types of blunder scenarios examined. Because symptoms of social anxiety and depression tend to overlap in nature (see Moscovitch, Hofmann, Suvak, & In-Albon, 2005), it is likely impossible (at least from the current study design, but perhaps also more generally) to draw strong conclusions about how one type of symptom, in isolation from the other, might confer vulnerability to self- and other-related negative cognitions within social contexts. Our finding of a significant relation between social anxiety and perceived social costs across all types of blunder scenarios is consistent with cognitive behavioral models and the extant literature, which emphasize the importance of social cost overestimation in social anxiety, as reviewed above. Finally, the somewhat surprising finding that social anxiety symptoms were associated with perceived negative consequences across all the dependent variables for the *imagined other* scenarios is consistent with our interpretation (see above) that the factor that appears to be most crucial for understanding high SA individuals' reactions to social blunders is their perception that social standards are unreachable, inflexible, or both.

To the extent that our results might generalize to groups of individuals with SAD, our findings may have some important clinical implications. Current models of CBT for SAD integrate intentional social mishap exposures (Hofmann & Scepkowski, 2006), but with limited experimental precedence. Our results support intervention strategies for SAD that include behavioral experiments in which the therapist elicits explicit comparisons between patients' beliefs about how critical an audience member (broadly defined) will be and the actual audience member's responses, which are, according to our findings, much less negative, on the average, than socially anxious individuals' self-ratings. This strategy might help individuals with SAD learn that the audience viewpoint is not as critical, and blunders not as costly, as they imagine, thereby facilitating social approach behaviors and reducing social avoidance. A related therapeutic approach might involve teaching patients to employ defocusing strategies in the aftermath of committing a social blunder (Savitsky, Epley, & Gilovitch, 2001). Such strategies may involve actively bringing to mind and considering important contextual factors other than the blunder itself that may be important influences on others' evaluation of the blunder and the individual who commits it (e.g., elements of the situation that may have made the blunder more likely to occur to anyone; the evaluator's likely diverted attention; the evaluator's likely indifference; or even compassion toward the individual committing the blunder). Such defocusing strategies might thus correct for a tendency to exaggerate the level or inflexibility of the required standard of behavior (e.g., Moscovitch & Hofmann, 2007) and the harshness of the imagined audience's judgment (Savitsky et al., 2001).

The current study had a number of limitations that must be considered when interpreting the results. First, our results may not be generalizable to samples other than the one studied: a young, Canadian undergraduate sample with an unbalanced proportion of male-to-female participants, many of whom come from a more socioeconomically advantaged background than those in the general population. Second, although this study included objective raters for the autobiographical events, we did not collect rater data on the imagined events. In addition, although participants' autobiographical social blunders may be rated as being objectively more or less costly, it may be more difficult to conceptualize them as having an 'objective' level of embarrassment or shame per se. Third, it is conceivable that participants had a difficult time treating the fictional character in the imagined scenarios as instructed (i.e., as pure fiction); unfortunately, we did not include any measures that enabled us to verify that participants' ratings were (as instructed) based on the imagined reactions of a third person rather than simply rating what would be true if the scenario had happened to them. Fourth, although we did employ strict cut-offs on a measure known to reliably distinguish between participants with and without SAD, we did not formally diagnose participants, leaving open the question of exactly how well our analogue samples captured the nature of clinical vs. control samples. Fifth, the internal consistency of one of our composite dependent variables was slightly below the acceptable range, but we nonetheless opted not to discard this variable from our analyses (see **Composite Scores** section, above); thus, results that included this particular variable should be interpreted with some caution. Related to the reliability of our measures, we were unable to examine the factor structure of the dependent variables in the *imagined other* scenarios because there were only two scenarios altogether, as described in footnote 2; ideally, we ought to have included a balanced number of *imagined self* and *imagined other* scenarios in the study design. Sixth, data collected on autobiographical blunders rely, by necessity, on participants' own subjective insight, recall, and honesty; thus, results may be influenced by a wide variety of factors that are, by nature, difficult or impossible to control in studies of this nature (see also Moscovitch, Gavric, Merrifield, Bielak, & Moscovitch, 2011), including retrospective recall bias and individual differences in recollection confidence, among others. Finally, due to the questionnaire-based nature of this study, results may not be as externally valid as an experimental study whereby the blunder variable could be controlled or manipulated in a laboratory environment (and, for autobiographical events, would not be subject to memory); however, such experimental circumstances require careful ethical consideration.

Future research should examine whether the results are indeed generalizable to diverse populations and, specifically, a clinical sample of patients with SAD. As well, future studies should examine whether there is an expectancy effect of future interaction with the audience member(s) in front of whom the blunder occurs. For example, research could examine whether committing a blunder in front of a person or group of people with whom future interaction is expected would result in socially anxious individuals becoming even more attuned to their perceived social inadequacies (in an effort to hide or correct these inadequacies in order to make a good impression), and, therefore, experiencing even greater negative responses to the blunder (or, conversely, whether the effect of committing such a blunder leads participants to believe that audience members would now hold them to a lower standard of behavior, thereby leading to an ironic reduction in perceived negative consequences; e.g., Wallace & Alden, 1995). Future research could also examine objective raters' responses to imagined situations to which the participants are exposed to provide a control against which to compare results for autobiographical blunders. Finally, it would be interesting to examine the therapeutic impact of observer feedback on socially anxious individuals' perceptions of the consequences associated with committing a social blunder.

Acknowledgments

Appendix A

Examples of Participants' Reported Autobiographical Blunders

Example 1

I was emceeing a charitable event and I couldn't remember what to say and I kept repeating the word I was trying to say incorrectly in front of a large crowd of people.

Example 2

I recently went down to the school cafeteria to meet a friend, and thought I saw her sitting by herself at a table. I called her name but she didn't turn around so I ran to sit opposite her, putting down my tray and saying "good morning," only to find that it was a complete stranger.

Example 3

I was singing very loud and off key along with very loud music at a party and all of a sudden someone turned the music off and everyone heard me singing.

Appendix B

Imagined Scenarios

1. As you walk down the street, you notice your 'crush' walking the other way. As you turn to look at your crush, you trip over your feet and stumble. Your crush sees you trip and comes over to you to see if you are okay.

2. You have been selected as the class valedictorian to present a speech at commencement. You are at the podium, ready to begin your speech. You take a drink of water, and as you set the glass back down on the podium, it falls over, spilling water all over yourself, the speech and the podium. You inadvertently swear directly into the microphone.

3. You are standing on a crowded bus, riding with some friends from school with whom you are having a conversation. The bus comes to a sudden stop. You don't grab the handle in time and lose your balance. You end up sitting on a complete stranger's lap.

4. You are in the middle of giving an important presentation in front your class. Someone in the class sneezes loudly, causing you to stumble over your words and then forget your spot in your presentation.

5. You are at a party with some friends. You are standing with two other people who are conversing with each other. They turn to you and ask you a question but you are preoccupied with your cell phone and don't notice they have asked you a question and have been waiting for a reply. They repeat their question a second time after a long pause.

6. You are performing with a choir in front of a large audience. You are not very familiar with the song, but you are enjoying yourself and really get into the moment by closing your eyes while you sing. Suddenly, the rest of the choir becomes quiet. You are slow to react and continue inappropriately to belt out the chorus by yourself as the audience watches.

7. You notice a man waving vigorously to a friend across the room. The man begins to quickly make his way across the room to give his friend a hug. He reaches his friend across the room with arms spread, ready to embrace him, only to realize that it is not his friend, but a complete stranger who appears dumbfounded and confused.

8. You watch as a classmate attempts to answer a question in a large class, but completely misinterprets the question and answers incorrectly.

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Highlights

> We examined perceived consequences of social blunders in high vs. low social anxiety (SA).

> Assessed real autobiographical blunders and imagined hypothetical blunders of self and others.

> Ratings of participants' autobiographical blunders also provided by naïve research assistants.

> High SA participants overestimated the negative consequences of all types of blunders.

> High SA individuals see non-conformity to high social standards as costly for anyone.

Table 1

Characteristics of Participant Groups

	High SA	Low SA	Statistical Test
SPIN	38.73 (7.59)	6.92 (3.34)	$t(142) = 32.86$, $p < .001$
BDI-II	15.75 (11.35)	5.99 (5.78)	$t(140) = 6.52$, $p < .001$
Age in years (SD)	20.9 (4.69)	21.48 (5.63)	$t(138) = .51$, ns
Gender (% female)	65.7%	66.2%	$\chi^2(1) = .004$, ns
Ethnicity			$\chi^2(2) = 12.71$, $p = .002$
Caucasian	36.2%	59.7%	
Asian	43.5%	16.7%	
Other	20.3%	23.6%	

Note. Differences in degrees of freedom across *t*-tests reflect differences in numbers of missing data points across measures; SPIN = Social Phobia Inventory; BDI-II = Beck Depression Inventory II.

Table 2
Perceived Consequences of Autobiographical, Imagined, and Imagined Observer
Blunders in Participants with High vs. Low Social Anxiety

Variable	HSA Participants M (SD)	LSA Participants M (SD)	Independent-samples t-test
I. *Autobiographical Blunders*			
1. Social cost	2.88 (1.17)	1.97 (1.38)	$t(137) = 4.19^{**}$
2. Embarrassment	3.07 (1.18)	2.49 (1.43)	$t(139) = 2.63^{*}$
3. Shame	2.66 (1.42)	1.93 (1.66)	$t(139) = 2.80^{*}$
4. Negative Response	1.52 (1.37)	1.17 (1.37)	$t(133) = 1.47$
II. *Imagined Blunders - Actor*			
1. Social Cost	16.90 (4.72)	12.37 (5.95)	$t(136) = 4.94^{**}$
2. Embarrassment	17.91 (4.19)	14.34 (4.50)	$t(139) = 4.86^{**}$
3. Shame	12.93 (6.33)	7.11 (5.86)	$t(139) = 5.67^{**}$
4. Negative Response	10.22 (4.76)	8.00 (4.94)	$t(132) = 2.64^{*}$
III. *Imagined Blunders - Observer*			
1. Social cost	6.34 (1.55)	4.74 (2.18)	$t(139) = 4.99^{**}$
2. Embarrassment	6.58 (1.66)	5.67 (1.86)	$t(140) = 3.06^{*}$
3. Shame	4.78 (2.34)	2.78 (2.30)	$t(140) = 5.14^{**}$
4. Negative Response	3.63 (1.99)	2.53 (1.85)	$t(138) = 3.40^{**}$

Note. HSA = high socially anxious; LSA = low socially anxious; *Imagined Blunders* = composite of responses to scenarios 1-6; *Imagined Observed Blunders* = composite of responses to scenarios 7-8; Differences in degrees of freedom across *t*-tests reflect differences in missing values across tests

*
$p \leq .01$

**
$p \leq .001.$

Table 3

Ratings of Participants vs. Objective Raters for Autobiographical Social Blunders

Variable	HSA Group			LSA Group			Raters
	Participants M (SD)	Raters M (SD)	Participants vs. Raters[a]	Participants M (SD)	Raters M (SD)	Participants vs. Raters[a]	HSA vs. LSA[b]
1. Social cost	2.88 (1.17)	2.06 (1.01)	$t(67) = 5.30^{***}$	1.97 (1.38)	2.18 (.87)	$t(70) = 1.15$	$t(142) = 1.02$
2. Embarrassment	3.07 (1.18)	2.37 (.99)	$t(67) = 4.39^{***}$	2.49 (1.43)	2.61 (.90)	$t(72) = .64$	$t(142) = 1.67$
3. Shame	2.66 (1.42)	1.88 (1.01)	$t(67) = 4.63^{***}$	1.93 (1.66)	1.84 (.94)	$t(72) = .51$	$t(142) = .04$
4. Negative Response	1.52 (1.37)	.91 (.83)	$t(63) = 3.32^{**}$	1.17 (1.37)	.93 (.87)	$t(70) = 1.40$	$t(142) = .38$
5. Social blunder?		2.06 (1.20)			2.48 (.93)		$t(142) = 2.36^{*}$

Note. HSA = high socially anxious; LSA = low socially anxious; Differences in degrees of freedom across *t*-tests reflect differences in missing values across tests

[a] Paired-samples *t*-test

[b] Independent-samples *t*-test

* $p < .05$

** $p < .01$

*** $p < .001$.