

The fear of losing control in social anxiety: An experimental approach

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ABSTRACT

The fear of losing control in social anxiety: An experimental approach

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Social anxiety disorder is often conceptualized as arising from a variety of maladaptive cognitions (e.g., attentional bias towards internal sensations, negative beliefs about the self and a fear of negative evaluation). One cognitive domain that has received relatively little attention, despite endorsement from people struggling with social anxiety, is the belief that they may lose control over their speech/behaviour and/or their physical symptoms of anxiety. This parallels similar beliefs about losing control seen in other disorders (e.g., panic disorder, obsessive-compulsive disorder). The present study aimed to evaluate the causal role of beliefs about losing control on social anxiety symptoms in an analogue sample. Beliefs were manipulated using false feedback in a sample of undergraduate psychology students ($N = 130$) to induce either high or low levels of beliefs about losing control. Participants then engaged in a ‘getting to know you’ task with a confederate. Participants in the high beliefs about losing control (HLC) condition reported significantly greater anxiety just before meeting the confederate than those in the low loss of control (LLC) condition ($t(128)=2.90, p=0.004, d=0.51$). Further HLC participants reported significantly worse social performance than did those in the LLC condition during their social interaction with a confederate ($F(1, 128)=4.19, p=0.04$). Finally, the HLC condition was associated with greater perceived failure of control over behaviour during the social interaction than was the LLC condition ($t(128)=2.93, p=0.004, d=0.51$). Results suggest beliefs about losing control are relevant to the cognitive model of and perhaps treatments for social anxiety.

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The fear of losing control in social anxiety: An experimental approach

Social anxiety disorder (SAD) is characterized by marked fear or anxiety across social situations and/or in contexts where being scrutinized is possible (American Psychiatric Association, 2013). The prevalence of social anxiety disorder is high (13%; Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012) and has been associated with severe negative outcomes (Herres et al., 2019; Koyuncu et al., 2014; Kushner, Sher, & Beitman, 1990). The high prevalence combined with an often negative impact on both quality of life and daily functioning has underscored the importance of research into this historically understudied problem (Kushner et al., 1990; Alonso et al., 2004; Stein & Kean, 2000). This has led to a substantial increase in research examining the causes, maintaining factors and treatments for the disorder.

Broadly, social anxiety is thought to arise from a combination of maladaptive cognitions such as an attentional bias towards internal sensations, excessive concern over the consequences of negative evaluation and negative beliefs regarding social competence (Clark & Wells, 1995; Rapee & Heimberg, 1997). These cognitive aspects of social anxiety are thought to comprise of several domains including negative self-perception, high social cost, low perceived emotional control and perceived poor social skills (Hofmann, 2007). Clark and Wells' (1995) model of SAD suggests that heightened self-focussed attention leads individuals to form a distorted self-image which they erroneously assume represents how they are seen by others. This is exacerbated by *ex-consequentia* reasoning (e.g., feelings of losing control are perceived to mean that one has visibly lost control) and a false belief that the consequences of (perceived) poor social skills will be catastrophic. There is evidence to suggest that these cognitive biases do reflect some real deficits in social competence compared to non-anxious controls (Alden & Wallace, 1995; Johns & Peters, 2012; Weilage & Hope, 1999); however, when individuals with

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social anxiety are placed in a context where they must perform socially, it has been found that they underestimate their social competence and overestimate the degree and nature of perceived consequences resulting from the negative evaluations of others (Moscovitch & Hofmann, 2007; Stopa & Clark, 1993). Taken together, these theories emphasize the role of beliefs about personal deficiencies, especially as evaluated by others, as key to social anxiety.

It has been proposed that negative beliefs about control (especially over emotions) represent a maintaining factor of SAD (Hofmann, 2007). Negative beliefs about control are a common source of distress across anxiety and related disorders. Beliefs that losing control is dangerous or catastrophic have been highlighted in cognitive models of both panic (Clark, 1986; Cloitre, Heimberg, Liebowitz, & Gitow, 1993; Ottaviani & Beck, 1987) and obsessive-compulsive disorders (Clark & Purdon, 1993; Gagné & Radomsky, 2017; Reuven-Magril, Dar, & Liberman, 2008; Sanavio, 1988). Early work examining the domain of control in SAD explored the locus of control attributed to feared social situations. Cloitre et al. (1992) administered Levenson's (1973) locus of control scale to individuals with SAD and found, relative to non-anxious participants, people with SAD reported less internal control and ascribed greater control to powerful others, suggesting a perceived lack of control over their experiences. This suggests that a disparity in beliefs related to control may be relevant in maintaining social anxiety. Leung and Heimberg (1996) found that lower ratings of internal control were associated with greater social interaction anxiety, and that greater attributions of control to powerful others were associated with greater fear of negative evaluation at post-treatment. Further, in non-clinical samples, greater perceived uncontrollability of social situations has been found to predict greater anxiety, especially in conjunction with a possibility of negative social consequences (Rapee, 1997).

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Correlational research suggests that individuals high in social anxiety believe they have little control in social situations, especially over their emotions, and that greater endorsement of these beliefs predicts greater trait anxiety above and beyond severity of social anxiety (De Castella et al., 2014). Spokas, Luterek and Heimberg (2009) found that participants high in social anxiety reported greater attempts to suppress their emotions, greater fear of emotional expression and a stronger belief that emotions ought to be kept under control relative to participants low in social anxiety. Hofmann (2005) found that the perceived controllability of reactive anxiety and emotions partially mediated the relationship between the perceived social cost of embarrassing social scenarios and social anxiety. Though these studies are non-experimental, together they suggest individuals with social anxiety may be highly preoccupied with maintaining control, especially when in potentially compromising social situations. It is not clear from these studies whether the source of participants' anxiety was the perceived losses of control or due to a fear of their *observable* behavioural and physiological responses (e.g., foolish behaviour/embarrassing physiological responses).

When asked about what they fear will happen in these social situations, individuals with social anxiety report commonly experienced, specific and detailed intrusive images of themselves behaving foolishly (Hackmann, Surawy, & Clark, 1998; Hofmann, Ehlers, & Roth, 1995). These images tended to focus on accidentally saying or doing something perceived as deeply embarrassing (e.g., dropping objects, blushing uncontrollably), resulting in being perceived as foolish or incompetent by others. Notably, in these reported images, it was not the controllability of the symptoms themselves, but rather having those symptoms be *observed by others* which was the source of fear. Perhaps then, it is the concern that one might fail to

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maintain control which underlies social anxiety, especially when being observed or evaluated by others, even in the absence of perceived losses of control.

Gagné and Radomsky (2017) found that manipulating beliefs about losing control over one's thoughts led to OCD-like symptoms such as repeated checking in non-clinical participants. Participants were given bogus EEG feedback which they were told indicated poor or good ability to maintain control over their thoughts. They were then asked to complete a task which involved controlling images appearing on a computer screen. Individuals who were told they were at high risk of losing control engaged in significantly more checking behaviour. Such beliefs about control are therefore malleable and can have marked effects on behaviour in non-clinical populations.

To our knowledge, no study to date has experimentally manipulated beliefs about losing control in the context of social anxiety, making it difficult to draw conclusions about the direction of the relationship between these beliefs and the manifestation of symptoms. By experimentally manipulating beliefs about losing control, the present study aimed to understand whether beliefs about losing control are sufficient to induce cognitive and behavioural symptoms associated with social anxiety. Namely, would inducing negative beliefs about losing control induce anxiety, increase subjective loss of control, and reduce social competence during a 'getting to know you' task.

Hypotheses

It was hypothesized that:

Manipulation Check. Participants manipulated to believe they are at high risk of losing control (HLC condition) would report a greater belief that they would lose control over their

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actions than would participants manipulated to believe they are at low risk of losing control (LLC condition).

1. (a) Participants in the HLC condition would report greater anticipatory anxiety leading up to a 'getting to know you' task than those in the LLC condition.

(b) Participants in the HLC condition would report greater anxiety in the 'getting to know you' task than those in the LLC condition.

2. (a) Participants in the HLC condition would report worse performance after the 'getting to know you' task relative to those in the LLC condition.

(b) Participants in the HLC condition would provide self-report ratings of performance which would be significantly lower than the ratings of their performance provided by a confederate.

3. Participants in the HLC condition would report greater concerns about losing control over their behaviour, thoughts, emotions and physiology in the 'getting to know you' task than those in the LLC condition

4. Participants in the HLC condition would report greater loss of control over their behaviour, emotions and physiological reactions than those in the LLC condition.

Method

Participants

Participants were undergraduate students from Concordia University. The only inclusion criteria were the ability to read, write and speak English and that they did not know the confederate prior to their participation in the study. Eight participants were initially excluded as they had previously interacted with the confederate. An additional participant was excluded for providing a systematic response set, selecting exclusively low scores on all scales, including

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reverse-coded items. Finally, a further eight participants were excluded as they rated the feedback they received following the self-control task as completely unbelievable (credibility rating of zero; see below). Though the final sample ($N = 130$) was predominantly female (90.8%), there were no significant sex differences between conditions ($\chi^2(1, N = 130) = 0.24, p = 0.62$). The mean age of participants was 22.3 ($SD = 3.8$) years, with no significant age differences between the conditions ($t(128) = 0.62, p = 0.54$).

Measures

Demographics. Participants were asked to report basic demographic information (e.g., age, sex, gender, ethnicity, education level). Please see Appendix A for the demographics questionnaire.

Manipulation check. Participants rated the degree to which they were concerned they might lose control over their verbal behaviour, emotions and thoughts. These ratings were given on a 0 to 100 scale (0 = not at all concerned; 100 = extremely concerned). To mask the purpose of these questions, they were embedded in an ‘experiment feedback’ form which included a number of questions about the experiment and experimenter. Please see Appendix A for the experiment feedback form.

Credibility check. In order to verify the believability of the deception in this study, participants were asked whether they believed the feedback they received was accurate. Ratings were given on a scale from 0 to 100 (0 = I did not at all believe; 100 = I completely believed).

Subjective Units of Distress Scale (SUDS; Wolpe, 1969). Participants were asked to rate their current anxiety from 0 (“I do not feel anxious at all”) to 100 (“I feel extremely anxious”) at baseline, just prior to and immediately following the ‘getting to know you’ task. To mask the true purpose of these SUDS ratings, participants were also asked to rate positively- and

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negatively-valenced mood items (e.g., happy, sad) from 0 (“I do not feel ____ at all”) to 100 (“I feel extremely ____”).

Ratings about performance during social interaction. The participant and confederate rated the participant’s performance during the ‘getting to know you’ task. Ratings were provided on a 23-item scale adapted by Stopa and Clark (1993). This measure was adapted to assess concordance between self-report and observed performance in social interactions. The measure consists of 16 positive (e.g., confident, relaxed) and 7 negative (e.g., nervous, uncomfortable) attributes, rated from 0 to 8 (“not at all characteristic” to “extremely characteristic”). Please see Appendix A for the questionnaire.

Ratings of concern over losing control. Participants were asked to rate the degree to which they were concerned about losing control of their behaviour, thoughts, emotions and physical reactions (e.g., sweating, flushing) from 0 (“Not at all concerned”) to 100 (“Very concerned”) following the ‘getting to know you’ task. Please see Appendix A for the list of items.

Ratings of control. Following the ‘getting to know you’ task, participants were asked to report the degree to which they felt they lost control over their behaviour, emotions and physical reactions during the ‘getting to know you’ task on a visual analogue scale with anchors at 0 and 100 (0 = I did not lose control at all; 100 = I completely lost control).

Social Phobia Inventory (SPIN; Connor et al., 2000). The SPIN is a 17-item self-report scale assessing social anxiety. Items are rated according to how well they describe the individual from 0 (“Not at all”) to 4 (“Extremely”). Originally designed for use with clinical populations, the SPIN is able to capture individual differences in both clinical and non-clinical populations

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(Connor et al., 2000). Internal consistency in the present study was found to be excellent ($\alpha = 0.90$). Please see Appendix A for the questionnaire.

Beliefs about Losing Control Inventory (BALCI; Radomsky & Gagné, 2019). The BALCI is a 21-item self-report measure assessing the degree to which people hold beliefs about losing control of their thoughts, behaviours, emotions and physiological responses. Items are rated on a 5-point Likert-type scale from 0 (“Not at all”) to 5 (“Very much”) and includes items such as “I am afraid of losing control of my mind” and “Staying in control is an important priority for me”. Internal consistency in the present study was found to be excellent ($\alpha = 0.94$). Please see Appendix A for the questionnaire.

Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a 21-item measure of negative emotional states. It consists of three subscales (i.e., Depression, Anxiety, and Stress). Items are rated on a 4-point Likert-type scale based on frequency and severity from 0 (“Did not apply to me at all”) to 3 (“Applied to me very much, or most of the time”). Internal consistency in the present study was found to be excellent ($\alpha = 0.92$). Please see Appendix A for the questionnaire.

Procedure

This study was conducted in the Anxiety and Obsessive Compulsive Disorders Laboratory at Concordia University in Montréal, Québec. The research was conducted by an experimenter who remained blind to condition assignment until the manipulation occurred. Participants were told they would be participating in a study to examine the relationship between self-control and impression management. They were told that they would be expected to complete a measure of self-control over verbal behaviour and then that they would be expected spend some time interacting with and getting to know an undergraduate lab member.

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After providing informed consent, participants completed the demographics questionnaire and provided baseline SUDS rating. Participants were then asked to complete an oral reading task which was purported to assess their self-control over verbal behaviour. This ‘self-control’ task consisted of two texts of equal word count, from which the participant was asked to read aloud, alternating between the texts at every word (see Appendix B). In order to foster uncertainty about their performance, participants were told that people tend to over or under estimate their ability to maintain control, and that this was an objective measure of self-control. The experimenter appeared to score them in real time on a separate sheet of paper while timing them in order to increase the believability of the task.

After the participant finished this ‘self-control’ task, the experimenter left the testing room to ‘score’ their performance. It was at this point that participants were randomly assigned to either the LLC or HLC condition. Participants received false feedback about their performance based on this random assignment. This feedback was adapted from Alcolado and Radomsky (2011) to reflect one’s ability to maintain control over verbal behaviour.

The experimenter re-entered with a diagram of a normal distribution, and briefly explained the concept of percentiles. Then, the participant was told they had either scored very high (85th to 90th percentile) which indicated they were unlikely to lose control when engaging in public speaking, or scored very low (25th to 30th percentile) which indicated they were likely to lose control when engaging in public speaking. In both cases, the experimenter used general examples to increase the believability and salience of the feedback (e.g., in the HLC condition “you can probably remember a time when you were nervous meeting someone new and had a thought pop into your head *that you accidentally blurted out*” versus in the LLC condition “you can probably remember a time when you were nervous meeting someone new and had a thought

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pop into your head *but decided not to say it*"). Participants then completed a second SUDS rating and the experimenter feedback form.

Next, participants took part in a 'getting to know you' task (i.e., social interaction) with an undergraduate volunteer from the lab. Participants were reminded that this volunteer would be evaluating the impression they made and were encouraged to 'get to know' the volunteer. No further instructions were given and participants were not told how long the interaction would last. This undergraduate confederate was blind to condition assignment and was trained to provide standardized feedback to all participants. The confederate began each interaction by being warm and friendly, introducing himself and asking the participant, "Tell me about yourself," after approximately ten seconds, the confederate's demeanor shifted to be colder and more disinterested, answering questions tersely and only asking questions which mirrored the questions asked by the participant. After three minutes, the experimenter re-entered, thanked the confederate and instructed him to exit in order to complete his evaluation of the participant. The participant then completed the self-report ratings of social performance, a final SUDS rating, rated their concern about losing control and rated the degree they felt they lost control during the 'getting to know you' task.

Finally, participants completed the questionnaire battery (BALCI, SPIN, DASS-21). Following the questionnaires, participants rated the credibility of the manipulation, were thoroughly debriefed and provided a second opportunity to give informed consent based on that debriefing. Please see Appendix C for protocol scripts and Appendix D for consent and debriefing materials.

Results

Data screening

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Prior to analyses, all outcome variables were assessed for outliers, non-normality and heteroscedasticity. Only one univariate outlier was identified among outcome variables, namely a single confederate-provided rating of performance was considered an outlier ($|z| = 3.69$). However, upon inspection, there is no reason to believe this value was invalid, and given transformation or removal of outliers can distort the dataset, it was retained untransformed (Osborne & Overbay, 2004). Based on absolute skewness less than three and absolute kurtosis less than ten, there was no evidence of non-normality in any outcome variables (Kline, 2009). Further, variance was acceptably homoscedastic for all outcome variables (variance ratio between conditions < 2 ; Kline, 2009). All data points were within acceptable limits of normality and homoscedasticity.

To ensure differences in outcome variables were not due to pre-existing differences between conditions on baseline psychopathology or beliefs about control, the Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995), Social Phobia Inventory (SPIN; Connor et al., 2000) and Beliefs about Losing Control Inventory (BALCI; Radomsky & Gagné, 2019) were administered (see Table 1 for means and standard deviations). There were no significant differences between conditions in psychopathology, as evidenced by the SPIN ($t(128) = 1.31, p = 0.19$), and the DASS-21 ($t(128) = 1.32, p = 0.19$) nor in beliefs about losing control, BALCI ($t(128) = 0.34, p = 0.74$).

Manipulation check

To assess whether the manipulation was successful, an independent samples t -test was conducted on the manipulation check question (see Figure 1). As expected, following the ‘self-control’ task, individuals in the HLC condition ($M = 48.99, SD = 25.62$) reported significantly

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greater beliefs that they may lose control over their thoughts, emotions or behaviour than those in the LLC condition ($M = 29.68$, $SD = 25.23$; $t(128) = 4.33$, $p < 0.001$, $d = 0.76$).

Credibility check

An independent samples t -test was conducted to confirm there were no differences between the conditions on the credibility of the manipulation. As expected in an undergraduate psychology sample, mean credibility was moderately high for the believability of the feedback ($M = 56.66$, $SD = 29.08$). There were no differences in the credibility of the feedback ($t(128) = 0.12$, $p = 0.90$) between conditions.

Self-reported anxiety

To assess anxiety in anticipation of and during the ‘getting to know you’ task, a series of independent samples t -tests were conducted (see Figure 2; means and standard deviations for each time point are reported in Table 2). At baseline, the LLC and HLC groups did not differ significantly in anxiety ($t(128) = 1.41$, $p = 0.16$). As predicted in hypothesis 1a, after receiving feedback about their risk of losing control, but just before the ‘getting to know you’ task, individuals in the HLC condition reported significantly more subjective anxiety than those in the LLC condition ($t(128) = 2.90$, $p = 0.004$, $d = 0.51$). However, contrary to hypothesis 1b, following the ‘getting know you’ task, ratings of anxiety did not differ between the conditions ($t(128) = 0.88$, $p = 0.38$, $d = 0.16$).

Ratings of performance

To assess differences in perceived and observed social performance, a 2×2 (rating source \times condition) repeated measures ANOVA was conducted on mean performance ratings (see Figure 3). As predicted, there was a significant main effect of condition on performance such that individuals in the HLC condition had worse performance in the ‘getting to know you’ task

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regardless of rating source ($F(1, 128) = 4.19, p = 0.04, \text{partial } \eta^2 = 0.03$). Further, a significant main effect of rating source was found such that observed performance was greater than self-reported performance ($F(1, 128) = 41.49, p < 0.001, \text{partial } \eta^2 = 0.25$). However, contrary to hypothesis 2b, there was no significant rating source \times condition interaction ($F(1, 128) = 0.02, p = 0.90$) suggesting individuals in the HLC condition were no more likely to underestimate their performance than those in the LLC condition.

Ratings of concern over losing control

To assess whether participants differed in their concerns about losing control over their behaviour, thoughts, emotions and physiology in the ‘getting to know you’ task, a one-way multivariate ANOVA (MANOVA) was conducted to check for an overall effect of condition on concerns about losing control (see Figure 4; for means and standard deviations see Table 4). There was a trend towards individuals in the HLC condition reporting greater concerns about losing control overall than those in the LLC condition ($F(4, 125) = 2.12, p = 0.08, \text{partial } \eta^2 = 0.06$). Though these results were only at a trend level, it was expected that those in the HLC condition would report greater concern about losing control; therefore, a series of independent samples t -tests was conducted on participants’ concerns about losing control over thoughts, behaviour, emotions and physiological reactions during the ‘getting to know you’ task (see Figure 4; for means and standard deviations see Table 4). Individuals in the HLC condition reported significantly greater concerns about losing control over their behaviour compared to those in the LLC condition ($t(128) = 2.26, p = 0.03, d = 0.40$). Further, there was a trend towards individuals in the HLC condition reporting greater concerns about losing control over their physiological reactions ($t(128) = 1.92, p = 0.06, d = 0.34$) and greater concerns about losing control over their emotions ($t(128) = 1.87, p = 0.06, d = 0.33$) than the LLC condition. Although

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individuals in the HLC condition reported greater concerns about losing control over their thoughts than those in the LLC condition, the effect was non-significant ($t(128) = 1.12, p = 0.26, d = 0.20$). Given the non-significant omnibus test, these results should be interpreted with caution.

Ratings of control

A one-way MANOVA was conducted to assess whether participants differed in the degree to which they perceived they lost control. The overall effect of condition was significant such that individuals in the HLC condition reported greater perceived losses of control in general than the LLC condition ($F(3, 125) = 3.52, p = 0.02, \text{partial } \eta^2 = 0.08$). A series of follow-up independent samples t -tests were conducted on participants' perceived losses of control over their behaviour, emotions and physiological reactions during the 'getting to know you' task (see Figure 5; for means and standard deviations see Table 5). Individuals in the HLC condition reported significantly greater perceived losses of control over their behaviour compared to those in the LLC condition ($t(128) = 2.93, p = 0.004, d = 0.51$). Further, there was a trend towards individuals in the HLC condition reporting greater perceived losses of control over their physiological reactions than the LLC condition ($t(128) = 1.73, p = 0.09, d = 0.30$). Although individuals in the HLC condition reported greater perceived losses of control over their emotions than those in the LLC condition, the effect was non-significant ($t(128) = 1.46, p = 0.15, d = 0.26$).

Discussion

The present study aimed to assess whether experimentally manipulating beliefs about losing control would have an effect on social anxiety and associated constructs. That is, would manipulating beliefs about losing control produce greater anxiety leading up to and during a

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novel social interaction? As expected, individuals in the HLC condition reported greater anticipatory anxiety just before meeting the confederate. There was no difference in anxiety during the task itself. Social performance differed significantly across conditions such that those in the HLC condition reported worse performance than the LLC condition. Participants, regardless of condition, consistently underestimated their social performance compared to observer ratings. Further, there was a trend towards greater *concern* over losing control in the HLC condition compared to the LLC condition, with follow-up analysis revealing that individuals in the HLC condition were especially concerned about losses of control over their behaviour. Finally, the HLC condition reported greater perceived losses of control over their behaviour, and to a lesser extent, greater perceived losses of control over their physiology.

Taken together, these results provide some support for the hypothesis that beliefs about losing control may play a causal role in the experience of social anxiety. Individuals who were told they were at risk of losing control experienced greater anxiety immediately before meeting someone for the first time. This is consistent with the cognitive model of social anxiety, which argues the activation of negative beliefs such as these preceding a social situation leads to anxiety (Clark & Wells, 1995; Rapee & Heimberg, 1997). This supports previous research which has shown anticipatory anxiety is higher among more socially anxious individuals, especially when they have been primed for poor control over internal states, even when no deficits in control are observed (Stevens et al., 2011). However, this difference was not found during the ‘getting to know you’ task, which seems counterintuitive given the feedback participants received. There are several possible explanations for this discrepancy.

The most likely explanation relates to the interaction itself: following the study, several participants reported that the confederate’s behaviour was perceived as extremely awkward and

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anxiogenic. It may be that the task was sufficiently uncomfortable that there was a ceiling effect on anxiety across conditions, superseding the manipulation and dampening any differences in anxiety. Following the task, it would be expected that this anxiety would immediately begin to decline, and though participants were asked to retrospectively rate their anxiety, the differences between conditions may no longer have been relevant, resulting in comparable anxiety following the task. A future study would benefit from using a warmer or more naturalistic confederate. Rather than having participants experience this stressful situation, a more casual, or naturalistic interaction would allow us to better assess the impact of the manipulation, as well as increasing the study's ecological validity.

The highly stressful nature of the task also appeared to have led participants to consistently underestimate their social performance regardless of beliefs about control. Though there is considerable evidence for negative self-biases among highly socially anxious individuals (e.g., Mansell & Clark, 1999), there is also evidence to suggest that when exposed to a high-stakes social situation (e.g., when performance standards are presented as highly elevated), people tend to underestimate their performance, independent of social anxiety. Moscovitch and Hofmann (2007) found that when they compared participants' ratings of performance to an observer's rating in a high pressure social situation, both highly socially anxious individuals and non-anxious controls underestimated themselves. This effect was not found if the situation was neutral or low pressure. Therefore, it is reasonable to conclude that this doubt and underestimation was due in part to the task itself.

Interestingly, this negatively-biased self-perception did not account for overall differences in performance. That is, taking into account this tendency to underestimate one's ability, real differences in social performance remained between the HLC and LLC conditions

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such that the LLC condition was rated as more socially capable both by themselves and by the confederate. This suggests that manipulating these beliefs led to changes in their behaviour and worse social performance. This is in line with the literature on social anxiety, which has found real performance deficits among highly socially anxious individuals. Therefore, these beliefs may produce significant behavioural inhibition which is similar to that observed in social anxiety (Alden & Wallace, 1995; Baker & Edelman, 2002; Voncken & Bögels, 2008).

One way in which these beliefs may act as a possible mechanism of change relates to differences in participants' ratings of concern over losing control and perceived losses of control over their behaviour and internal states. Previous research in control and social anxiety argue that perceived control over emotions is highly important in social anxiety, and that failing to maintain control over emotions is seen as dangerous (Hofmann, 2005; Spokas et al., 2009). In the present study, participants reported a trend towards greater concern over losing control across all domains. This suggests that individuals in the HLC condition were more preoccupied with their control over themselves, and may indicate greater attention towards controlling their internal states and their emotions. Though there was only a trend towards greater concerns about losing control in the HLC condition, an examination of the effect sizes observed suggest a moderate degree of concern about losing control over behaviour, emotions and physiology.

This increased preoccupation with control would, in turn, increase attention towards these external symptoms, increasing the salience of any perceived 'slip-ups' in behaviour or physiology (e.g., blushing, nervous laughter) which could be misinterpreted as losses of control. Interestingly, although the HLC condition did endorse greater perceived losses of control, it was only perceived losses of control over behaviour which differed significantly between conditions. Given that the HLC and LLC conditions did not differ in the degree to which they perceived

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losses of control over their emotions, it may be that it is less about the control over emotions, and more about how those failures of control would be perceived or might translate into behaviour.

This aligns with cognitive models of social anxiety, which argue that individuals with social anxiety fear *appearing* nervous or anxious (i.e., appearing out of control over their anxiety), rather than the actual control over the emotion itself. It would be expected, then, that this preoccupation with observable, *external symptoms* of these emotional states (i.e., nervous behaviour, visible physiological arousal), especially ones which are perceived as uncontrollable (e.g., blushing, sweating), would further increase salience of those symptoms of anxiety.

The precise relationship between this concern about losing control, the perception of having lost control and the feared consequences (i.e., negative evaluation) could benefit from further study. A possible future direction would be to examine this relationship in more detail; that is, would changing the description of how noticeable these ‘losses’ of control are to others result in less selective attention and therefore reduce distress?

Together with the observed behavioural differences and greater anticipatory anxiety, these results support the notion that beliefs about losing control are relevant in causing or maintaining social anxiety, although additional research is needed to assess the precise nature of the relationship.

Limitations and future directions

Although this study supports the relationship between beliefs about losing control and social anxiety disorder, there are limitations to be considered. Foremost is the social task. The decision to use this type of interaction was based on previous research showing that among individuals who are socially anxious, perceived deficits in social skill are most pronounced when the social situation is highly anxiogenic (Dannahy & Stopa, 2007; Moscovitch & Hofmann,

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2007). This highly stressful induction was selected to maximise the chances of detecting an effect of beliefs about losing control on social anxiety. However, the ecological validity of the task was relatively low as a result, with some participants commenting on the unnatural behaviour of the confederate during the debriefing. This limits the generalizability of these results as the credibility of the deception may have negatively impacted, even though mean credibility ratings were still high. Nevertheless, future studies would benefit relying on a more naturalistic social interaction task.

Another possible limitation relates to how the notion of control was presented during the manipulation. Control was presented as an important social skill, which was useful in avoiding saying something foolish or appearing anxious. Further, it was suggested that failing to maintain control could be noticed by others. To avoid priming, participants were not told that failures of control would have specific social consequences. Participants were given both behavioural (e.g., saying the wrong thing) and physiological (e.g., sweating uncontrollably) examples of losing control. This may have resulted in a more general induction of anxiety, which may explain the anxiety leading up to the ‘getting to know you’ task, but may not be specific to social anxiety. Given this ambiguous feedback, it is possible that the reason participants became anxious was unrelated to the ‘getting to know you’ task. One possibility is that following the feedback, participants interpreted their physical reactions as dangerous and outside their control, and it was this fear that was captured in the measure of anticipatory anxiety. In this case, the anxiety measured might be more analogous to that experienced by an individual with panic disorder than one with social anxiety. Given the high comorbidity of social anxiety with other anxiety disorders (Kessler, Chiu, Demler, & Walters, 2005) and the perceived importance of control in anxiety disorders more generally (Rapee, Craske, Brown & Barlow, 1996), it may be that beliefs

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about losing control function similarly across disorders, but that the target of control differs. In that case, we would expect similar changes in ratings of control for panic or social anxiety, but for different reasons; namely, the meaning ascribed to the losses of control. In order to clarify this difference, a future direction would be an experiment which manipulates the *consequences* of losing control in order to elicit different feared outcomes (e.g., fear of dying as seen in panic versus fear of appearing foolish as seen in SAD).

Summary

A preoccupation with control has been suggested as a common characteristic of individuals living with anxiety and related disorders (e.g., Clark, 1986; Clark & Wells, 1995; OCCWG, 1997), but the specific role of beliefs about *losing control* has received relatively little attention. Previously, evidence that these beliefs play an important role in social anxiety has been largely anecdotal or correlational (e.g., Spokas et al., 2009). The present study provides preliminary evidence that manipulating beliefs about losing control may produce symptoms similar to those seen in social anxiety in a non-clinical population. Follow-up research is needed to better clarify the extent and nature of the role of these beliefs in the cognitive model of social anxiety as well as the way in which these beliefs are unique to social anxiety. Should this work prove to be fruitful, it may yield valuable information about targeting beliefs about losing control in the clinic.

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Tables

Table 1

Means and standard deviations by condition for relevant measures of psychopathology

Measure	HLC ^a		LLC ^b		Total ^c	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
BALCI	30.5	19.3	28.7	18.7	29.6	19.0
SPIN	22.6	12.9	19.8	11.7	21.2	12.4
DASS-21	30.2	23.7	25.2	18.6	27.8	21.4

Note. BALCI = Beliefs about Losing Control Inventory (Radomsky & Gagné, 2019). SPIN = Social Phobia Inventory (Connor et al., 2000). DASS-21 = Depression Anxiety Stress Scales (Lovibond & Lovibond, 1995). HLC = high beliefs about losing control. LLC = low beliefs about losing control. ^a*n* = 67 ^b*n* = 63 ^c*N* = 130.

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Table 2

Means and standard deviations of subjective ratings of anxiety

	HLC		LLC		<i>t</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Baseline	46.16	26.61	39.95	23.38	1.41	0.24
Preceding 'getting to know you' task	54.85	24.47	42.30	24.87	**2.90	0.51
During 'getting to know you' task	56.36	27.80	52.06	27.68	0.88	0.16

Note. HLC = high beliefs about losing control. LLC = low beliefs about losing control. ** $p < 0.01$

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Table 3

Means and standard deviations for ratings of social performance during the 'getting to know you' task

Rating source	HLC		LLC	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Self-report	94.60	27.59	103.24	27.21
Observer-report	111.66	27.54	119.65	27.56

Note. HLC = high beliefs about losing control. LLC = low beliefs about losing control.

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Table 4

Means and standard deviations for concern about losing of control during the 'getting to know you' task

Type of control	HLC		LLC		<i>t</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Behaviour	40.30	29.93	29.37	24.80	2.26*	0.40
Thoughts	32.75	26.86	27.52	26.10	1.12	0.20
Emotions	48.51	32.08	37.73	31.76	1.92†	0.34
Physiological reactions	28.97	26.07	20.57	25.08	1.87†	0.33

Note. HLC = high beliefs about losing control. LLC = low beliefs about losing control. * $p < 0.05$
 † $p < 0.10$

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Table 5

Means and standard deviations for perceived losses of control during the 'getting to know you' task

Ratings of control	HLC		LLC		<i>t</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Behaviour	32.93	23.92	20.87	22.97	2.93*	0.51
Emotions	25.54	21.18	20.06	21.47	1.46	0.26
Physiological reactions	44.24	29.40	35.49	28.18	1.73†	0.30

Note. Ratings of control were provided on a visual analogue scale (0-100). HLC = high beliefs about losing control. LLC = low beliefs about losing control. * $p < 0.05$ † $p < 0.10$

Figures

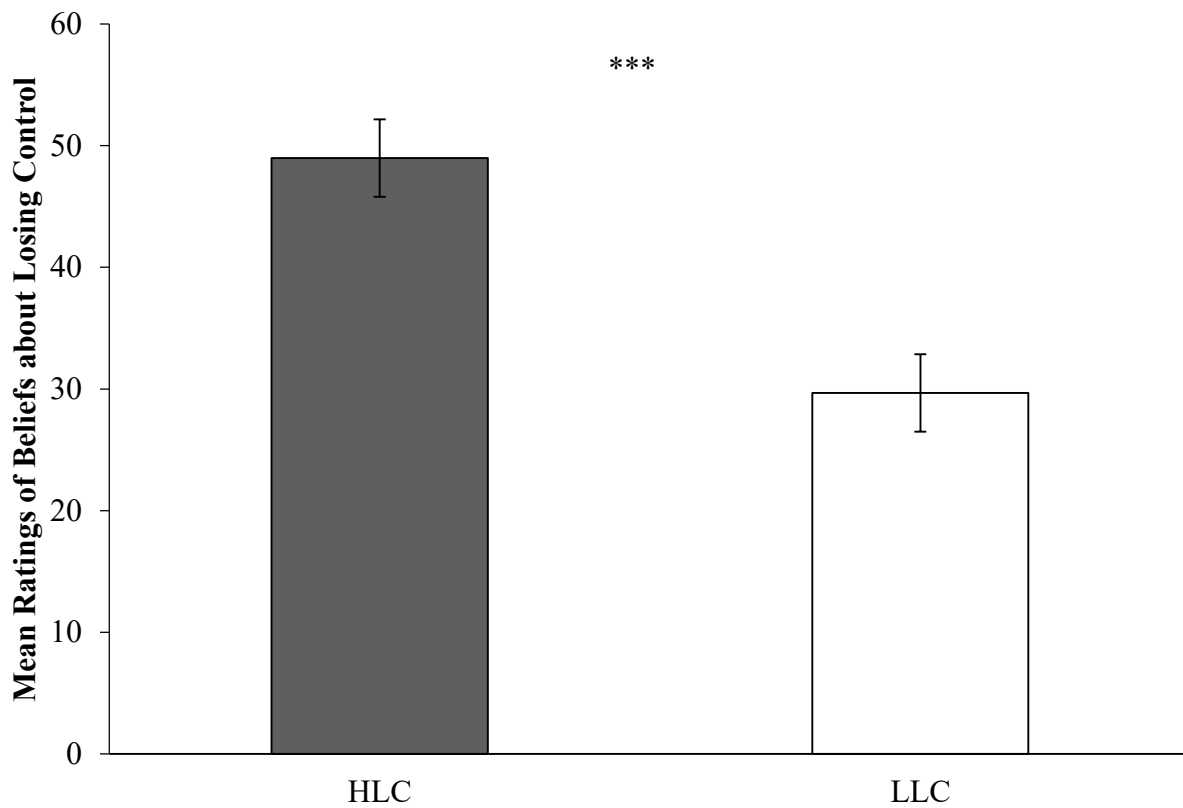


Figure 1. Manipulation check. Mean ratings of beliefs about losing control on the manipulation check by condition. HLC = high beliefs about losing control. LLC = low beliefs about losing control. *** $p < 0.001$

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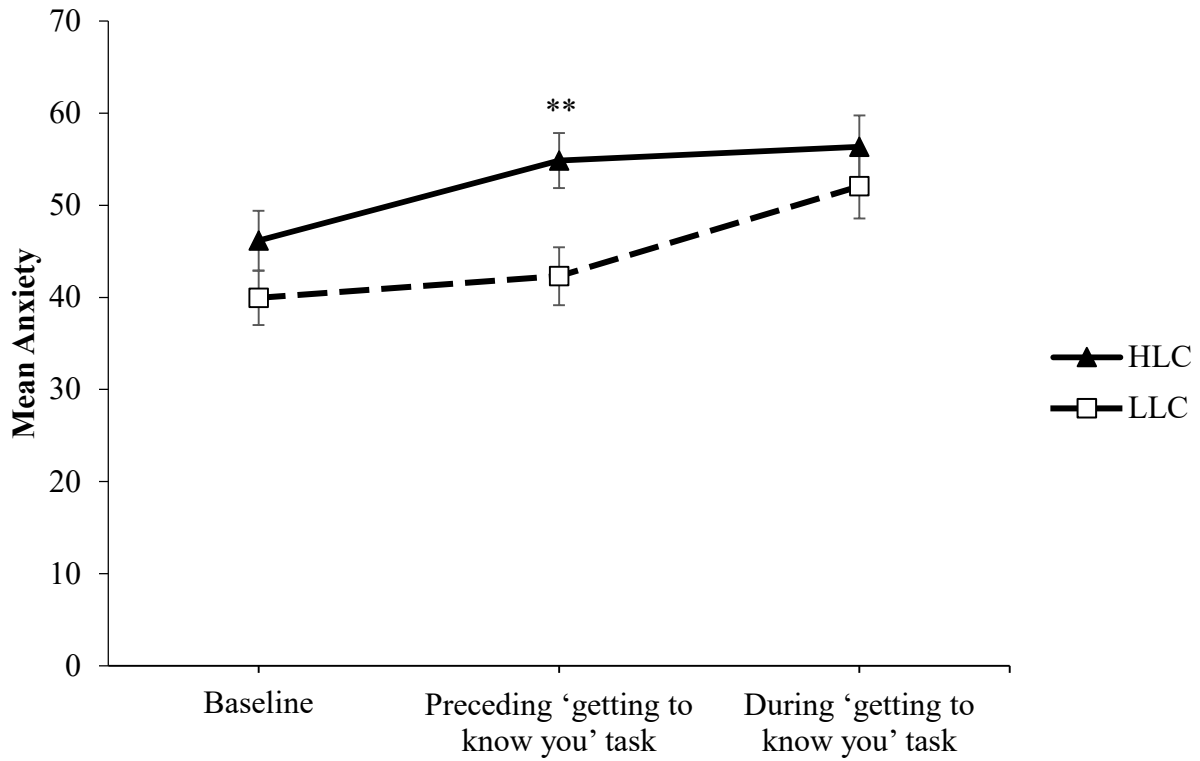


Figure 2. Mean ratings of anxiety over time by condition. HLC = high beliefs about losing control. LLC = low beliefs about losing control condition. ** $p < 0.01$

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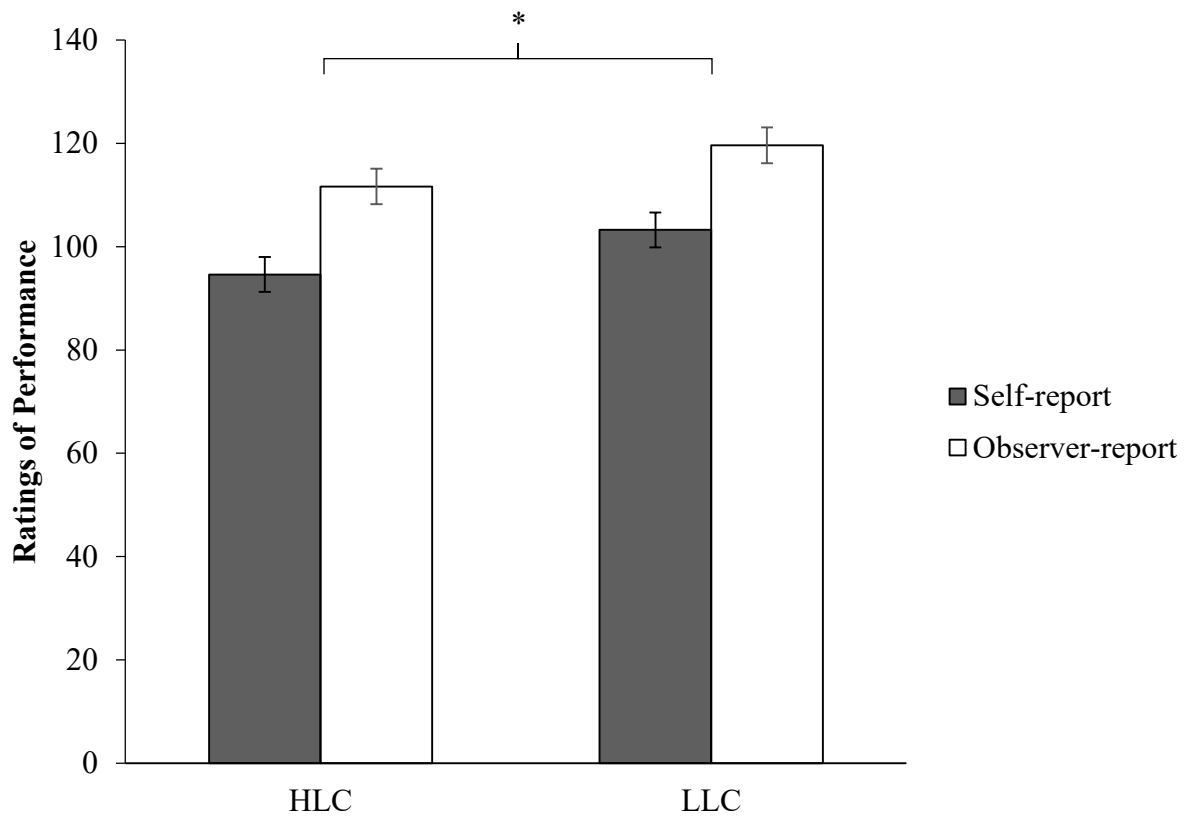


Figure 3. Mean ratings of social performance across rating sources and condition. HLC = high beliefs about losing control. LLC = low beliefs about losing control. Main effect of rating source: $F(1, 128) = 41.49, p < 0.001$, partial $\eta^2 = 0.25$. * $p < 0.05$

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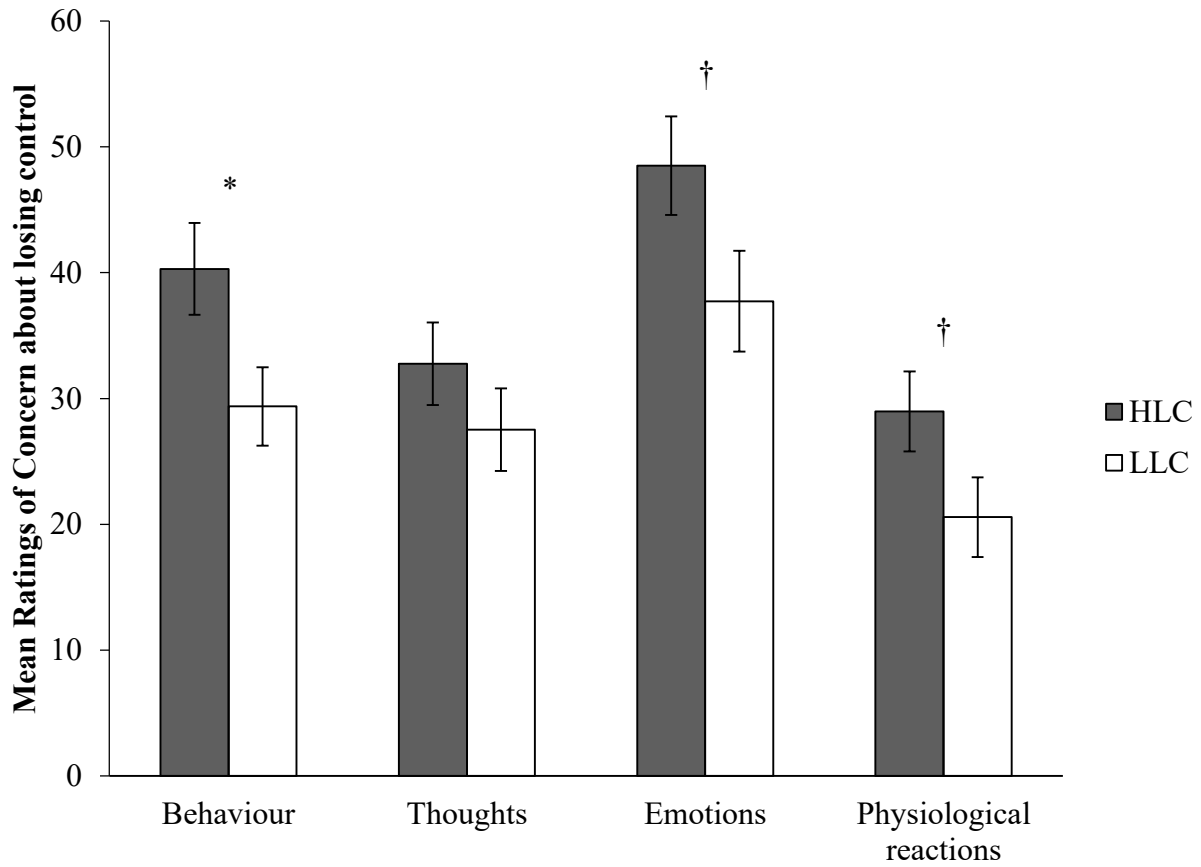


Figure 4. Mean ratings of amount of concern about losing control over different domains during the 'getting to know you' task by condition. HLC = high beliefs about losing control. LLC = low beliefs about losing control.

* $p < 0.05$ † $p < 0.10$

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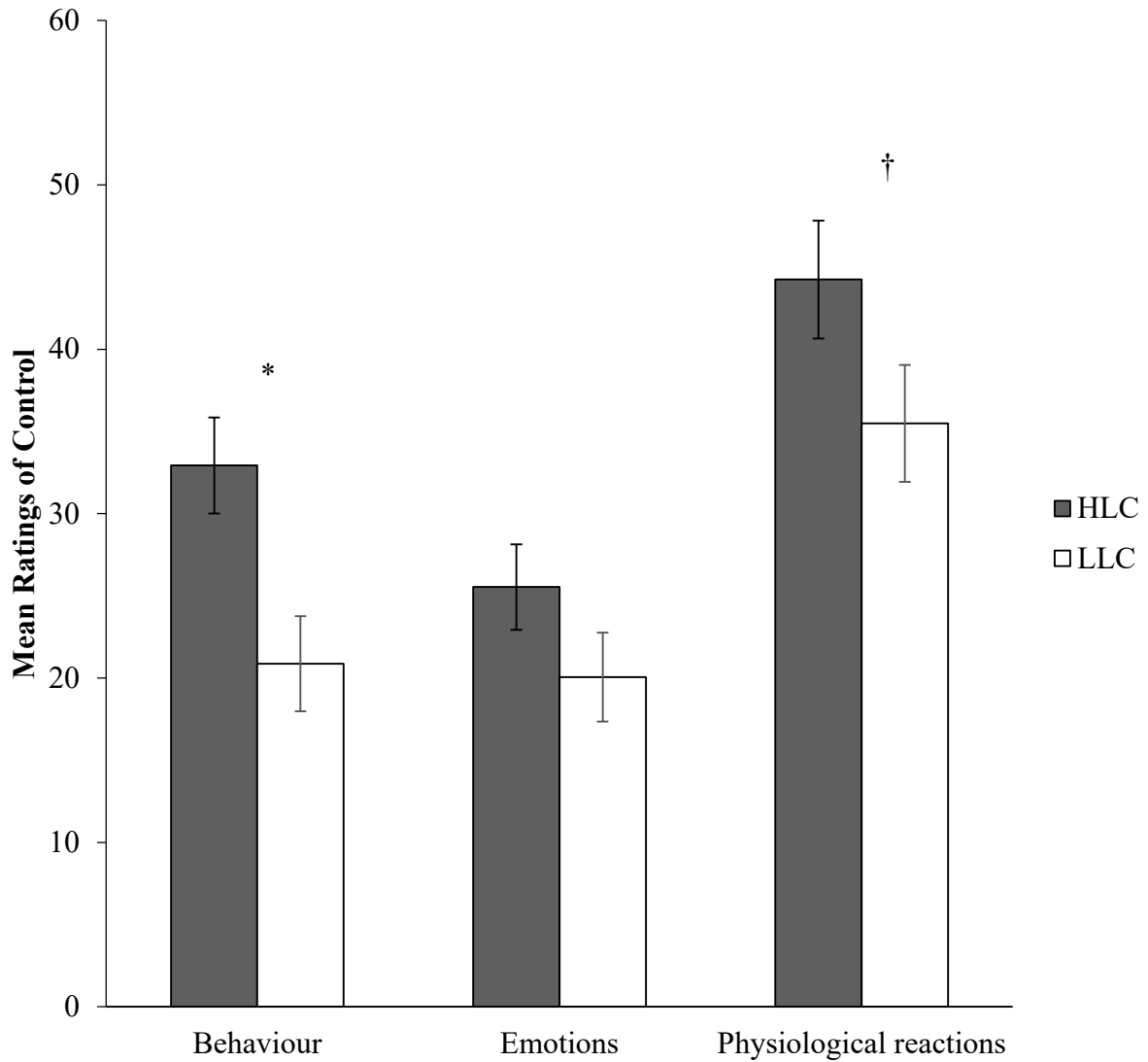


Figure 5. Mean ratings of the degree of perceived loss of control over different domains during the 'getting to know you' task by condition. HLC = high beliefs about losing control. LLC = low beliefs about losing control. * $p < 0.05$ † $p < 0.10$

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author. 10.1176/appi.books.9780890425596.dsm04
- Alden, L. E., & Wallace, S. T. (1995). Social phobia and social appraisal in successful and unsuccessful social interactions. *Behaviour Research and Therapy*, *33*(5), 497-505. 10.1016/0005-7967(94)00088-2
- Alonso, J., Angermeyer, M. C., Bernert, S., Bruffaerts, R., Brugha, T. S., Bryson, H., . . . Vollebergh, W. (2004). Disability and quality of life impact of mental disorders in europe: Results from the european study of the epidemiology of mental disorders (ESEMeD) project. *Acta Psychiatrica Scandinavica*, *109*(s420), 38-46. 10.1111/j.1600-0047.2004.00329.x
- Baker, S. R., & Edelmann, R. J. (2002). Is social phobia related to lack of social skills? Duration of skill-related behaviours and ratings of behavioural adequacy. *British Journal of Clinical Psychology*, *41*(3), 243-257. 10.1348/014466502760379118
- Clark, D. M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy*, *24*(4), 461-470. 10.1016/0005-7967(86)90011-2
- Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. Heimberg, M. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment and treatment* (pp. 69-93). New York: Guilford Press.
- Clark, D. A., & Purdon, C. (1993). New perspectives for a cognitive theory of obsessions. *Australian Psychologist*, *28*(3), 161-167. 10.1080/00050069308258896
- Cloitre, M., Heimberg, R. G., Liebowitz, M. R., & Gitow, A. (1992). Perceptions of control in panic disorder and social phobia. *Cognitive Therapy and Research*, *16*(5), 569-577. 10.1007/BF01175142

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

- Connor, K. M., Davidson, J. R. T., Churchill, L. E., Sherwood, A., Foa, E., & Weisler, R. H. (2000). Psychometric properties of the social phobia inventory (SPIN): New self-rating scale. *The British Journal of Psychiatry*, *176*, 379-386. 10.1192/bjp.176.4.379
- De Castella, K., Goldin, P., Jazaieri, H., Ziv, M., Heimberg, R. G., & Gross, J. J. (2014). Emotion beliefs in social anxiety disorder: Associations with stress, anxiety, and well-being. *Australian Journal of Psychology*, *66*(2), 139-148. 10.1111/ajpy.12053
- Gagné, J., & Radomsky, A. S. (2017). Manipulating beliefs about losing control causes checking behaviour. *Journal of Obsessive-Compulsive and Related Disorders*, *15*, 34-42. 10.1016/j.jocrd.2017.08.013
- Hackmann, A., Surawy, C., & Clark, D. M. (1998). Seeing yourself through others' eyes: A study of spontaneously occurring images in social phobia. *Behavioural and Cognitive Psychotherapy*, *26*(1), 3-12. 10.1017/S1352465898000022
- Herres, J., Shearer, A., Kodish, T., Kim, B., Wang, S. B., & Diamond, G. S. (2019). Differences in suicide risk severity among suicidal youth with anxiety disorders. *Crisis*. 10.1027/0227-5910/a000571
- Hofmann, S. G. (2005). Perception of control over anxiety mediates the relation between catastrophic thinking and social anxiety in social phobia. *Behaviour Research and Therapy*, *43*(7), 885-895. 10.1016/j.brat.2004.07.002
- Hofmann, S. G. (2007). Cognitive factors that maintain social anxiety disorder: A comprehensive model and its treatment implications. *Cognitive Behaviour Therapy*, *36*(4), 193-209. 10.1080/16506070701421313

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

- Hofmann, S. G., Ehlers, A., & Roth, W. T. (1995). Conditioning theory: A model for the etiology of public speaking anxiety? *Behaviour Research and Therapy*, *33*(5), 567-571.
10.1016/0005-7967(94)00072-R
- Johns, A., & Peters, L. (2012). Self-discrepancies and the situational domains of social phobia. *Behaviour Change*, *29*(2), 109-125. 10.1017/bec.2012.1
- Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*(6), 617-627. 10.1001/archpsyc.62.6.617
- Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, *21*(3), 169-184. 10.1002/mpr.1359
- Kline, R. B. (2009). *Becoming a behavioral science researcher: A guide to producing research that matters*. New York, NY: Guilford Press.
- Koyuncu, A., Ertekin, E., Binbay, Z., Özyıldırım, İ, Yüksel, Ç, & Tükel, R. (2014). The clinical impact of mood disorder comorbidity on social anxiety disorder. *Comprehensive Psychiatry*, *55*, 363-369. 10.1016/j.comppsy.2013.08.016
- Kushner, M. G., Sher, K. J., & Beitman, B. D. (1990). The relation between alcohol problems and the anxiety disorders. *The American Journal of Psychiatry*, *147*(6), 685-695.
10.1176/ajp.147.6.685
- Leung, A. W., & Heimberg, R. G. (1996). Homework compliance, perceptions of control, and outcome of cognitive-behavioral treatment of social phobia. *Behaviour Research and Therapy*, *34*(5), 423-432. 10.1016/0005-7967(96)00014-9

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

- Levenson, H. (1973). Multidimensional locus of control in psychiatric patients. *Journal of Consulting and Clinical Psychology, 41*(3), 397-404. 10.1037/h0035357
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behaviour Research and Therapy, 33*(3), 335-343. 10.1016/0005-7967(94)00075-U
- Mansell, W., & Clark, D. M. (1999). How do I appear to others? Social anxiety and processing of the observable self. *Behaviour Research and Therapy, 37*(5), 419-434. 10.1016/S0005-7967(98)00148-X
- Moscovitch, D. A., & Hofmann, S. G. (2007). When ambiguity hurts: Social standards moderate self-appraisals in generalized social phobia. *Behaviour Research and Therapy, 45*(5), 1039-1052. 10.1016/j.brat.2006.07.008
- Obsessive Compulsive Cognitions Working Group. (1997). Cognitive assessment of obsessive-compulsive disorder. *Behaviour Research and Therapy, 35*(7), 667-681. 10.1016/S0005-7967(97)00017-X
- Osborne, J. W., & Overbay, A. (2004). The power of outliers (and why researchers should always check for them). *Practical Assessment, Research & Evaluation, 9*(6), 1-12. Online at <http://pareonline.net/getvn.asp?v=9&n=6>
- Radomsky, A. S., & Gagné, J. P. (2019). The development and validation of the beliefs about losing control inventory (BALCI). *Cognitive Behaviour Therapy, 1*-16. 10.1080/16506073.2019.1614978

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

- Rapee, R. M. (1997). Perceived threat and perceived control as predictors of the degree of fear in physical and social situations. *Journal of Anxiety Disorders, 11*(5), 455-461.
10.1016/S0887-6185(97)00022-4
- Rapee, R. M., & Heimberg, R. G. (1997). A cognitive-behavioral model of anxiety in social phobia. *Behaviour Research and Therapy, 35*(8), 741-756. 10.1016/S0005-7967(97)00022-3
- Rapee, R. M., Craske, M. G., Brown, T. A., & Barlow, D. H. (1996). Measurement of perceived control over anxiety-related events. *Behavior Therapy, 27*(2), 279-293. 10.1016/S0005-7894(96)80018-9
- Reuven-Magril, O., Dar, R., & Liberman, N. (2008). Illusion of control and behavioral control attempts in obsessive-compulsive disorder. *Journal of Abnormal Psychology, 117*(2), 334-341. 10.1037/0021-843X.117.2.334
- Sanavio, E. (1988). Obsessions and compulsions: The padua inventory. *Behaviour Research and Therapy, 26*(2), 169-177. 10.1016/0005-7967(88)90116-7
- Spokas, M., Luterek, J. A., & Heimberg, R. G. (2009). Social anxiety and emotional suppression: The mediating role of beliefs. *Journal of Behavior Therapy and Experimental Psychiatry, 40*(2), 283-291. 10.1016/j.jbtep.2008.12.004
- Stein, M. B., & Kean, Y. M. (2000). Disability and quality of life in social phobia: Epidemiologic findings. *American Journal of Psychiatry, 157*(10), 1606-1613.
10.1176/appi.ajp.157.10.1606
- Stevens, S., Gerlach, A. L., Cludius, B., Silkens, A., Craske, M. G., & Hermann, C. (2011). Heartbeat perception in social anxiety before and during speech anticipation. *Behaviour Research and Therapy, 49*(2), 138-143. 10.1016/j.brat.2010.11.009

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

- Stopa, L., & Clark, D. M. (1993). Cognitive processes in social phobia. *Behaviour Research and Therapy*, 31(3), 255-267. 10.1016/0005-7967(93)90024-O
- Voncken, M. J., & Bögels, S. M. (2008). Social performance deficits in social anxiety disorder: Reality during conversation and biased perception during speech. *Journal of Anxiety Disorders*, 22(8), 1384-1392. 10.1016/j.janxdis.2008.02.001
- Weilage, M., & Hope, D. A. (1999). Self-discrepancy in social phobia and dysthymia. *Cognitive Therapy & Research*, 23(6), 637. 10.1023/A:1018788925223
- Wolpe, J. (1969). *The practice of behavior therapy*. (1st ed.). New York: Pergamon Press.

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Appendix A

Questionnaires:

Demographic Questionnaire

Social Phobia Inventory (SPIN)

Beliefs about Losing Control Inventory (BALCI)

Depression Anxiety Stress Scales (DASS-21)

Ratings of concern over control

Ratings of social performance

Experiment Feedback Survey

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Demographic Questionnaire

1. What is your date of birth? _____
2. What is your biological sex?
 - a. Female
 - b. Male
3. Which gender do you identify? _____
4. What is your ethnicity? _____
5. What is your highest level of education completed?
 - a. High School Diploma (secondary school)
 - b. Diploma of College Studies (CEGEP)
 - c. First-year undergraduate student
 - d. Second-year undergraduate student
 - e. Third-year undergraduate student
 - f. Fourth-year undergraduate student
 - g. Bachelor's degree
 - h. Master's degree
 - i. Doctorate (e.g., PhD, MD, PharmD, etc.)
 - j. Post-doctorate
6. How many years of university education do you have? _____
7. Are you currently working? You can circle more than one option.
 - a. Full-time
 - b. Part-time
 - c. Unemployed
 - d. Student
 - e. Home maker
 - f. Other
8. What is your current occupation? _____
9. What is your mother tongue? _____
10. Are you in a relationship?
 - a. Yes
 - b. No
11. If yes, how long (in months) have you been in this relationship? _____
12. What is your civil status?
 - a. Married or common law
 - b. Separated or divorced
 - c. Single

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d. Widowed

13. How many children do you have? _____

14. What is your current annual household income?

- a. Less than \$10,000
- b. Between \$10,000 and \$25,000
- c. Between \$25,000 and \$40,000
- d. Between \$40,000 and \$50,000
- e. \$50,000 or more
- f. I do not want to answer

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The Social Phobia Inventory (SPIN)

Verify how much the following problems have bothered you during the past weeks. Be sure to answer all questions by circling the most appropriate number for each one of them.

	Not at all	A little bit	Somewhat	Very much	Extremely
1. I am afraid of people in authority.	0	1	2	3	4
2. I am ill at ease to blush in public.	0	1	2	3	4
3. Parties and social events scare me.	0	1	2	3	4
4. I avoid talking to people I don't know.	0	1	2	3	4
5. Being criticized scares me a lot.	0	1	2	3	4
6. The fear of being embarrassed causes me to avoid doing things or speaking to people.	0	1	2	3	4
7. Sweating in front of people causes me distress.	0	1	2	3	4
8. I avoid going to parties.	0	1	2	3	4
9. I avoid activities in which I am the center of attention.	0	1	2	3	4
10. Talking to strangers scares me.	0	1	2	3	4
11. I avoid having to give speeches.	0	1	2	3	4
12. I would do anything to avoid being criticized.	0	1	2	3	4
13. Having heart palpitations bothers me when people are near me.					

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	Not at all	A little bit	Somewhat	Very much	Extremely
	0	1	2	3	4
14. It bothers me to do certain things when people might be watching.	0	1	2	3	4
15. Being embarrassed or looking stupid are among my worst fears.	0	1	2	3	4
16. I avoid speaking to anyone in authority.	0	1	2	3	4
17. Shaking in front of others bothers me.	0	1	2	3	4

Connor, K. M., Davidson, J. R. T., Churchill, L. E., Sherwood, A., Foa, E., & Weisler, R. H. (2000).
 Psychometric properties of the social phobia inventory (SPIN): New self-rating scale. *The British Journal of Psychiatry*, 176, 379-386. 10.1192/bjp.176.4.379

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Beliefs About Losing Control Inventory

Please rate each statement by selecting the number that best describes how much the statement is true of you. Please answer every item, without spending too much time on any particular item.

How much is each of the following statements true of you?	<i>Not at all</i>	<i>A little</i>	<i>Some</i>	<i>Much</i>	<i>Very Much</i>
1. I'm afraid that I might not be able to keep my emotions in check	0	1	2	3	4
2. If I have too many thoughts, or if they're too intense, I could lose control of my mind	0	1	2	3	4
3. Strong emotions can be dangerous because you might lose control	0	1	2	3	4
4. I am afraid of losing control of my mind	0	1	2	3	4
5. If I can't keep my mind on a task, it means that I am losing control	0	1	2	3	4
6. I am afraid of losing control of my bladder and/or bowels	0	1	2	3	4
7. I am afraid of getting hiccups or of sneezing because I might not be able to stop	0	1	2	3	4
8. I am afraid of losing control of my thoughts	0	1	2	3	4
9. I'm concerned about my ability to handle my emotions	0	1	2	3	4
10. I'm afraid I might do something inappropriate or embarrassing	0	1	2	3	4
11. If I get too upset or anxious, I will lose control	0	1	2	3	4
12. Strong emotions can be a sign that I'm losing control	0	1	2	3	4
13. If I get too emotional, I worry that I might never calm down	0	1	2	3	4
14. It's important for me to stay in control of my thoughts	0	1	2	3	4
15. Staying in control is an important priority for me	0	1	2	3	4
16. I am afraid of losing control of my emotions	0	1	2	3	4
17. If I don't manage the thoughts, images or impulses in my mind, I will lose control	0	1	2	3	4
18. If I lose control over an urge or impulse, I will act on it even if I don't want to	0	1	2	3	4
19. It's important for me to keep my emotions from spiraling out of control	0	1	2	3	4
20. If I lost control, I would throw up	0	1	2	3	4

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21. I am afraid of losing control of my body or of my bodily function(s) 0 1 2 3 4

Radomsky, A. S., & Gagné, J. P. (2019). The development and validation of the beliefs about losing control inventory (BALCI). *Cognitive Behaviour Therapy*, 1-16. 10.1080/16506073.2019.1614978

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

DASS – 21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
 - 1 Applied to me to some degree, or some of the time
 - 2 Applied to me to a considerable degree, or a good part of time
 - 3 Applied to me very much, or most of the time
-

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335-343

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

SUDS

1. On a scale from 0 to 100 (0 = I do not feel calm at all; 100 = I feel extremely calm), how calm do you feel? _____
2. On a scale from 0 to 100 (0 = I do not feel anxious at all; 100 = I feel extremely anxious), how anxious do you feel? _____
3. On a scale from 0 to 100 (0 = I do not feel hopeless at all; 100 = I feel extremely hopeless), how hopeless do you feel? _____
4. On a scale from 0 to 100 (0 = I do not feel optimistic at all; 100 = I feel extremely optimistic), how optimistic do you feel? _____
5. On a scale from 0 to 100 (0 = I do not feel happy at all; 100 = I feel extremely happy), how happy do you feel? _____
6. On a scale from 0 to 100 (0 = I do not feel sad at all; 100 = I feel extremely sad), how sad do you feel? _____

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Ratings of concern over control

1. On a scale from 0 to 100 (0 = I did not feel anxious at all; 100 = I felt extremely anxious), how anxious did you feel during your interaction with the other person? _____
 2. On a scale from 0 to 100 (0 = I did not feel concerned at all; 100 = I felt extremely concerned), how concerned were you about losing control over your speech or behaviour while getting to know the other person? _____
 3. On a scale from 0 to 100 (0 = I did not feel concerned at all; 100 = I felt extremely concerned), how concerned were you about losing control over your thoughts while getting to know the other person? _____
 4. On a scale from 0 to 100 (0 = I did not feel concerned at all; 100 = I felt extremely concerned), how concerned were you about losing control over your physical reactions (e.g., sweating, blushing) while getting to know the other person? _____
- On a scale from 0 to 100 (0 = I did not feel concerned at all; 100 = I felt extremely concerned), how concerned were you about losing control over your emotions while getting to know the other person? _____

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Ratings about performance during social interaction

For each of the following statements, identify how characteristic it was of your behaviour during the 'getting to know you' task:

Behaviour	0	1	2	3	4	5	6	7	8
1. friendly	0	1	2	3	4	5	6	7	8
2. confident	0	1	2	3	4	5	6	7	8
3. relaxed	0	1	2	3	4	5	6	7	8
4. assertive	0	1	2	3	4	5	6	7	8
5. attractive	0	1	2	3	4	5	6	7	8
6. liked	0	1	2	3	4	5	6	7	8
7. warm	0	1	2	3	4	5	6	7	8
8. answered questions easily	0	1	2	3	4	5	6	7	8
9. humorous	0	1	2	3	4	5	6	7	8
10. self-assured	0	1	2	3	4	5	6	7	8
11. understood what she said	0	1	2	3	4	5	6	7	8
12. fluent	0	1	2	3	4	5	6	7	8
13. asked interesting questions	0	1	2	3	4	5	6	7	8
14. pleasant	0	1	2	3	4	5	6	7	8
15. socially skilled	0	1	2	3	4	5	6	7	8
16. competent	0	1	2	3	4	5	6	7	8

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17. nervous	0	1	2	3	4	5	6	7	8
18. blushing	0	1	2	3	4	5	6	7	8
19. hands shaking	0	1	2	3	4	5	6	7	8
20. embarrassed	0	1	2	3	4	5	6	7	8
21. left long gaps in the conversation	0	1	2	3	4	5	6	7	8
22. awkward	0	1	2	3	4	5	6	7	8
23. uncomfortable	0	1	2	3	4	5	6	7	8

Stopa, L., & Clark, D. M. (1993). Cognitive processes in social phobia. *Behaviour Research and Therapy*, 31(3), 255-267.

10.1016/0005-7967(93)90024-O

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

Experiment Feedback Survey

As this is an assessment tool undergoing development, we are collecting feedback about the tool and procedure. Please take a moment to read and complete the following survey.

1. Were the instructions for the task clear?
 - a. Yes
 - b. No

2. Were you able to keep track of the content of the texts as you read?
 - a. Yes
 - b. No

3. On a scale from 0 to 100 (0 = very uncomfortable; 100 = very comfortable), how did you feel completing the task? _____

4. On a scale from 0 to 100 (0 = too easy; 100 = too difficult), how challenging did you find this task? _____

5. Based on the feedback provided to you, on a scale from 0 to 100 (0 = not at all concerned; 100 = extremely concerned), how concerned are you that you might lose control over your thoughts, emotions or behaviour? _____

6. Based on the feedback provided to you, on a scale from 0 to 100 (0 = not at all concerned; 100 = extremely concerned), how concerned are you that you might do or say something awkward? _____

7. On a scale from 0 to 100 (0 = not at all helpful/friendly; 100 = extremely helpful/friendly), how would you rate the experimenter who provided feedback to you? _____

8. On a scale from 0 to 100 (0 = unclear/difficult to understand; 100 = extremely clear/easy to understand), how would you rate the clarity of the experimenter who provided feedback to you? _____

9. Do you have any additional comments about the experimenter or the task?

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Appendix B

Self-Control Task

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

Verbal Instructions:

Please read the passages in front of you aloud. Alternating between the passages each word. For example, if passage A reads: Welcome to the lab. And passage B reads: Thank you for coming. You would say: Welcome thank to you the for lab coming. Please go as quickly as possible while avoiding mistakes. Any questions? Begin.

Passage A:

Evidence is abundant, however, that language use and abilities are not so straightforward. Researchers studying artificial intelligence have found it extremely difficult to build computer systems that can understand language (spoken or written) as easily as a 4-year-old child can. Parents of toddlers can attest that although language acquisition is rapid, a person takes several years to become proficient. Many high school and college students come to appreciate fully the complexities of language only when they try to master a second one.

Text source:

Galotti, K. M. (2007). *Cognitive Psychology In and Out of the Laboratory* (4th ed.). Sage Publications. p 336.

Passage B:

Social influence, broadly speaking, refers to the many ways that people affect one another. It involves changes in attitudes and behaviours that result from the comments, actions or even the mere presence of others. Social influence is a subject to which everyone can relate. Other people routinely try to influence us – whether it be a friend’s pressure to go out drinking; a charity’s plea for our time or money; or a parent’s, politician’s, or priest’s attempts to shape our moral, political, or religious values.

Text source:

Gilovich T., Keltner D., Chen S., Nisbett R. E. (2012). *Social Psychology* (3rd ed.). New York. W.W. Norton & Company. p 310.

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

Appendix C

Scripts:

Introduction

Self-control Task and Feedback

‘Getting to Know You’ Task Instructions

Debriefing and Second Informed Consent

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

Introduction

Hi. Thanks so much for coming in today. My name is Ken, and I am a Master's student here in the lab.

Before asking you to carefully read and sign that consent form, I would like to tell you a bit about the study you will be taking part in today.

Today's study is looking at self-control and impression management. You will be asked to do several different tasks today. First will be a cognitive control test, after which you will be asked to spend some time talking with an undergraduate research assistant where you will both be evaluating your social performance. During the cognitive task and while interacting with the research assistant, you will be video recorded. I will inform you each time the recording is started and stopped. These recordings will only be reviewed by research assistants directly involved in the research.

Your participation in this study is voluntary. You will receive either 1 participation pool credit or an entry ballot in our cash draw held in August 2019. You are free to withdraw from this study at any time without any negative consequences whatsoever. That means that if at any time, if you wish to withdraw, simply say so and you will still receive your participation credit or draw entry.

Your information and data will be kept completely confidential. Only research assistants directly involved in the research, my research supervisor and myself will have access to your data. The only identifying information on your data will be your participant ID number. No identifying information will be included in any reports, posters, or presentations resulting from this study. Your physical data will be stored for seven years, in a locked cabinet in the research laboratory. After that time, physical data will be shredded. Any electronic data and video recordings will be stored in password protected files on computers only available to lab members. Electronic data will be stripped of any identifying information and stored indefinitely.

Go ahead and read the consent form, it covers the information I just gave you with some additional details. Read it carefully and if you agree, sign on the last page.

Before we get with the cognitive task, I'll ask you to complete a short survey on the computer. When you reach the screen asking for the experiment password, ring the bell to let me know and we'll begin the next part of the study.

FEAR OF LOSING CONTROL IN SOCIAL ANXIETY

Self-control Task and Feedback

Next I'll be asking you to complete a short performance task which measures self-control over verbal behaviour. We know that people tend to be fairly poor judges of their own self-control, and tend to over or underestimate their ability to control themselves. This task is an objective measure your self-control. This task is designed to tax self-control, meaning it is difficult. So just do your best.

HAVE PARTICIPANT SIT IN FRONT OF A LOW TABLE OPPOSITE THE CAMERA.

Please sit here. In a moment, I'll present you with two texts. I would like you to read them aloud alternating between the texts after every word. For example, if passage A reads: "Welcome to the lab." And passage B reads: "Thank you for coming." You would say: "Welcome thank to you the for lab coming."

Here are two short practice texts. For the practice you can use your finger to follow along, but for the main texts I'll ask you to keep your hands at your sides.

PRESENT THEM WITH THE PRACTICE TEXTS TO READ ALOUD.

Starting with passage A, please go as quickly as possible without making mistakes when I say go. Ready?

PRESENT THEM WITH THE TWO TEXTS

Begin!

START TIMER AND BEGIN MARKING ERRORS ON THE EXPERIMENTER COPY

Once participant completes task:

COLLECT THE TWO TEXTS.

Experimenter says:

Thank you. If you'll give me a moment, I am going to score your performance and get you your results.

Experimenter exits & randomly assigns participant to one of two conditions. Remain out of the room for 60 seconds to "score" their performance

Alright so the scores we report to you are in percentile ranks. Are you familiar with percentile ranking? What it means is that we have a database of scores of thousands of men and women in North America across all the age ranges, and that's what we compare your scores to. Each age range is comprised of a representative sample of the different ethnicities that exist in North America, as well as a range of students, blue collar and white collar workers who took the test. All of that is just to say that as much as possible we are trying to compare your scores to the real population that is out there. So it is technically possible to have scored very highly on the test, but to still get a low ranking, or vice versa, to score very low, but still get a high ranking. The

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range of scores on this test is also normally distributed, meaning that we expect most people to fall at about the mid-point (or 50th percentile)...

[IF IN LLC CONDITION] Experimenter says:

...but your scores were actually between the 85th and 90th percentile, which is very high.

Participants are shown the normal curve and the experimenter indicated on the figure where their scores fell.

Remember this was a test of control over verbal behaviour. We also know that scores on this test correlate with control over other things, such as sweating, flushing and shaking. Your scores were significantly higher compared to the standard scores of people your age on this test so most people your age would have performed worse than you on this task. This means you are good at controlling yourself when engaging in public speaking. You may already be aware of this. For example, during the task you may have noticed you stumbled over words, hesitated or missed a word, but there were more times where you didn't. Think about times you've been nervous either presenting to a group or meeting someone new, you may have noticed you thought something and decided not to say it or you've avoided saying the wrong thing. Or you may remember being nervous but being able to control your blushing or sweating, so others didn't notice. If you're interested, at the end of the study, I'd like to talk to you about getting your permission to contact you for future studies, because we are interested in testing people like you who have good self-control.

[IF IN HLC CONDITION] Experimenter says:

...but your scores were actually between the 25th and 30th percentile, which is very low

Participants are shown the normal curve and the experimenter indicated on the figure where their scores fell.

Remember this was a test of control over verbal behaviour. We also know that scores on this test correlate with control over other things, such as sweating, flushing and shaking. Your scores were significantly lower compared to the standard scores of people your age on this test, so most people your age would have performed better than you on average on this task. This means you may not be able to control yourself when engaging in public speaking. You may already be aware of this. For example, during the task you may have noticed you stumbled over words, hesitated or missed words. Think about times you've been nervous either presenting to a group or meeting someone new, you may have noticed you thought something and then blurted it out by accident or accidentally said the wrong thing, or wanted to say something but only realised afterwards that you forgot to say it. Or you may remember being nervous and being unable to control your blushing or sweating, so others noticed. If you're interested, at the end of the study, I can give you a resource list that we have in the lab that contains information about how to improve your self-control.

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‘Getting to Know You’ Task Instructions

Next I’ll ask you to take part in a brief getting to know you task. In a moment I’ll ask you to spend some time getting to know Joseph, who is an undergraduate research assistant in the lab. You will be both evaluating your performance. I’ll ask you to sit here.

BRING IN CONFEDERATE

This is Joseph, Please spend some time getting to know one another. I’ll be back in a little bit.

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Debriefing and Second Informed Consent

Thank you for coming in and participating in the study today! I'm now going to give you some additional information about the experiment. This study involved the use of some deception, which means I'll need to re-explain certain aspects of the study.

First, you were told that this study was looking at the relationship between self-control and impression management. In reality, we were interested in the relationship between beliefs about losing control and social anxiety. Specifically we wanted to know if holding certain beliefs about losing control would cause people to experience more social anxiety. Had you known this was the true purpose of the study, it would have influenced your behaviour and questionnaire responses.

You completed a cognitive task which you were told assessed your self-control and received feedback on your score. The results you received were random. In reality, the task you completed was invented for this study, its only purpose was to be hard enough that you would not be able to tell how well you did. The feedback you received was either that you scored above average and were therefore unlikely to lose control or below average and therefore more likely to lose control. As I mentioned before, which feedback you received was random. This was necessary as we were trying to change your beliefs about losing control. Had you known we were trying to manipulate these beliefs, it's unlikely anything would have changed when you received the feedback.

I realise that participating in a study with deception can be somewhat unnerving. These deceptions were necessary so that we could test a number of hypotheses experimentally without biasing your behaviour. We were interested in seeing whether high beliefs about losing control leads to more social anxiety and discomfort when meeting new people. And we wanted to see whether people in the high beliefs about losing control condition would underestimate their likability and performance.

Given that the study's purpose was not given to you at the outset of the study, you now have another opportunity to elect to whether you consent to the use of your data. Please read through this form and sign at the bottom if you are still interested in having your data included.

Since this study does rely on deception, we ask that, to maintain the credibility of the study, you do not discuss friends or classmates about any of the specifics I've just explained to you. Feel free to share the portions of the study that you were told prior to this debrief, such that it includes a cognitive task, or that you did a getting to know you task with another undergraduate student.

Do you have any questions? Thank you again for your participation today! If you think of any questions or comments later, please contact me or Adam Radomsky. Our information is on the debrief form you have in front of you.

Appendix D

Consent Forms:

Initial Consent Form

Post-Debriefing Consent Form

Debriefing Form

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Initial Consent Form



INFORMATION AND CONSENT FORM

Study Title: Examining the role of self-control on social interactions

Researcher: Ken Kelly-Turner, B. A.

Researcher's Contact Information: 514-848-2424 ext. 5965; k_kellyt@live.concordia.ca

Faculty Supervisor: Adam Radomsky, Ph.D

Faculty Supervisor's Contact Information: 514-848-2424 ext. 2202;

adam.radomsky@concordia.ca

Source of funding for the study: Social Sciences and Health Research Council of Canada (SSHRC)

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to assess the validity of a new assessment tool measuring cognitive control. We are particularly interested in the associations between self-control and social interactions.

B. PROCEDURES

If you participate, you will be asked to sign this consent form, complete a series of questionnaires, perform a brief cognitive task and participate in a getting to know you activity with a research assistant (both will be video recorded for subsequent review). You will be compensated for your participation with either 1 point towards the participant pool OR a ballot entry into our cash draw (to be held in August 2019).

In total, participating in this study will take approximately one hour.

C. RISKS AND BENEFITS

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To the best of our knowledge, there are no risks associated with your participation in this study. If you experience distress at any point, let the experimenter know immediately.

Potential benefits for your participation include: the opportunity to gain first hand insight into how research is conducted in psychology. Further, you will have made a direct contribution to the development of psychological treatments through your participation.

D. CONFIDENTIALITY

By participating, you agree to let researchers have access to the data you will have provided during the study. This information will be obtained from the questionnaires you will complete, the results of the cognitive task, your performance, video recordings and the ratings you provide.

We will not allow anyone to access the information, except people directly involved in conducting the research. We will only use the information for the purposes of the research described in this form.

The information gathered will be coded. That means that the information will be identified by a code. The researcher will have a list that links the code to your name which will be kept separate under lock and key.

By agreeing to participate in this study you are consenting to be video recorded. These recordings will only be accessible to people directly involved in conducting the research. These recordings will only be used for the purposes of the research described in this form.

All information obtained will be kept strictly confidential and will be stored under lock and key for a period of seven years after publication, after which all identifying information will be destroyed and all other data will be archived indefinitely.

We intend to publish the results of the research. However, it will not be possible to identify you in the published results.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't want us to use your information, you must tell the researcher at any time within one week of the end of the study. After that time, it is not possible to have your information omitted from analysis

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As a compensatory indemnity for participating in this research, you will receive one point towards the participant pool OR an entry ballot into our cash draw held in August 2019. If you withdraw before the end of the research, you will receive the same compensation anyway.

To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME (please print) _____

SIGNATURE _____

DATE _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

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Post-Debriefing Consent Form

Given the nature of the experimental manipulation, it was necessary to provide you with a false purpose at the outset of this study. Specifically, you were told we were examining the relationship between self-control and impression management, and that the cognitive test you completed measured your self-control. Further, you were given false feedback about your performance (that your performance was either above or below average).

This deception was necessary to ensure the experimental manipulation was successful, to avoid and mitigate demand characteristics. This allowed us to measure the causal relationship between beliefs about losing control and symptoms of social anxiety.

Given the use of deception, an additional consent form is required. By signing below, you acknowledge that you have been made aware of the deception involved in this study and remain willing to have your data included in the results given this new information. Further, you agree that you will not discuss the aspects of this deception, or the true intent of the study with anyone outside of those immediately involved in the study.

Signature _____

Witness _____

Date _____

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Debriefing Form

Thank you for your participation in the experiment today!

As mentioned at the outset, this experiment attempts to link the role of self-control with the people's behaviour meeting new people. To test this, you completed a variety of questionnaires, a cognitive task and engaged another undergraduate student in conversation.

For your participation, you received either 1 participant pool credit or an entry into a cash draw (to be held August 2019). Your participation helped us improve our understanding of social interactions and related problems, and beliefs about control.

Thank you again for your participation today. If you have any further questions about this study, please contact Ken Kelly-Turner (k_kellyt@live.concordia.ca; 514-848-2424 ext. 5965) or Prof. Adam Radomsky (adam.radomsky@concordia.ca).

Further Readings:

Gagné, J., & Radomsky, A. S. (2017). Manipulating beliefs about losing control causes checking behaviour. *Journal of Obsessive-Compulsive and Related Disorders*, 15, 34-42.
10.1016/j.jocrd.2017.08.013

Hofmann, S. G. (2007). Cognitive factors that maintain social anxiety disorder: A comprehensive model and its treatment implications. *Cognitive Behaviour Therapy*, 36(4), 193-209.
10.1080/16506070701421313

Spokas, M., Luterek, J. A., & Heimberg, R. G. (2009). Social anxiety and emotional suppression: The mediating role of beliefs. *Journal of Behavior Therapy and Experimental Psychiatry*, 40(2), 283-291. 10.1016/j.jbtep.2008.12.004

Mental Health:

Some of the questions we ask about in our research are related to feelings associated to anxiety and depression. If at any point, those feelings or other problems are distressing and you wish to seek help, please refer to our treatment manual on our website for information about local resources (see below). And do not hesitate to contact us about any questions or concerns you may have.

<http://psychology.concordia.ca/fac/radomsky/TSI/TSI%20manual%202015.pdf>