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EVIDENCE OF DELAYED, RECURSIVE BENEFITS OF SELF-AFFIRMATION ON ANXIETY IN SOCIALLY ANXIOUS UNIVERSITY STUDENTS

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Introduction: Persons with social anxiety disorder (SAD) often experience social interactions as threatening and commonly avoid them or perform poorly in them (Asher et al., 2017). Self-affirmation is an intervention shown to help individuals engage effectively in situations they perceive as threatening (Sherman & Hartson, 2011). We hypothesized that self-affirmation would allow socially anxious individuals to participate in more social activities, do so more effectively, and with less stress and anxiety. **Methods:** Following completion of baseline measures, 75 socially anxious university students were randomly assigned to complete a self-affirming or control writing task. They subsequently completed the Trier Social Stress Test for Groups (TSST-G), and received SAD psychoeducation designed to promote social engagement over the coming month, after which they were reassessed on baseline measures of social anxiety. **Results** Self-affirmation demonstrated no benefit at the time of engagement in the TSST-G. However, at follow-up, self-affirmed students reported significantly less discomfort, anxiety, and distress related to a variety of social behaviors as well as more engagement in those behaviors, relative to baseline, compared with non-affirmed students. Moreover, significantly more affirmed than non-affirmed participants reported clinically significant reductions in symptoms of SAD at follow-up. **Discussion** These results help to broaden our conceptualization of self-affirmation and provide support for its potential utility in treatment for those with SAD.

Keywords: self-affirmation, social anxiety, social stress, intervention

Social anxiety disorder (SAD; American Psychiatric Association, 2013), which is characterized by marked fear, or avoidance, of

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social situations, is associated with significant impairment in interpersonal relationships, mental and physical health, and general life functioning including: lower academic, employment, and financial success; increased risk of suicide; and, significantly higher rates of other mental health disorders (Asher et al., 2017; Gallego et al., 2020; Katzman et al., 2014; Shin & Newman, 2019). Although empirically-supported treatments for SAD are available, for example cognitive behavior therapy (Mayo-Wilson et al., 2014; McGinn & Newman, 2013), few individuals with SAD access treatment (Ormel et al., 2008) and many fail to complete treatment (Lincoln et al., 2005). One reason for the low level of engagement in psychological treatment among those with SAD may be that they perceive treatment, particularly when it involves exposure to feared social situations, to be too threatening (Leeuwerik et al., 2019; Taylor et al., 2012). Self-affirmation, which focuses attention on valued aspects of oneself, has been shown to help individuals engage in activities perceived as threatening more successfully and with less defensiveness (Cohen & Sherman, 2014). Accordingly, we conducted the present research to determine whether self-affirmation may help individuals with SAD reduce avoidance of, and promote more effective engagement in, socially threatening situations.

The perception that social interaction poses a psychological threat is central to a variety of models advanced to explain the development and maintenance of SAD, including two widely cited cognitive-behavioral models (Clark & Wells, 1995; Rapee & Heimburg, 1997) as well as several more recent models (Gilbert, 2014). These models suggest the perception of threat results in a variety of behavioral and cognitive responses, predominantly avoidance and engagement in safety behaviors, which serve to foreground the experience of threat in social interactions and prevent new learning, thereby maintaining SAD. The avoidance due to the perception of threat also contributes to attrition from treatment (Lincoln et al., 2005; Niekerk et al., 2017) which makes it more likely that social anxiety symptoms will be maintained.

The desire to view oneself positively is inherent in most persons and is frequently manifested through a variety of behaviors (Cohen & Sherman, 2014). Self-affirmation may also be experimentally induced in the laboratory through a variety of methods (McQueen & Klein, 2006). Research on induced self-affirmation has shown it helps individuals engage effectively with a wide

variety of situations they perceive as threatening (Sherman & Hartson, 2011). Of relevance to those with SAD, self-affirmation has been shown to reduce worry about social rejection (Jaremka et al., 2011; Schimel et al., 2004; Stinson et al., 2011) , increase engagement in university classroom oral discussions (Sereno et al., 2020), and enable effective interpersonal skills in situations potentially threatening to one's self-image (Albalooshi et al., 2020; Hall et al., 2014; von Hippel et al., 2011). Another effect, namely the ability to learn in situations perceived as threatening (Taylor & Walton, 2011), may be important for those with SAD to not only engage in threatening exposure experiences but to learn from them (Craske et al., 2008). Accordingly, the present study examined whether self-affirmation can reduce the experience of threat those with SAD experience in social situations and thereby allow them to perform better.

In a comprehensive review, Sherman (2013) suggests self-affirmation works because it shifts "the way people construe and engage with their social environment" (p. 837) by (a) increasing an individual's psychological coping resources, (b) creating a view of the self that is broader and more expansive than the threat at hand, and (c) detaching self-evaluation from the threat at hand (pp. 837–839). Research on self-affirmation typically seeks to induce heightened states of self-affirmation by drawing attention to a personally highly ranked value and recalling one or two occasions in life where that value was demonstrated (McQueen & Klein, 2006). Highlighting experiences in which personal behavior is congruent with an important value is thought to help strengthen the self-concept (Critcher & Dunning, 2015).

In addition to these immediate benefits, there is also evidence that self-affirmation can result in positive improvements over time. For instance, for those low in relational security, engaging in self-affirming writing was found to lead to greater relational security and improved social demeanor two to four weeks later. The greater relationship security then predicted a further increase in social demeanor an additional 4 weeks later (Stinson et al., 2011). In work involving Latino students in middle years (Sherman et al., 2013) found engaging in self-affirming writing several times during the school year significantly reduced the decline in GPA that typically occurred in this demographic. Not only was the reduction in decline maintained in the following year despite no further self-affirmation writing, but the treatment effect was

somewhat larger in the second year, and GPA was maintained in a third-year follow-up. Some researchers posit these longer-term effects reflect a positive recursive process, where initial positive outcomes become inputs leading to further positive change (e.g., Cohen et al., 2009; Sherman & Cohen, 2006; Sherman et al., 2013; Stinson et al., 2011), change which has led to benefits years later (Goyer et al., 2017). Given the enormous potential value of initiating a positive, self-sustaining recursive process in individuals with SAD, the present study examined whether a delayed effect of self-affirmation can occur for individuals with SAD.

Given that insecurity related to self-concept is a core component in several models of SAD, an intervention that strengthens the self-concept may be particularly helpful for those with SAD. By strengthening the individual's sense of self, self-affirmation may be able to bolster their confidence in being able to cope with the threat inherent in the exposure tasks that are part of successful treatment for SAD. Although widely studied in social psychology, possible benefits of self-affirmation have been studied less frequently in a clinical population and, to our knowledge, only one other study has looked at the possible benefit of engaging in self-affirmation with a socially anxious population (Lakuta, 2020). Promisingly, Lakuta found self-affirmation was superior to an inactive control group at reducing anxiety. However, the self-affirmation intervention used by Lakuta was framed in terms of implementation plans. Lakuta's finding that the self-affirmation plus implementation plans condition was no different from an implementation plan condition without self-affirmation suggests that implementation plans, rather than self-affirmation, may have been responsible for the positive outcome. The current study examined self-affirmation more unequivocally by using a more typical self-affirmation writing intervention without implementation plans. In addition, it examined both self-report symptom changes as well as behavioral change and included a longer one-month follow-up. Finally, in light of findings that self-affirmation reduces defensiveness to threatening information (Cohen & Sherman, 2014; Sherman, 2013), we provided psychoeducation on the importance of behavioral change (i.e., social interaction) as a driver of symptom change to all participants.

Specifically, the present study explored the effectiveness of self-affirming writing, relative to control writing, in reducing the immediate negative impact of social threat and increasing

the longer-term frequency of social behavior for students with symptoms of SAD. Social threat was activated by engagement in the Trier Social Stress Test—Group format (based on von Dawans et al., 2011). Immediate potential benefit of self-affirmation was assessed with self-report stress assessments as well as performance evaluations by independent raters. Longer-term benefit was assessed with baseline and one-month follow-up self-reports of avoidance of, engagement in, and anxiety related to social behaviors typical of university students. We used a between-group (self-affirmed or not) experimental, mini-longitudinal (baseline, laboratory threat induction, and 1-month follow-up) design.

HYPOTHESES

For individuals with elevated SAD symptoms, engaging in self-affirming writing, relative to non-affirming writing, was expected to:

1. provide immediate threat protection from a standardized stress-inducing task on self-reported anxiety and threat, and
2. show longer-term benefits at one-month follow-up, evidenced by increased social interaction, and reduced anxiety and avoidance, as well as lower self-ratings of social anxiety relative to baseline.

METHOD

PARTICIPANTS

University students with elevated social anxiety symptoms were selected as the target population in this study. An important reason for examining the value of self-affirmation for reducing the impact of SAD in this population is that SAD is known to put university students at elevated risk for poorer social and academic outcomes relative to students without SAD. Specifically, relative to those without SAD, students with SAD report lower quality of life (Ghaedi et al., 2009; Gültekin & Dereboy, 2011), and

greater difficulties with typical academic demands such as presentations, class participation, group work, and asking questions of faculty, difficulties which may lead to dropping out (Baptista et al., 2012). A second reason for examining SAD in this population is that many university students are in their late teens and early twenties, a developmental period in which the incidence of SAD rises sharply (Heimberg et al., 2000). Because SAD is often a chronic condition (Schneier et al., 2014) it is important to examine how SAD may be mitigated early in its development so as to realize lifespan benefits.

The final sample consisted of 81 Canadian university students who participated in all four study phases. The initial screening phase identified eligible participants as scoring 23 or higher on the Social Phobia Inventory (SPIN; Connor et al., 2000). This cutoff score ensured that the sample included only individuals with at least moderately elevated levels of social anxiety symptoms (Ranta et al., 2007). Those meeting this criterion were invited to participate by completing additional baseline measures, the in-laboratory experiment, and one-month follow-up. Six participants were subsequently removed for self-reported low honesty when completing baseline measures (n = 2) or for errors in experimenter administration of this study protocol (n = 4) leaving a final sample of 75 participants (25 males and 50 females, *M*age = 19.77 years, *SD* = 3.87 years). Participants self-identified their ethnicity with the largest number identifying as White/European (n = 34).

MEASURES AND PROCEDURE

General. The Psychology/Sociology Research Ethics Board approved all aspects of this study. All online components of this study were created and administered using Qualtrics. Consent for participation was obtained at each phase. Full descriptions of measures, manipulations, and instructions for each of the four phases of this study are contained in the supplementary online material (SOM) accompanying this article.

Screening. Students in introductory psychology classes were invited to complete a set of screening measures, which included the SPIN, and a demographic questionnaire during their regularly scheduled class. Students with a SPIN score ≥ 23 and who

expressed interest in possible future study participation were eligible for this study. SPIN responses from this phase became the baseline SPIN scores for participants of this study.

Baseline Phase. Participants completed all additional baseline measures online two to four weeks after the screening phase (see SOM for participant selection process). They were informed that providing complete data in this phase would make them eligible to participate in the social stress and follow-up phases of this study.

We assessed avoidance of, distress related to, and engagement in social behaviors typical of university students with section A of the Kutcher Generalized Social Anxiety Disorder Scale for Adolescents, (K-GSADS-A [sec. A]; Brooks & Kutcher, 2004). To make the K-GSADS-A (sec. A) suitable for university students we modified it to be completed as a self-report scale and altered several items. Participants then completed a series of demographic questions including gender, age, and ethnicity as well as honesty and attentiveness questions to assess the validity of responses.

Social Stress Phase (Including Self-Affirmation Induction). Two weeks after baseline, we assembled participants in the laboratory in groups of three to four for the 90-minute set of in-person procedures. Within each group, participants were randomly assigned to the self-affirmation or non-affirmation condition with the constraint of keeping assignment to condition equal or near equal. Researchers were blind to condition.

Following the TSST-G design of Kirschbaum and colleagues (1993) with some adaptations, the experimenter told participants they would each give an impromptu speech and a mental math task in front of evaluators and that their speeches and mental math would be videotaped for later evaluation. Participants were then each assigned a computer to complete the Values Questionnaire (Allport et. al., 1960) in which they ranked 11 values and characteristics on personal importance. Those in the affirmation condition were directed to write about why their top-ranked value was important to them (Cohen et al,, 2000), to list the top two reasons for choosing that value and to describe to what extent it has influenced their life and is an important part of their self-image (Stinson et al., 2011). Those in the non-affirmed condition were asked to write about why their 11th ranked value

might be important to someone else (McQueen & Klein, 2006). To equalize writing time across the two groups participants in the non-affirmed condition were also asked to describe their route to the university. All participants wrote during the allotted time with 100% adherence to instruction as verified by the experimenter's subsequent visual review of the participant writing. An affirmation manipulation check (Napper et. al., 2009; Study 1) was also used to help verify that participants engaged in the activity. Participants then completed anticipatory stress appraisals based on Blascovich and Tomaka (1996), and a subjective units of distress scale (SUDS; Wolpe, 1988).

Following the assignment of speech topic (either capital punishment, religion in schools, space exploration, or cloning), participants were given approximately three minutes to mentally compose their speeches while walking from the computer lab to the room where the speeches and mental math task would take place. They were asked to refrain from talking with each other or making eye contact with each other.

In each group, participants were uniquely and randomly assigned to stand in one of four locations in a row, each separated from the next by an opaque partition. In random order participants then delivered their speeches before two speech evaluators (research assistants posing as non-verbal speech evaluators) and two video cameras. In the standard TSST, speech evaluators are asked to maintain a disapproving facial expression, give stern admonishments to keep talking if the participant should end before the allowable time, and to go faster at the halfway mark of the mental arithmetic task. Since it has been found that a less stressful speech task is effective in eliciting significant stress responses for those with SAD (Schmidt et al., 2012), in this study speech evaluators were instructed to keep a neutral facial expression and there were no stern admonishments in either task. The speech task was followed by a mental arithmetic task in which participants were asked to count backwards, out loud, from a given number by 16, as quickly as possible, for two minutes.

Participants' performance on these tasks was assessed with four separate items. First, a mental math score was calculated by counting how many times each participant was able to correctly subtract 16 from their starting point. The second measure was the number of requested items each person remembered to include in their speech. The third was a subjective rating of eye

contact and the fourth was a subjective rating of the perceived warmth or friendliness of the participant during the speech task. In addition to ratings made by the #1 speech evaluator, eye contact and warmth ratings were also made by four independent coders, trained on written coding criterion, who individually watched video recordings of the speeches. All eye contact and warmth ratings were made using visual analogue scales with anchor points of 0 (none/inadequate) to 100 (ample/excellent) for eye contact and 0 (cool/distant) to 100 (warm/personable) for warmth (see SOM for additional details).

Following the completion of the speech and math tasks, participants returned to the computer lab, completed a second SUDS, and were given a partial debrief. They were then verbally given a psychoeducational description of social anxiety, similar to what might be given to a socially anxious client in a clinical therapy session, which emphasized the therapeutic value of engaging in exposure to feared social activities, including making eye-contact and engaging verbally with others, and how this contributes to reduced anxiety over time (see SOM for script). Participants were provided a list of free, or low-cost, social events taking place on campus or in the city over the coming month as examples of social activities in which they may wish to participate. Prior to dismissal, participants were given a list of free mental health resources they could contact for support to address any lingering or subsequent distress from participation.

Follow-Up Phase. Approximately four weeks after the completion of the social stress phase participants were emailed and asked to complete online measures of the SPIN, K-GSADS-A (sec. A), and the validity check questions used at baseline. Approximately two weeks later, participants who participated in any phase of this study were emailed a final and complete debrief.

RESULTS

DATA PREPARATION

Prior to analysis, we examined the dataset for accuracy of data entry, missing values, and for any violations of assumptions of *t*-test and multivariate analysis. There was one missing data

point in the final data sets used for analysis: one participant in the self-affirmed condition did not give a pre-TSST anxiety rating. Because of this, the number of self-affirmed condition participants was reduced by one for analyses that included the pre-TSST anxiety rating.

Mahalanobis distance analysis of the baseline variables (SPIN and the K-GSADS-A [sec. A] distress, avoidance, and frequency) found no multivariate outliers. However, square root transformation was necessary to normalize skewed baseline SPIN scores.

RANDOMIZATION CHECK

Means, standard deviations, and Cohen's *d* for the baseline measures are reported by condition in Table 1. Independent *t*-tests revealed the two groups did not significantly differ on any of the baseline measures. However, the difference between conditions on the SPIN approached significance, $t(73) = -1.91$, $p = .06$, $d = 0.44$, 95% CI of d [−0.02, 0.9], thus for greater statistical rigor square root transformed baseline SPIN scores (SPINSqRt) were included as a covariate in all relevant between condition analyses. For analyses considering only the SPIN score (e.g., change in SPIN from baseline to one-month follow-up), non-transformed SPIN scores were used to enhance interpretability.

MANIPULATION CHECKS

Manipulation checks revealed the writing manipulations had the intended effects. Self-affirmed individuals scored significantly higher on the self-affirmation manipulation check ($M = 21$), than non-affirmed individuals ($M = 19$), $t(65.9) = 2.67$, $p = .01$, $d = 0.61$, 95% CI of d [−1.07, −0.14], equal variances not assumed. A review of participants' writing showed that both groups followed the writing instructions for their condition.

An increase in self-report distress following the TSST indicated the TSST was successful in inducing stress. Participants' mean SUDS rating ($M = 36.64$) immediately following the TSST was significantly higher than their rating immediately before ($M = 30.61$), $t(73) = 2.16$, $p = .03$, $d = .30$, CI of d [−0.02, 0.63], and both levels are higher than the peak anxiety rating given by TSST participants

TABLE 1 Mean, Standard Deviation, and Effect Size for Baseline Measures by Condition

	Condition				
	Self-affirmed		Non-affirmed		
Measure	***M***	***SD***	***M***	***SD***	***d***
	n = 36		*n* = 39		
SPIN	32.47	8.01	36.23	8.93	0.44
SPIN SqRt	5.66	0.67	5.98	0.72	0.46
Mod. K-GSADS-A Beh. anxiety	27.83	7.66	28.64	7.49	0.11
Mod. K-GSADS-A Beh. avoidance	27.31	9.04	29.10	8.86	0.20
Mod. K-GSADS-A Beh. frequency	45.22	12.22	49.18	13.94	0.30

Note. SPIN = Social Phobia Inventory; SqRt = Square Root; Mod. K-GSADS-A Beh. = modified Kutcher Generalized Social Anxiety Disorder Scale for Adolescents -- Behaviour section.

in other research (e.g., von Dawans et al., 2011, p. 520). Also, participants' mean Speech Stress rating, made while anticipating the TSST, was above the mid-point of the scale ($M = 5.45$, $SD = 1.10$). Participants' mean Math Stress rating, also anticipatory, was at the mid-point of the scale ($M = 3.50$, $SD = 1.53$).

TEST OF HYPOTHESIS 1

Overall, and contrary to expectations, analysis of social stress phase data showed no benefit of self-affirming writing relative to non-affirming writing for mitigating the stress of the TSST or enhancing performance on it. We used analysis of covariance (ANCOVA), controlling for initial level of social anxiety, to examine the impact of affirmation condition on each of the experiential and behavioral outcomes. Means and standard deviations for affirmed and non-affirmed conditions, as well as the F scores, p values, and η_p^2 values associated with their comparisons, are shown in Table 2. As indicated there, the analyses produced non-significant F scores ranging from 0.0003 to 0.72.

TESTS OF HYPOTHESIS 2

One month after the affirmation manipulation, a different picture of the impact of self-affirmation emerged, suggesting it did

TABLE 2 Means (Standard Deviations) and Effect of Condition for Social Stress Phase Variables (controlling for baseline SPIN)

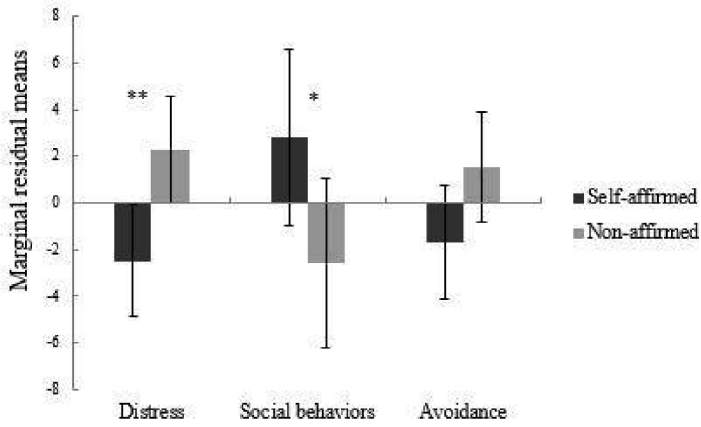
	Self-affirmed	Non-affirmed			
Outcome Variable	***M* (*SD*)**	***M* (*SD*)**	**F**	***p***	η_p^2
	n = 36	*n* = 39			
Experiential					
SUDS Pre[a]	30.20 (16.40)	30.97 (17.12)	0.002	.963	.000
SUDS Post[b]	35.47 (23.46)	38.10 (22.11)	0.0003	.986	.000
Change in SUDS[a]	4.80 (25.42)	7.13 (23.06)	0.001	.971	.000
Speech stress appraisal	4.59 (1.01)	4.48 (1.19)	0.52	.472	.007
Math stress appraisal	3.74 (1.57)	3.44 (1.57)	0.72	.400	.010
Behavioral					
Speech number of elements[b]	1.03 (1.23)	1.10 (1.21)	0.04	.834	.001
Correct math responses	4.86 (4.47)	5.31 (4.21)	0.17	.682	.002
Eye contact rating	68.45 (20.15)	70.49 (15.51)	0.38	.538	.005
Warmth rating	61.31 (17.83)	63.18 (14.38)	0.42	.519	.006

Note. SPIN = Social Phobia Inventory; SUDS = Subjective Units of Distress Scale; M = mean; SD = standard deviation.

[a]*These variables had n = 35 participants in the affirmed group as one participant did not provide a pre-SUDS score.*

[b]*For these variables, the covariate was significant at* $p < .05$

have an effect. Analysis of covariance (ANCOVA), controlling for baseline SPIN, was used to compare the change in levels of social distress, avoidance, and social behavior from baseline to one-month follow-up between affirmed and non-affirmed participants measured by the K-GSADS-A (sec. A). Unstandardized residuals of post-scores (controlling for pre-scores) were used for all between condition analyses. Individuals in the self-affirmed condition, relative to those in the non-affirmed condition, reported a decrease in distress associated with typical social behaviors of university students one month after engaging in self-affirming writing, when compared with their baseline levels reported approximately two to three weeks before the affirmation writing task. This decrease ($M = -2.5$) is significantly different, $F(1, 72) = 7.91$, $p = .01$, $d = 0.66$, 95% CI of d [0.19, 1.14], than the increase in distress reported by non-affirmed individuals ($M = 2.3$). Affirmed individuals also reported an increased engagement ($M = 2.8$) in these behaviors over this

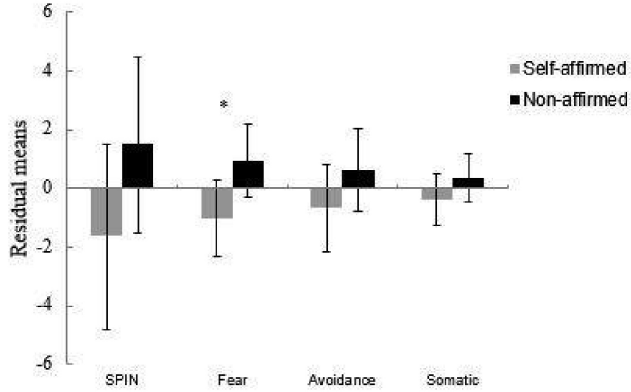


*$p < .05$; **$p < .01$.

FIGURE 1. A comparison of marginal residual means, by condition, for distress ratings, behavior frequencies, and avoidance ratings, by condition of the Kutcher Generalized Anxiety Disorder Scale for Adolescents (modified) — behavior section, controlling for the base level SPIN. Vertical bars represent 95% confidence intervals.

same six-to-seven-week period whereas non-affirmed individuals reported reduced engagement ($M = -2.6$), a difference that is statistically significant, $F(1, 72) = 4.09$, $p = .05$, $d = 0.48$, 95% CI of d [0.01, 0.94]. Finally, although having nearly identical avoidance of social behavior ratings at baseline, at one-month follow-up affirmed individuals reported less avoidance than six to seven weeks earlier ($M = -1.7$) whereas non-affirmed individuals reported greater avoidance ($M = 1.5$), a difference approaching significance, $F(1, 72) = 3.46$, $p = .07$, $d = 0.44$, 95% CI of d [−0.03, 0.90]. (See Figure 1).

Similarly, analyzing the change in SPIN data, using repeated measures ANOVA with unstandardized residuals of post-scores (controlling for pre-scores), complemented the K-GSADS-A (sec. A) analyses in terms of direction of change of the two conditions. Considering the overall SPIN score, affirmed individuals reported a reduction in social anxiety ($M = -1.6$), whereas non-affirmed individuals showed an increase ($M = 1.5$) from screening to follow-up phase measurements. This difference between conditions does not reach statistical significance despite a small



*$p < .05$.

FIGURE 2. A comparison of residential means, by condition, of SPIN and of the SPIN subscales. Vertical bars represent 95% confidence intervals.

to medium effect size, $F(1,73) = 2.05$, $p = .16$, $d = 0.34$, 95% CI of d [−0.13, 0.80]. Examination of the SPIN subscales revealed that affirmed participants showed significantly reduced fear ($M = -1.02$) whereas as non-affirmed participants reported an increase ($M = 0.94$), an effect of condition that was significant and moderate in size, $F(1, 73) = 4.58$, $p = .04$, $d = 0.50$, 95% CI of d [0.03, 0.97]. Findings for the avoidance and somatic anxiety subscales showed similar change favoring those in the affirmed condition but of smaller magnitude (both ds = .29) which were not statistically significant. (See Figure 2).

Additionally, we looked at change within condition. Analysis of covariance (ANCOVA), using pre-post scores and controlling for baseline SPIN, was used to compare the change in levels of social distress, avoidance, and social behavior from baseline to one-month follow-up between affirmed and non-affirmed participants measured by the K-GSADS-A (sec. A). Compared to their baseline scores, individuals in the self-affirmed condition reported a significant decrease in social distress at follow-up, $M = -3.92$; $F(1,34) = 7.06$, $p = .01$, $d = 0.47$, 95% CI of d [0.12, 0.82, whereas those in the non-affirmed condition demonstrated a non-significant increase in social distress over the same time

period, $M = 1.56$; $F(1, 37) = 2.34$, $p = .13$, $d = 0.25$, 95% CI of d [−0.08, 0.58]. Non-affirmed individuals reported a significant decrease in engagement in social behaviors from baseline to one-month follow-up, $M = -3.85$; $F(1, 37) = 4.21$, $p = .05$, $d = 0.34$, 95% CI of d [0.004, 0.67]. Affirmed individuals reported a non-significant increase in social behaviors over the same time period, $M = 3.14$; $F(1, 34) = 2.68$, $p = .11$, $d = 0.28$, 95% CI of d [−0.06, 0.62]. Finally, at one-month follow-up affirmed individuals reported non-significantly less social avoidance, $M = -2.64$; $F(1, 34) = 3.09$, $p = .09$, $d = .30$, 95% CI of [−0.04, 0.64], whereas non-affirmed individuals reported non-significantly greater avoidance, $M = 1.05$; $F(1, 37) = 1.18$, $p = .28$, $d = -0.18$, 95% CI [−0.15, 0.50].

Looking at within condition change on the SPIN scores using a repeated measures ANOVA with pre-post scores, affirmed individuals reported a significant reduction in overall SPIN scores from baseline to follow-up, $M = -3.5$; $F(1, 35) = 4.04$, $p = .05$, $d = 0.34$, 95% CI [−0.003, 0.68], whereas non-affirmed individuals showed a non-significant increase ($M = .08$; $F(1, 38) = 0.003$, $p = .96$, $d = -0.01$, 95% CI [−0.31, 0.33]) over the same time frame. Examination of the SPIN subscales revealed significantly reduced fear, $M = -1.53$; $F(1, 35) = 4.56$, $p = .04$, $d = 0.36$, 95% CI [0.02, 0.70], for affirmed participants whereas non-affirmed participants showed a non-significant increase, $M = -0.33$; $F(1, 38) = 0.32$, $p = .57$, $d = 0.09$, 95% CI [−0.23, 0.41]. Affirmed participants reported a near-significant trend toward less avoidance, $M = -1.53$; $F(1, 35) = 3.75$, $p = .06$, $d = 0.33$, 95% CI [−0.02, 0.67], whereas non-affirmed participants showed a non-significant increase, $M = -0.33$; $F(1, 38) = 0.35$, $p = .62$, $d = 0.09$, 95% CI [−0.23, 0.41]. There was a small, non-significant reduction on the somatic subscale for affirmed participants, $M = 0.44$; $F(1, 35) = 1.01$, $p = .32$, $d = 0.17$, 95% CI [−0.17, 0.50], with effectively no change for non-affirmed participants, $M = 0.08$; $F(1, 38) = 0.03$, $p = .86$, $d = 0.03$, 95% CI [−0.28, 0.327].

To demonstrate clinically significant change (Jacobson & Truax, 1991), participants' follow-up scores on the SPIN had to demonstrate reliable change (i.e., to have decreased by 7 points or more) relative to baseline and fall below either: (a) a liberal criterion of 31 (determined using Canadian normative data per Kocovski et al., 2013); or, (b) a conservative criterion of 23 (determined using SPIN normative data as below the threshold of mild social phobia per Connor et al., 2000). At follow-up

a greater number of affirmed (n = 16; 44%) than non-affirmed (n = 9; 23%) participants met criteria for reliable improvement, $\chi^2(1) = 3.85$, $p = .05$. Of these, more affirmed than non-affirmed participants' scores demonstrated clinically significant change. Specifically, more affirmed participants than non-affirmed participants had SPIN scores that fell below (a), the liberal criterion (affirmed = 15, 42%; non-affirmed = 6, 15%), $\chi^2(1) = 6.41$, $p = .01$; as well as (b), the more conservative criterion (affirmed = 13, 36%; non-affirmed = 4, 10%), $\chi^2(1) = 7.14$, $p = .01$.

DISCUSSION

The present study examined the effectiveness of self-affirmation at protecting socially anxious students from psychologically threatening experiences. We hypothesized that, relative to those assigned to complete a psychologically inert control writing task, those who completed self-affirming writing would show less fear and performance decrement when carrying out (a) an immediate laboratory stressor as well as (b) a challenging psychoeducational invitation to be more socially active over the coming month. Our findings provided support for part b of our hypothesis. Specifically, affirmed participants, relative to controls, reported less distress, as well as greater engagement in, and less avoidance of, social behaviors at one-month follow-up relative to baseline. The magnitude of these group differences were moderate to large. Furthermore, affirmed participants were significantly more likely than non-affirmed participants to demonstrate clinically significant change on the SPIN. Relative to Lakuta's (2020) findings, the present findings clarify that self-affirmation can significantly reduce social anxiety and promote social engagement relative to controls without the use of implementation intentions, and for a longer period. They also are consistent with the literature showing that micro-interventions can have a positive effect on behavior (Corbu et al., 2021; Luthans et al., 2006). Nonetheless, our findings raise questions about how self-affirmation might exert an influence at a later point when it did not appear to do so initially which we discuss.

The finding that socially anxious students demonstrated no benefit from engaging in self-affirmation immediately prior to carrying out a series of socially stressful tasks, like all null findings, is

subject to various explanations. The first, and simplest, is that self-affirmation had no impact on either participants' performance or experience of the tasks. Alternatively, the intervention may have had an immediate effect that was not captured by the tasks and measures used. Notably, the tasks and measures used at the two time points in our study were quite distinct, raising the possibility that they measured psychologically different phenomena. In particular, the initial laboratory task was presented in a standardized way and by design did not allow participants to grade the difficulty of the activity to match their perceived ability or to grade the level of social threat experienced compared to what they may do in daily social interactions. In contrast, the psychoeducational suggestion to increase social activity over the coming month as a means of reducing social anxiety left the manner and extent of carrying it out up to participants. Furthermore, whereas the laboratory stressor required execution of a demanding performance in front of an evaluative, unfamiliar audience, in contrast the recommendation to increase social engagement allowed participants considerable latitude in choosing the type and extent of social interaction they sought out. As we discuss below, these features of the follow-up task may be particularly amenable to the ego-strengthening impact of self-affirmation.

Another distinguishing feature of the follow-up task is the psychoeducation that emphasized the importance of engaging in potentially threatening social activities and interactions as a means of reducing social anxiety symptoms. A meta-analysis of the effects of self-affirmation on health behavior change in response to threatening health information indicates small but reliable positive effects on: (a) acceptance of the information, (b) intention to act on the it, and (c) subsequent behavior change (Epton et al., 2015). Conceivably, therefore, greater acceptance of the psychoeducation or the intention to act on it in the present study may have contributed to the reduction of symptoms and behavior changes evident in the self-affirmed. More generally, reduced defensiveness to threatening information is consistent with the body of self-affirmation literature (Cohen & Sherman, 2014).

The possibility that the beneficial outcomes of self-affirmation observed in the present study may have arisen in part from enhanced capacity to process threatening psychoeducational material is consistent with a number of findings. Research on attentional focus indicates that self-affirmation facilitates greater

attention to self-relevant, but threatening, health information (Kessels et al., 2016; Klein & Harris, 2009) which in turn may facilitate better encoding, storage, and retrieval for later use. This is potentially important when dealing with anxiety-arousing health information, insofar as worrying about confirming your worst fears when engaging in a self-threatening activity can impair the ability to learn from that activity (Heidrich & Chiviacowsky, 2015; Rydell et al., 2010) and this may be at least partially due to a reduction of working memory capacity (Beilock et al., 2007; Ganley & Vasilyeva, 2014; Schmader & Johns, 2003). One study found self-affirmation appeared to result in effective use of working memory toward the goals of participants (Logel & Cohen, 2012), another that engaging in self-affirmation resulted in greater inhibitory control and focus on goal-relevant information through strengthening one's sense of self-efficacy (Albalooshi et al., 2020), and a third that participants demonstrated improvements in both working memory and inhibition tasks immediately following a self-affirmation writing task (Harris et al., 2017). Interestingly, Harris and colleagues found that these areas of executive functioning improved through self-affirmation despite the participants not undergoing a specific threat induction. They argue that this contributes to the evidence that self-affirmation can combat the negative effects of naturally experienced feelings of threat. In sum, it is conceivable that engaging in self-affirmation allowed those with high social anxiety to take in the psychoeducation on how to increase their comfort when engaging in feared activities, and to accept the challenge to confront feared social situations as feasible.

It was not possible to test, with the data available in the present research, whether the psychoeducation component is necessary to reveal the benefit of self-affirmation. Future studies in this area could assess whether degree of recall of psychoeducational material, acceptance of the content, and formation of behavior change intentions differed across self-affirmation and control conditions. Another way to examine the role of psychoeducation would be to compare self-affirmation conditions with and without it. This might also profitably include psychoeducation on how to cope more effectively with the TSST.

Given the recursive effects of self-affirmation found in some studies (e.g., Sherman et al., 2013; Stinson et al., 2011), it would be informative in future studies to follow participants for a longer

period of time, not only to see if the benefits hold but also to see if they grow larger even with no additional direct treatment for SAD. As noted by Cohen and Sherman (2014; p. 341) "better performance may affirm the self, leading to still better performance, further affirming the self, and so on, as improvement maintains or even builds in itself."

LIMITATIONS

The design of the present study investigated the effects of self-affirmation on Introduction to Psychology university students with high social anxiety. Notwithstanding the considerable value of learning how to help students cope more effectively with social anxiety we recognize the present findings may not generalize to other socially anxious populations. As well, a longer follow-up period, perhaps of a year or more, would be needed to know if the benefit of self-affirmation maintained over time or, even, increased.

Conceivably, the significantly greater number of affirmed, relative to non-affirmed, participants who demonstrated clinically significant improvement could be accounted for by the higher baseline SPIN scores among the non-affirmed group. However, a number of considerations suggest this is not a credible alternative explanation. First, the difference between the group means on SPIN baseline scores did not reach statistical significance. Second, significantly more affirmed than non-affirmed participants demonstrated reliable change—an element of clinical significance that is not affected by baseline SPIN score. Third, differences in the rates of clinical significance between the two groups were demonstrated for both liberal and conservative SPIN score criteria. Fourth, any effects of regression to the mean, if present, would have favored the non-affirmed group rather than the affirmed group. In fact, however, the non-affirmed group showed a non-significant increase in mean SPIN scores at follow-up whereas the affirmed group showed a significant decrease.

In light of (a) the attrition that occurred over the course of the study, and (b) the threatening activities required of participants, it is conceivable that participants with higher levels of SAD symptoms or avoidance may have been more likely to drop out

over the course of the study (i.e., from screening and baseline phases through to the final follow-up) and therefore reduced the level of SAD present in the final dataset. Two different analyses suggest this is not the case and that the final data set is, in fact, representative of the socially anxious participants who provided complete baseline data. First, mean baseline SPIN scores of the final 75 participants (M = 34.43, SD = 8.65) did not differ significantly from those of the 103 who were eligible for the social stress phase but chose not to participate (M = 34.09, SD = 9.22), $t(176) = 0.25$, $p = .804$, $d = 0.04$, 95% CI [−.34, .26]. Secondly, the 103 participants who chose not to participate were asked in a separate anonymous survey why they were discontinuing. Of the 54 participants who chose to respond, only nine selected anxiety as the reason why they did not continue with the study. Taken together, it appears the final data set does not represent a self-selected group of participants with more moderate levels of SAD and/or less avoidance than those who chose not to continue to the social stress phase of the study.

There are many studies showing the effect of self-affirmation is moderated by another variable, for example stress (Creswell et al., 2013), self-esteem (Armitage, 2012; Düring & Jessop, 2015; Jaremka et al., 2011) and self-resources (Creswell et al., 2005). Possible moderating variables were not measured in this study.

Finally, the group design of the TSST-G may have impacted the behavioral outcome variables of the social stress phase. The creators of the TSST-G design, von Dawans and colleagues (2011), describe several possible challenges (p. 521) including an increase in error if individual stress responses interact with the emotional responses of other participants. Given that the population was comprised of those who are high in social anxiety, it is possible at least some of the participants may have been impacted by the emotional response to the speech and math tasks of other participants. It may be, with a socially anxious population, an individual social stress task format would be a better design than the group format that was used.

CLINICAL IMPLICATIONS AND FUTURE DIRECTIONS

For those with social anxiety, the present research revealed clear benefits of a brief self-affirmation writing exercise one month

later including clinically significant reductions in fear and distress associated with social anxiety and increased engagement in previously avoided behaviors. Given the importance of engagement in previously avoided activities to treatment success for social anxiety, these results suggest that a simple and easy to administer self-affirmation exercise may be a useful adjunct to enhance the effectiveness of current treatments. Its utility should be explored further, perhaps with a clinical population including both outpatients and inpatients.

Research to clarify the mechanisms by which self-affirmation has its effect is needed to know with greater precision just how and when it may be helpful for those with social anxiety and for those who are experiencing threat more generally. One possibility already discussed is that self-affirmation prevents the working memory of an individual who perceives threat from being consumed with preoccupations related to that threat, thereby allowing for more effective deployment of working memory and functioning in the moment. Critcher and Dunning (2015) found that self-affirmation has its effect by maintaining a larger working self-concept, so that the current threat being experienced is only a part of the working self-concept, not the whole or nearly the whole of it. As noted by Cohen and Sherman (2014), it is likely that there is more than one mechanism, and that the key mechanisms may interact or change depending on the type of threat being faced.

CONCLUSIONS

There is a high cost to SAD, both in terms of the immediate discomfort of its symptoms as well as the profound longer-term cost of social avoidance and isolation on life outcomes (Aderka et al., 2012). There is a need for novel interventions that offer relief from SAD. Self-affirmation is a brief, accessible intervention that, in light of its capacity to reduce threat and increase positive health behaviors is potentially relevant to the treatment of SAD. For individuals with SAD, engaging in feared social interactions, is a key therapeutic strategy, employed by many treatments for SAD such as CBT. The current research showed that university students with moderate to high levels of social anxiety who engaged in self-affirming writing and received psychoeducation about the benefits of increasing social behaviors, subsequently

increased their frequency of engagement in social behaviors over the following month. Further, they also reported reduced feelings of distress regarding these behaviors, and reduced fear of social interaction in general. These benefits were clinically significant for affirmed participants relative to to the changes experienced by non-affirmed participants. This is a promising result that would benefit from replication as well as longer-follow-up. The results also indicate that engaging in self-affirming writing may facilitate engagement in avoided activities that typify the exposure-based therapies which are recommended for the treatment of SAD.

REFERENCES

Aderka, I. M., Hofmann, S. G., Nickerson, A., Hermesh, H., Gilboa-Schechtman, E., & Marom, S. (2012). Functional impairment in social anxiety disorder. *Journal of anxiety disorders*, *26*(3), 393–400. https://doi.org/10.1016/j.janxdis.2012.01.003

Albalooshi, S., Moeini-Jazani, M., Fennis, B. M., & Warlop, L. (2020). Reinstating the resourceful self: When and how self-affirmations improve executive performance of the powerless. *Personality and Social Psychology Bulletin*, *46*(2), 189–203). https://doi.org/10.1177/0146167219853840

Allport, G. W., Vernon, P. E., & Lindzey, G. (1960). *Study of values* (3rd ed.). Houghton-Mifflin.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, DC: American Psychiatric Association.

Antony, M. M., Coons, M. J., McCabe, R. E., Ashbaugh, A., & Swinson, R. P. (2006). Psychometric properties of the social phobia inventory: Further evaluation. *Behaviour Research and Therapy*, *44*(8), 1177–1185. https://doi.org/10.1177/0146167207307489

Armitage, C. J. (2012). Evidence that self-affirmation reduces body dissatisfaction by basing self-esteem on domains other than body weight and shape. *Journal of Child Psychology and Psychiatry*, *53*(1), 81–88. https://doi.org/10.1111/j.1469-7610.2011.02442.x

Asher, M., Asnaani, A., & Aderka, I. (2017). Gender differences in social anxiety disorder: A review. *Clinical Psychology Review*, *56*, 1–12. https://doi.org/10.1016/j.cpr.2017.05.004

Baptista, C. A., Loureiro, S. R., De Lima Osório, F., Zuardi, A. W., Magalhães, P. V., Kapczinski, F., Santos Filo, A., Freitas-Ferrari, C., & Crippa, J. A. S. (2012). Social phobia in Brazilian university students: Prevalence, under-recognition and academic impairment in women. *Journal of Affective Disorders*, *136*(3), 857–861. https://doi.org/10.1016/j.jad.2011.09.022

Beidel, D. C., Turner, S. M., Jacob, R. G., & Cooley, M. R. (1989). Assessment of social phobia: Reliability of an impromptu speech task. *Journal of Anxiety Disorders*, *3*(3), 149–158. https://doi.org/10.1016/0887-6185(89)90009-1

Beilock, S. L., Rydell, R. J., & McConnell, A. R. (2007). Stereotype threat and working memory: Mechanisms, alleviation, and spillover. *Journal of Experimental Psychology: General*, *136*(2), 256–276. https://doi.org/10.1037/0096-3445.136.2.256

Blascovich, & Tomaka, J. (1996). The Biopsychosocial Model of Arousal Regulation. *Advances in Experimental Social Psychology, 28*, 1–51. https://doi.org/10.1016/S0065-2601(08)60235-X

Brooks, S. J., & Kutcher, S. (2004). The Kutcher Generalized Social Anxiety Disorder Scale for Adolescents: assessment of its evaluative properties over the course of a 16-week pediatric psychopharmacotherapy trial. *Journal of Child and Adolescent Psychopharmacology*, *14*(2), 273–286. https://doi.org/10.1089/1044546041649002

Canadian Psychiatric Association. (2006). Clinical practice guidelines. Management of anxiety disorders. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, *51*(8 Suppl 2), 9S.

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia: A retrospective study of the course of social phobia in a nonclinical population. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social Phobia: diagnosis, assessment, and treatment* (pp. 113–121). Guilford Press.

Cohen, G. L., Aronson, J., & Steele, C. M. (2000). When beliefs yield to evidence: Reducing biased evaluation by affirming the self. *Personality and Social Psychology Bulletin*, *26*(9), 1151–1164. https://doi.org/10.1177/01461672002611011

Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. *Science*, *324*(5925), 400–403. https://doi.org/10.1126/science.1170769

Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology*, *65*(1), 333–371. https://doi.org/10.1146/annurev-psych-010213-115137

Connor, K. M., Davidson, J.R.T., Churchill, E., Sherwood, A., Weisler, R. H., & Foa, E. (2000). Psychometric properties of the Social Phobia Inventory (SPIN): New self-rating scale. *The British Journal of Psychiatry*, *176*(4), 379–386. https://doi.org/10.1192/bjp.176.4.379

Corbu, A., Peláez Zuberbühler, M. J., & Salanova, M. (2021). Positive Psychology Micro-Coaching Intervention: Effects on Psychological Capital and Goal-Related Self-Efficacy. *Frontiers in Psychology, 12*, 566293. https://doi.org/10.3389/fpsyg.2021.566293

Craske, M. G., Kircanski, K., Zelikowsky, M., Mystkowski, J., Chowdhury, N., & Baker, A. (2008). Optimizing inhibitory learning during exposure therapy. *Behaviour Research and Therapy*, *46*(1), 5–27. https://doi.org/10.1016/j.brat.2007.10.003

Creswell, J. D., Dutcher, J. M., Klein, W.M.P., Harris, P. R., & Levine, J. M. (2013). Self-affirmation improves problem-solving under stress. *PLoS ONE*, *8*(5), e62593. https://doi.org/10.1371/journal.pone.0062593

Creswell, J. D., Welch, W. T., Taylor, S. E., Sherman, D. K., Gruenewald, T. L., & Mann, T. (2005). Affirmation of personal values buffers neuroendocrine and psychological stress responses. *Psychological Science*, *16*(11), 846–851. https://doi.org/10.1111/j.1467-9280.2005.01624.x

Critcher, C. R., & Dunning, D. (2015). Self-affirmations provide a broader perspective on self-threat. *Personality and Social Psychology Bulletin*, *41*(1), 3–18. https://doi.org/10.1177/0146167214554956

Dickerson, S. S., & Kemeny, M. E. (2002). Acute stressors and cortisol reactivity: A meta-analytic review. *Psychosomatic Medicine*, *64*(1), 105–105.

Düring, C., & Jessop, D. C. (2015). The moderating impact of self-esteem on self-affirmation effects. *British Journal of Health Psychology*, *20*(2), 274–289. https://doi.org/10.1111/bjhp.12097

Epton, T., Harris, P. R., Kane, R., van Koningsbruggen, G. M., & Sheeran, P. (2015). The impact of self-affirmation on health-behavior change: A meta-analysis. *Health Psychology*, *34*(3), 187–196. https://doi.org/10.1037/hea0000116.

Gallego, A., McHugh, L., Villatte, M., & Lappalainen, R. (2020). Examining the relationship between public speaking anxiety, distress tolerance and psychological flexibility. *Journal of Contextual Behavioral Science*, *16*, 128–133. https://doi.org/10.1016/j.jcbs.2020.04.003

Ganley, C. M., & Vasilyeva, M. (2014). The role of anxiety and working memory in gender differences in mathematics. *Journal of Educational Psychology*, *106*(1), 105–120. https://doi.org/10.1037/a0034099

Ghaedi, G. H., Tavoli, A., Bakhtiari, M., Melyani, M., & Sahragard, M. (2009). Quality of life in college students with and without social phobia. *Social Indicators Research*, *97*(2), 247–256. https://doi.org/10.1007/s11205-009-9500-3

Gilbert, P. (2014). Evolutionary models: Practical and conceptual utility for the treatment and study of social anxiety disorder. In Weeks, J. (2014). *The Wiley Blackwell Handbook of Social Anxiety Disorder* (pp. 24–52). Retrieved from https://ebookcentral.proquest.com/lib/[SITE_ID]/detail.action?docID=1643810

Goyer, J. P., Garcia, J., Purdie-Vaughns, V., Binning, K. R., Cook, J. E., Reeves, S. L., Apfel, N., Taborsky-Barba, S., Sherman, D. K., & Cohen, G. L. (2017). Self-affirmation facilitates minority middle schoolers' progress along college trajectories. *Proceedings of the National Academy of Sciences*, *114*(29), 7594–7599. https://doi.org/10.1073/pnas.1617923114

Gültekin, B. K., & Dereboy, I. F. (2011). The prevalence of social phobia, and its impact on the quality of life, academic achievement, and identity formation in university students. *Turkish Journal of Psychiatry*, *22*(3), 150–158.

Hall, C. C., Zhao, J., & Shafir, E. (2014). Self-affirmation among the poor: Cognitive and behavioral implications. *Psychological Science*, *25*(2), 619–625. https://doi.org/10.1177/0956797613510949

Harris, P. S., Harris, P. R., & Miles, E. (2017). Self-affirmation improves performance on tasks related to executive functioning. *Journal of Experimental Social Psychology*, *70*, 281–285. https://doi.org/10.1016/j.jesp.2016.11.011

Heidrich, C., & Chiviacowsky, S. (2015). Stereotype threat affects the learning of sport motor skills. *Psychology of Sport and Exercise*, *18*, 42–46. https://doi.org/10.1016/j.psychsport.2014.12.002

Heimberg, R. G., Stein, M. B., Hiripi, E., & Kessler, R. C. (2000). Trends in the prevalence of social phobia in the United States: A synthetic cohort analysis of changes over four decades. *European Psychiatry*, *15*(1), 29–37. https://doi.org/10.1016/S0924-9338(00)00213-3

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of*

Consulting and Clinical Psychology, 59(1), 12–19. https://doi.org/10.1037/0022-006X.59.1.12

Jaremka, L. M., Bunyan, D. P., Collins, N. L., & Sherman, D. K. (2011). Reducing defensive distancing: Self-affirmation and risk regulation in response to relationship threats. *Journal of Experimental Social Psychology*, *47*(1), 264–268. https://doi.org/10.1016/j.jesp.2010.08.015

Katzman, M., Bleau, P., Blier, P., Chokka, P., Kjernisted, K., Van Ameringen, M., & the Canadian Anxiety Guidelines Initiative Group on behalf of the Anxiety Disorders Association of Canada/Association Canadienne des troubles anxieux and McGill University. (2014). Canadian clinical practice guidelines for the management of anxiety, posttraumatic stress and obsessive-compulsive disorders. *BMC Psychiatry*, *14 Suppl 1*(Suppl 1), S1–S1. https://doi.org/10.1186/1471-244X-14-S1-S1

Kessels, L.T.E., Harris, P. R., Ruiter, R.A.C., & Klein, W.M.P. (2016). Attentional effects of self-affirmation in response to graphic antismoking images. *Health Psychology*, *35*(8), 891–897. https://doi.org/10.1037/hea0000366

Kirschbaum, C., Pirke, K. M., & Hellhammer, D. H. (1993). The Trier Social Stress Test — A tool for investigating psychobiological stress responses in a laboratory setting. *Neuropsychobiology*, *28*(1–2), 76–81.

Klein, & Harris, P. R. (2009). Self-Affirmation Enhances Attentional Bias Toward Threatening Components of a Persuasive Message. *Psychological Science, 20*(12), 1463–1467. https://doi.org/10.1111/j.1467-9280.2009.02467.x

Kocovski, N. L., Fleming, J. E., Hawley, L. L., Huta, V., & Antony, M. M. (2013). Mindfulness and acceptance-based group therapy versus traditional cognitive behavioral group therapy for social anxiety disorder: A randomized controlled trial. *Behaviour Research and Therapy*, *51*, 889–898. http://dx.doi.org/10.1016/j.brat.2013.10.007

Lakuta, P. (2020). Using the theory of self-affirmation and self-regulation strategies of mental contrasting and forming implementation intentions to reduce social anxiety symptoms. *Anxiety, Stress, & Coping*, *33*(4), 379–386. https://doi.org/10.1080/10615806.2020.1746283

Landers, R. (2015). Computing intraclass correlations (ICC) as estimates of interrater reliability in SPSS. *The Winnower*.

Leeuwerik, T., Cavanagh, K., & Strauss, C. (2019). Patient adherence to cognitive behavioural therapy for obsessive-compulsive disorder: A systematic review and meta-analysis. *Journal of Anxiety Disorders*, *68*, https://doi.org/10.1016/j .janxdis.2019.102135

Lincoln, T. M., Rief, W., Hahlweg, K., Frank, M., Witzleben, I. von, Schroeder, B., & Fiegenbaum, W. (2005). Who comes, who stays, who profits? Predicting refusal, dropout, success, and relapse in a short intervention for social phobia. *Psychotherapy Research*, *15*(3), 210–225. https://doi.org/10.1080/10503300512331387834

Logel, C., & Cohen, G. L. (2012). The role of the self in physical health: Testing the effect of a values-affirmation intervention on weight loss. *Psychological Science*, *23*(1), 53–55. https://doi.org/10.1177/0956797611421936

Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M. (2006). Psychological capital development: toward a micro-intervention. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and*

Organizational Psychology and Behavior, 27(3), 387–393. https://doi.org/10.1002/job.373

Mayo-Wilson, E., Dias, S., Mavranezouli, I., Kew, K., Clark, D., Ades, A., & Pilling, S. (2014). Psychological and pharmacological interventions for social anxiety disorder in adults: A systematic review and network meta-analysis. *Lancet Psychiatry*, *The*, *1*(5), 368–376. https://doi.org/10.1016/S2215-0366(14)70329-3

McGinn, L. K., & Newman, M. G. (2013). Status update on social anxiety disorder. *International Journal of Cognitive Therapy*, *6*(2), 88–113. https://doi.org/10.1521/ijct.2013.6.2.88

McQueen, A., & Klein, W.M.P. (2006). Experimental manipulations of self-affirmation: A systematic review. *Self and Identity*, *5*(4), 289–354. https://doi.org/10.1080/15298860600805325

Moscovitch, D. A., & Hofmann, S. G. (2006). When ambiguity hurts: Social standards moderate self-appraisals in generalized social phobia. *Behaviour Research and Therapy*, *45*(5), 1039–1052. https://doi.org/10.1016/j.brat.2006.07.008

Napper, L., Harris, P. R., & Epton, T. (2009). Developing and testing a self-affirmation manipulation. *Self and Identity*, *8*(1), 45–62. https://doi.org/10.1080/15298860802079786

Niekerk, R., Klein, A., Allart-van Dam, E., Hudson, J., Rinck, M., Hutschemaekers, G., & Becker, E. (2017). The role of cognitive factors in childhood social anxiety: Social threat thoughts and social skills perception. *Cognitive Therapy and Research*, *41*(3), 489–497. https://doi.org/10.1007/s10608-016-9821-x

O'Brien, K. (2017). *Self-affirmation and social anxiety: Affirming values reduces anxiety and avoidance*. [Doctoral dissertation, University of Manitoba]. MSpace. https://mspace.lib.umanitoba.ca/handle/1993/32498

Osório, F. L., Crippa, J.A.S., & Loureiro, S. R. (2010). Evaluation of the psychometric properties of the Social Phobia Inventory in university students. *Comprehensive Psychiatry*, *51*(6), 630–640. https://doi.org/10.1016/j.comppsych.2010.03.004

Ormel, J., Petukhova, M., Chatterji, S., Aguilar-Gaxiola, S., Alonso, J., Angermeyer, M. C., Bromet, E. J., Burger, H., Demyttenaere, K., de Girolamo, G., Haro, J. M., Hwang, Karam, E., Kawakami, N., Lépine, J. P., Medina-Mora, M. E., Posada-Villa, J., Sampson, N., Scott, K., Bedirhan Üstün, T., . . . Kessler, R. C. (2008). Disability and treatment of specific mental and physical disorders across the world. *The British Journal of Psychiatry*, *192*(5), 368–375. https://doi.org/10.1192/bjp.bp.107.039107

Price, M., & Anderson, P. L. (2011). Latent growth curve analysis of fear during a speech task before and after treatment for social phobia. *Behaviour Research and Therapy*, *49*(11), 763–770. https://doi.org/10.1016/j.brat.2011.08.004

Ranta, K., Kaltiala-Heino, R., Rantanen, P., Tuomisto, M. T., & Marttunen, M. (2007). Screening social phobia in adolescents from general population: The validity of the Social Phobia Inventory (SPIN) against a clinical interview. *European Psychiatry*, *22*(4), 244–251. https://doi.org/10.1016/j.eurpsy.2006.12.002

Rapee, R. M., & Heimberg, R. G. (1997). A cognitive-behavioral model of anxiety in social phobia. *Behaviour Research and Therapy, 35*, 741–756. https:// doi: 10.1016/s0005-7967(97)00022-3. PMID: 9256517

Rodebaugh, T. L., & Shumaker, E. A. (2012). Avoidance goals for a specific social situation influence activated negative and positive affect. *Cognitive Therapy and Research*, *36*(1), 36–46. https://doi.org/10.1007/s10608-010-9313-3

Rydell, R. J., Rydell, M. T., & Boucher, K. L. (2010). The effect of negative performance stereotypes on learning. *Journal of Personality and Social Psychology*, *99*(6), 883–896. https://doi.org/10.1037/a0021139

Schimel, J., Arndt, J., Banko, K. M., & Cook, A. (2004). Not all self-affirmations were created equal: The cognitive and social benefit of affirming the intrinsic (vs extrinsic) self. *Social Cognition*, *22*(1), 75–99. https://doi.org/10.1521/soco.22.1.75.30984

Schmader, T., & Johns, M. (2003). Converging evidence that stereotype threat reduces working memory capacity. *Journal of Personality and Social Psychology*, *85*(3), 440–452. https://doi.org/10.1037/0022-3514.85.3.440

Schmidt, L. A., Santesso, D. L., Miskovic, V., Mathewson, K. J., McCabe, R. E., Antony, M. M., & Moscovitch, D. A. (2012). Test–retest reliability of regional electroencephalogram (EEG) and cardiovascular measures in social anxiety disorder (SAD). *International Journal of Psychophysiology*, *84*(1), 65–73. https://doi.org/10.1016/j.ijpsycho.2012.01.011

Schneier, F. R., Bruce, L. C., & Heimberg, R. G. (2014). Social anxiety disorder (Social phobia). In *Gabbard's Treatments of Psychiatric Disorders* (Vol. 1–0). American Psychiatric Publishing. https://doi.org/10.1176/appi.books.9781585625048.gg18

Sereno, K. Walter, N., & Brooks, J. J. (2020). Rethinking student participation in the college classroom: Can commitment and self-affirmation enhance oral participation? *Journal of Applied Social Psychology*, *50*(6), 351–362. https://doi.org/10.1111/jasp.12664

Sherman, D. K. (2013). Self-affirmation: Understanding the effects. *Social and Personality Psychology Compass*, *7*(11), 834– 845. https://doi.org/10.1111/spc3.12072

Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. 183–242). Elsevier Academic Press.

Sherman, D. K., & Hartson, K. A. (2011). Reconciling self-protection with self-improvement: Self-affirmation theory. In M. D. Alicke & C. Sedekides (Eds.), *Handbook of Self-Enhancement and Self-Protection* (pp. 128–151). Guilford Press.

Sherman, D. K., Hartson, K. A., Binning, K. R., Purdie-Vaughns, V., Garcia, J., Taborsky-Barba, S., Tomassetti, S., Nussbaum, A. D., & Cohen, G. L. (2013). Deflecting the trajectory and changing the narrative: How self-affirmation affects academic performance and motivation under identity threat. *Journal of Personality and Social Psychology*, *104*(4), 591–618. http://doi.org/10.1037/a0031495

Shin, K., & Newman, M. (2019). Self- and other-perceptions of interpersonal problems: Effects of generalized anxiety, social anxiety, and depression. *Journal of Anxiety Disorders*, *65*, 1–10. https://doi.org/10.1016/j.janxdis.2019.04.005

Stinson, D. A., Logel, C., Shepherd, S., & Zanna, M. P. (2011). Rewriting the self-fulfilling prophecy of social rejection: Self-affirmation improves relational

security and social behavior up to 2 months later. *Psychological Science*, *22*(9), 1145–1149. https://doi.org/10.1177/0956797611417725

Taylor, S., Abramowitz, J. S., & McKay, D. (2012). Non-adherence and non-response in the treatment of anxiety disorders. *Journal of anxiety disorders*, *26*(5), 583–589. https://doi.org/10.1016/j.janxdis.2012.02.010

Taylor, V. J., & Walton, G. M. (2011). Stereotype threat undermines academic learning. *Personality and Social Psychology Bulletin*, *37*(8), 1055–1067. https://doi.org/10.1177/0146167211406506

Tulbure, B. T., Szentagotai, A., Dobrean, A., & David, D. (2012). Evidence based clinical assessment of child and adolescent social phobia: A critical review of rating scales. *Child Psychiatry & Human Development*, *43*(5), 795–820. https://doi.org/10.1007/s10578-012-0297-y

von Dawans, B., Kirschbaum, C., & Heinrichs, M. (2011). The Trier Social Stress Test for Groups (TSST-G): A new research tool for controlled simultaneous social stress exposure in a group format. *Psychoneuroendocrinology*, *36*(4), 514–522. https://doi.org/10.1016/j.psyneuen.2010.08.004

von Hippel, C., Wiryakusuma, C., Bowden, J., & Shochet, M. (2011). Stereotype threat and female communication styles. *Personality and Social Psychology Bulletin*, *37*(10), 1312–1324. https://doi.org/10.1177/0146167211410439

Wolpe, J. (1988). Subjective anxiety scale. In M. Hersen & A. S. Bellack (Eds.), *Dictionary of behavioral assessment techniques* (pp. 455–457). Pergamon.