Nobody's Perfect! The Effect of Manipulating Perfectionism on Social Anxiety Symptoms

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PERFECTIONISM AND SOCIAL ANXIETY SYMPTOMS

Nobody’s Perfect! The Effect of Manipulating Perfectionism on Social Anxiety Symptoms

Anishka Jean

Master’s thesis presented to the
Eberly College of Arts and Sciences at West Virginia University
in partial fulfillment of the requirement of the degree of
Master of Science in Psychology

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PERFECTIONISM AND SOCIAL ANXIETY SYMPTOMS

Abstract

Nobody’s Perfect! The Effect of Manipulating Perfectionism on Social Anxiety Symptoms

Anishka Jean

Social anxiety is a common experience that ranges from mild, temporary distress to excessive, persistent, and impairing fear. The current study tested whether perfectionism is causally related to social anxiety symptoms and post-event processing using a contract-based manipulation to shift perfectionism. Participants (N = 67) completed measures of social anxiety and perfectionism prior to delivering a speech. Next, participants were randomly assigned to 1 of 3 contract conditions: High Personal Standards (High PS), High Personal Standards with Evaluative Concerns (High PS+EC), and Low Personal Standards (Low PS). The following day, participants completed the measures of social anxiety and perfectionism again, as well as a questionnaire on post-event processing related to the speech. In line with hypotheses, results suggest that the contract manipulation significantly altered perfectionism, such that participants in the High PS+EC condition (but not the other two conditions) had an increase in perfectionism over time. Contrary to expectations, the contract manipulation did not affect social anxiety symptoms or post-event processing. Results suggest that focusing on evaluation concerns, rather than personal standards alone, may cause perfectionism. It is possible that a stronger manipulation, or a larger dose of the manipulation, is needed to see effects on social anxiety symptoms.
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Nobody’s Perfect! The Effect of Manipulating Perfectionism on Social Anxiety Symptoms

Social anxiety is a common experience that ranges from mild, temporary distress to excessive, persistent, and impairing fear (Rapee, 1995). Social anxiety disorder (SAD) is one of the most common anxiety disorders with over 15 million Americans being diagnosed in 2020 (Anxiety and Depression Association of America, 2020). SAD has a higher prevalence rate for women compared to men (Asher & Aderka, 2018). SAD is characterized by a strong fear of negative evaluation in social situations (American Psychiatric Association, 2013). In feared situations, individuals with social anxiety tend to be self-critical and self-conscious, and often experience physical symptoms of anxiety, such as trembling and heart palpitations (Heimberg et al., 1995; Knappe et al., 2011). This heightened fear leads people to avoid social situations, which results in interference with one’s daily routine and functioning (Rapee, 1995). Of note, SAD symptoms are on a continuum, and even those who do not meet diagnostic criteria can experience distress and impairment from their social anxiety symptoms.

Cognitive models of social anxiety highlight the importance of cognitive processing and beliefs (e.g., Clark & Wells, 1995). For instance, unconditional beliefs about oneself (“I am stupid”), perfectionistic standards for social performance (“I must not let anyone see I am anxious”), and beliefs about the consequences of social failure (“If someone does not like me, it must be my fault”) contribute to the etiology and maintenance of social anxiety (Clark & Wells, 1995). These beliefs may lead individuals with social anxiety to engage in behaviors designed to reduce potential negative evaluation (e.g., avoid social situations, rehearse what to say ahead of time), which consequently could preclude their ability to learn that what they fear does not actually occur (Norton & Abbott, 2016; Rapee & Heimberg, 1997). Perfectionistic standards that socially anxious individuals place on themselves could generate anxiety because the goals placed
on social performance are arduous, or even impossible, to achieve. Therefore, individuals with social anxiety are afraid of failure in social situations.

**Perfectionism and Social Anxiety**

Perfectionism is defined as setting high expectations and standards for oneself and others, with an emphasis on being flawless (American Psychiatric Association, 2013). Perfectionism has a higher prevalence rate among women compared to men (Sand et al., 2021; Uz Baş, 2011). Perfectionism has been described as a personality trait, but research indicates that perfectionism can also be changed temporarily due to situational conditions (Egan, Wade, & Shafran, 2011; Egan, Wade, & Shafran, 2012; Saboonchi & Lundh, 1999). Perfectionism is considered a multidimensional construct (Dunkley et al., 2000; Flett & Hewitt, 2014; Stoeber & Otto, 2006). Hamacheck (1978) argued that perfectionism may include both negative tendencies, and positive striving tendencies that may be adaptive. Similarly, modern theories of perfectionism differentiate two components of perfectionism: ‘Personal Standards’ (PS) perfectionism and ‘Evaluative Concerns’ (EC) perfectionism (Frost et al., 1993; Stoeber & Otto, 2006). PS perfectionism is defined as setting high standards and goals for oneself, whereas EC perfectionism involves overly critical evaluations of one’s own behavior, an inability to feel satisfaction following a successful performance, and major concerns about other people’s criticism and expectations (Blankstein & Dunkley, 2002; Dunkley et al., 2006; Dunkley et al., 2000). PS perfectionists tend to set high but attainable standards for themselves, and are able to obtain pleasure from their attempts to pursue those standards. EC perfectionists however, set unattainable and unrealistic standards, leaving them unsatisfied with their performance (Dunkley et al., 2012; Frost et al., 1993; Suddarth & Slaney, 2001).
Perfectionists place emphasis on performance, are highly sensitive to rejection, and are excessively concerned about approval from others, all of which are characteristics that overlap with SAD (Clark & Wells, 1995; Hamacheck, 1978). Perfectionism acts as a risk factor for the development and maintenance of SAD (Cox & Chen, 2015; Egan et al., 2011). Previous studies have found EC perfectionists are particularly at risk for developing SAD. For instance, Abdollahi (2019) suggest that EC perfectionists are more likely to ruminate and experience social anxiety, compared to PS perfectionists. In addition, a combination of low PS and high EC perfectionism has been found to predict high levels of social anxiety symptoms (Levinson et al., 2015).

Although theories suggest that perfectionism is a causal mechanism for SAD, there is not any research utilizing an experimental design that demonstrates this causal relationship (Shumaker & Rodebaugh, 2009).

To our knowledge, no study has directly manipulated perfectionism and assessed the effect on SAD symptoms. Boone and colleagues (2012) investigated the effect of manipulating perfectionism on eating disorder (ED) symptoms. To manipulate perfectionism, participants worked with research personnel to create a contract that they would follow for the next 24 hr. The contract instructed participants to perform everything they do for the next 24 hr to 1 of 3 standard levels: 1) high standards (High PS Condition); 2) high standards and avoid failure and disappointing others (High PS + EC Condition); and 3) low standards and keep expectations relaxed (Low PS Condition). Participants were then asked to reflect on life experiences where they would have high expectations for themselves. Twenty-four hours later, participants filled out questionnaires on perfectionism and ED symptoms, and were asked to what extent they followed their contract.¹ Participants in the High PS and High PS + EC conditions reported

¹ Boone et al. (2012) did not report findings on contract adherence in the results section of their study.
higher perfectionism and ED symptoms compared to the Low PS condition. These results demonstrate that perfectionism can be manipulated, and that this manipulation can affect psychopathology symptoms.

**Post-event processing**

Post-event processing (PEP) is defined as the process of engaging in a detailed review of one’s performance after a social situation, typically in a critical and negative way (Shikatani et al., 2014). PEP is a key maintenance factor for SAD (Clark & Wells, 1995; Shikatani et al., 2014). Perfectionism is a significant predictor of PEP (Brown & Kocovski, 2014; Clark & Wells, 1995; Shikatani et al., 2014). To our knowledge, however, no experimental study has assessed the relationship between perfectionism and PEP in the etiology and maintenance of social anxiety symptoms. Cox and Chen (2015) used structural equation modeling (SEM) to assess relationships between perfectionism, social anxiety, and PEP. They found that perfectionism directly influences social anxiety, and indirectly influences PEP via its relationship with social anxiety and state anxiety. These findings highlight how perfectionism contributes to social anxiety and its cognitive processes (e.g., PEP).

**The present study**

The current study aims to replicate previous research demonstrating that perfectionism can be manipulated using the contract-based manipulation (Boone et al., 2012). To test the causal claim that perfectionistic beliefs cause SAD symptoms, we tested if, 24 hr later, shifts in perfectionism affect social anxiety symptoms and PEP. Since social anxiety research that utilizes non-clinical populations can be used to inform future research of clinical populations (Cox & Chen, 2015; Rapee & Heimberg, 1997), the present study used an unselected undergraduate student sample to obtain a range of SAD symptomatology. Specifically, we recruited 67
undergraduates and randomly assigned them to 1 of 3 contract-based conditions: 1) High PS, 2) High PS + EC, or 3) Low PS. We hypothesized that compared to participants in the Low PS condition, participants assigned to the High PS and the High PS + EC conditions would report larger increases in perfectionism. However, we hypothesized that increases in social anxiety and PEP would only be shown in the High PS + EC condition, given that evaluation concerns are a key feature of SAD. We did not have any specific hypotheses for change from baseline to post-manipulation for the Low PS condition.

Method

Participants

Sixty-eight participants consented to participate in the study, but one dropped out prior to random assignment to condition and was not included in analyses. Of the sixty-seven participants, 65.7% (n = 44) identified as cisgender female, 25.4% (n = 17) identified as cisgender male, 6% (n = 4) identified as nonbinary, and 3% (n = 2) identified as other (see Table 1). The average age was 24.06 years (range: 18 - 49, SD = 6.64). Additionally, 7.5% (n = 5) of participants identified as Black, African American, or Caribbean American, 10.4% (n = 7) identified as Hispanic or Latine, 1.5% (n = 1) identified as Native American or American Indian, 19.4% (n = 13) identified as Asian or Pacific Islander, 70.1% (n = 47) identified as White, and 1.5% (n = 1) identified as other.2 Regarding education level, 13.4% (n = 9) of participants obtained a high school degree, 34.3% (n = 23) attended college but have not earned a degree, 3% (n = 2) earned an associates degree, 28.4% (n = 19) earned a bachelor’s degree, 14.9% (n = 10) earned a masters degree, 4.5% (n = 3) earned a doctoral degree, and 1.5% (n = 1) earned a professional degree. Participants were recruited from West Virginia University (WVU) through

2 Some participants identified as multi-ethnic, selecting multiple categories for race and ethnicity.
emails sent to university community. We used an unselected sample to increase variability of the sample. All participants were able to read and write in English.

**Measures**

All measures are provided in Appendix A.

*Brief Fear of Negative Evaluation Scale* (BFNE; Leary, 1983)

The BFNE is a 12-item self-report measure assessing fear related to negative evaluation from others. Items are rated on a 5-point Likert scale ranging from 1 (*Not at all characteristic of me*) to 5 (*Extremely characteristic of me*). Total scores range from 12 to 60, with higher scores indicating higher levels of fear of negative evaluation. In the current study, the BFNE demonstrated excellent internal consistency, with an alpha coefficient of .89. In the current study, the BFNE scale was used to assess change in fear of negative evaluation from pre-to-post manipulation. For the post-manipulation administration of the BFNE, we modified instructions to include “in the past 24 hours.”

*Frost Multidimensional Perfectionism Questionnaire* (FMPS; Frost et al., 1990)

The FMPS is a 35-item, self-report measure that assesses perfectionism across six dimensions collapsed into four subscales: 1) personal standards, 2) concern over mistakes and doubts about actions, 3) parental expectations and parental criticism, and 4) organization. Items are rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). In the current study, the FMPS questionnaire was used to assess perfectionism. For the post-manipulation administration of the FMPS, we modified instructions to include “in the past 24 hours (as done in Boone et al., 2012), to assess change in perfectionism following the experimental manipulation. In the current study, the FMPS had good internal consistency, with alpha coefficients ranging from .77 to .93.
**Post-Event Processing Questionnaire-Revised** (PEPQ-R; McEvoy & Kingsep, 2006)

The PEPQ-R is a 9-item questionnaire assessing PEP following a social situation within the last couple of months. Items are rated on a 100-point visual analog scale (VAS), ranging from 0 (*not at all*) to 100 (*totally agree*). In the current study, the PEPQ-R was used to measure levels of PEP 24-hours after a speech task, and to assess if the contract-based manipulation lead to differences in PEP across conditions. In the current study, the PEPQ-R demonstrated excellent internal reliability, with an alpha coefficient of .87.

**Procedure**

The current online study took place over 2 sessions (24 hours apart) via Zoom and REDCap (Harris et al., 2009). The first session included a pre-manipulation assessment, speech task, the experimental manipulation. The second session (approximately 24 hours later) included the post-manipulation assessment. See Figure 1 for diagram of procedure.

The pre-manipulation assessment began with consent via Zoom. During the consenting process, participants were told that the purpose of the study was to assess various social situations and complete tasks related to varying standards. Next, participants completed a battery of assessments via REDCap, including demographic variables (e.g., age, gender identity race/ethnicity, parental education), and social anxiety (BFNE), and perfectionism (FMPS). Following the pre-manipulation assessment, participants were instructed to give an impromptu 3-minute speech on why they should be hired without prior preparation to assess speech related PEP in the post-manipulation assessment, as previous research has demonstrated that job-hiring inquiries are highly anxiety provoking (Kocovski et al., 2011). To heighten anxiety, the speech was recorded over Zoom, the researcher maintained a neutral expression, and participants were
informed that a different researcher would evaluate their speech performance following the session.

The experimental manipulation occurred immediately after the speech task and lasted approximately 30 min. Participants were randomly assigned to one of three experimental conditions using block randomization via Research Randomizer with 11 sets of numbers and six numbers per set, ranging from 1-6 for condition assignment: 1) High PS ($n = 22$), 2) High PS + EC ($n = 22$), or 3) Low PS ($n = 23$) (Urbaniak & Plous, 2013). The experimenter provided each participant with a standardized explanation of the content of the contract, following a script from Boone and colleagues (2012; see Appendix B). The script used in Boone et al. (2012) was directly translated from Dutch with slight modifications to make grammatical sense in English. Participants were told to follow the contract for the following 24-hours. Depending on the condition, participants were instructed to either (a) set and strive for high standards (High PS), (b) to set high standards while being cognizant of avoiding the disappointment or disapproval of oneself and others (High PS + EC), or (c) to set low personal standards and to adopt a relaxed orientation towards one’s standards (Low PS). After going through the contract, participants were asked to reflect on the life domains in which they have found it very important to perform well and in which they have placed high expectations for themselves. Participants were also asked to list a minimum of three examples in which they find they have high expectations for themselves directly on the contract. Before the session ended, participants were asked to summarize what the contract included and what they were being asked to do, to ensure that they remembered the instructions. Participants were sent email reminders approximately 2 hours after the first session reminding them to adhere to the contract between sessions.
Twenty-four hours after the first session, participants completed the post-assessment via REDCap. Participants filled out the BFNE and FMPS again (with modified wording—“In the past 24 hours”) and the PEPQ-R to assess PEP related to the speech task they completed the previous day. Additionally, participants were asked to what extent they followed the contract (“To what extent did you follow the contract for the past 24 hours after signing?”), and how well they did on each task (“How well did you do each of the tasks you listed on the contract?”). Participants rated their responses to the contract adherence questions on a 0-100 VAS (e.g., 0 = not at all; 100 = completely). Participants were then debriefed on the purpose of the study and received a $20 prepaid debit card upon completion.

Results

Preliminary Analyses

All assessment instruments were scored according to the publisher’s scoring instructions. We also evaluated the internal consistency for each questionnaire. All data were normal (e.g., all skew < |2| and all kurtosis < |4|) and there were no extreme outliers. The preliminary analyses conducted verified that the assumptions for analyses were met.

We assessed differences in baseline variables across conditions. There were no differences across conditions for baseline levels of perfectionism, as assessed by the FMPS ($F(2, 64) = .154, p = .857, \eta^2_p = .005$) or social anxiety, as assessed by the BFNE ($F(2, 64) = 1.34, p = .27, \eta^2_p = .04$). For demographic variables, univariate ANOVAs (for continuous variables) and chi-square tests of independence (for categorical variables) revealed that there were no differences across conditions for age ($F(2, 64) = 3.124, p = .051, \eta^2_p = .09$), gender ($\chi^2 (6) = 3.15, p = .789, r = .217$), race or ethnicity ($\chi^2 (6) = 3.035, p = .219, r = .21$), or education level ($\chi^2 (6) = .558, p = .756, r = .09$). Two univariate ANOVAs revealed that there were no
significant differences across conditions for contract adherence ($F(2, 64) = .650, p = .526, \eta_p^2 = .02$) or for how much effort was put into each task ($F(2, 64) = 3.09, p = .052, \eta_p^2 = .088$).

**Primary Analyses**

Two repeated measures ANOVAs with one within-subjects variable (Time: Pre-manipulation, Post-manipulation) and one between-subjects variable (Condition: High PS, High PS + EC, Low PS) were conducted to assess Condition effects on perfectionism (as assessed by FMPS) and social anxiety (as assessed by BFNE). In line with hypotheses, results suggest that the contract manipulation significantly altered perfectionism ($F(2, 64) = 5.12, p = .009, \eta_p^2 = .14$). Specifically, participants in the High PS + EC condition had an increase in perfectionism over time ($t(21) = 3.24, p = .004, d = .42$). Participants in the other two conditions (High PS, Low PS) did not report a change in perfectionism over time ($t(21) = .637, p = .531, d = .07$ (High PS)); ($t(21) = .602, p = .553, d = .08$ (Low PS)) (see Figure 2). Contrary to expectations, the contract manipulation did not affect social anxiety symptoms ($F(2, 64) = 1.55, p = .220, \eta_p^2 = .05$).

A univariate ANOVA with one between-subjects variable (Condition: High PS, High PS + EC, Low PS) was conducted to assess Condition effect on PEP (as assessed by PEPQ-R). Contrary to expectations, the contract manipulation did not affect PEP ($F(2, 64) = .47, p = .624, \eta_p^2 = .02$).

To assess if the contract manipulation had an effect on social anxiety or PEP for participants with higher baseline levels of social anxiety, we re-ran all analyses among a subsample of participants ($n = 34$) that had a BFNE score above 42.275, which was half a standard deviation below the mean of previous clinical samples (see Table 1) (Weeks et al., 2005). The pattern of results did not change in this highly anxious subsample.

**Exploratory Analyses**
PERFECTIONISM AND SOCIAL ANXIETY SYMPTOMS

We conducted a Pearson correlation matrix with the full sample to assess relationships between the variables (see Table 2). As expected, BFNE at baseline is correlated with FMPS at baseline, BFNE at follow-up, and FMPS at follow-up (all \( p < .05 \)). In addition, PEPQ-R is correlated with FMPS at baseline and follow-up, and BFNE at follow-up (\( p < .05 \)).

To assess whether each FMPS subscale changed over time, we compared the four FMPS subscales (concern over mistakes and doubts about actions, parental expectations and criticism, personal standards, and organization). There were significant time by condition interactions for parental expectations and criticism (\( F(2, 64) = 4.147, \ p = .02, \ \eta^2_p = .115 \)) and organization (\( F(2, 64) = 3.154, \ p = .049, \ \eta^2_p = .09 \)) subscales. Follow-up paired sample t-tests were conducted to assess whether each condition changed over time for each subscale. For the parental expectations and criticism subscale, the High PS + EC condition had a significant increase over time (\( t(21) = 2.14, \ p = .044, \ d = .93 \)). The High PS condition and Low PS conditions, however, did not show a significant change over time (both \( p \geq .178 \)). For the organization subscale, the Low PS group had a significant decrease over time (\( t(22) = 2.70, \ p = .013, \ d = 1.15 \)). The High PS and High PS + EC conditions did not show a significant change over time, however (both \( p \geq .051 \)) (see Figure 3).

We also conducted univariate ANOVAs to assess gender differences in social anxiety symptoms and perfectionism. Results revealed significant differences in social anxiety symptoms between genders, (\( F(2, 64) = 3.879, \ p = .026, \ \eta^2_p = .108 \)). Post hoc LSD tests revealed that cisgender men had lower rates of social anxiety symptoms at baseline compared to cisgender women (\( p = .008, \ r = .78 \)), but not compared to other or nonbinary individuals (\( p = .096, \ r = .94 \)). Cisgender females did not differ from other or nonbinary individuals (\( p = .960, \ r = .02 \)).
were no significant gender differences for perfectionism at baseline ($F(2,64) = 1.194, p = .310, \eta_p^2 = .036$).

There was no differential attrition across conditions. Only one participant dropped out of the study, and it was prior to randomization.

**Discussion**

The aim of this study was to test whether perfectionism could be shifted using a contract-based manipulation of perfectionism (as done in Boone et al., 2012), and whether a causal relationship exists between perfectionism and social anxiety symptoms. This study also tested whether shifts in perfectionism affect PEP. Consistent with our hypotheses, the contract manipulation significantly affected perfectionism in the High PS + EC condition, but contrary to hypotheses, perfectionism was not altered in the High PS or Low PS conditions. The contract manipulation did not affect symptoms of social anxiety or PEP.

**Changes in perfectionism.**

The contract-based manipulation successfully altered perfectionism, but only in the High PS + EC condition. This suggests that focusing on EC, rather than PS alone, may be necessary to shift perfectionism. Relatedly, two studies have demonstrated that EC was more strongly related to perfectionism than PS (Dunkley et al., 2003; Frost & Steketee, 1997). Similarly, Van der Kaap-Deeder and colleagues (2016) found that individuals who have high levels of EC are at greater risk for ruminating about failure and not accepting failure, suggesting that their self-worth may be contingent on achievements and failures (DiBartolo et al., 2004). Regarding the Low PS and High PS conditions, it is possible that manipulating PS alone (in a higher or lower direction) does not change perfectionism overall. Alternatively, the manipulation dosage may not have been strong enough (Madigan et al., 2016). The Low PS condition did demonstrate a
significant decrease over time regarding organization (which is not included in the FMPS total score). Given that the sample consisted of college students, in which organization is an important quality to have as a successful college student, it is possible that giving college students permission to adopt a relaxed orientation to every task in the next 24 hours would lead to larger shifts than other aspects of perfectionism (such as concern over mistakes).

In Boone and colleagues (2012), participants in both perfectionism conditions (PS and PS+EC) reported higher levels of perfectionism 24 hours after the contract manipulation. In contrast, our study found perfectionism only changed in the PS+EC condition. It is possible that we did not get the same results as Boone and colleagues (2012) due to Boone’s study using an all-White-female sample, the study being replicated over a decade later, potential language differences (Dutch vs. English), or the procedure being conducted in-person (vs. online in the current study).

Theoretically, results suggest that EC in conjunction with PS may be causally related to perfectionism. The cognitive-behavioral model of perfectionism suggests that individuals who are perfectionists evaluate themselves in ways that are overly dependent on meeting personally demanding standards (e.g., maintaining a 4.0 GPA), highlighting PS (Shafran et al., 2002). Based on our findings, the CBT model of clinical perfectionism could be modified by highlighting that EC from others may act as a maintenance factor of perfectionism.

Clinically, further tailoring cognitive-behavioral therapy (CBT) interventions that focus on perfectionism to hone in on the reduction of EC over time could be beneficial to those struggling with perfectionism (Egan et al., 2016; Shafran et al., 2018). For instance, a therapist could help their client recognize that their self-worth being contingent upon good evaluations is problematic and perpetuates perfectionism. Relatedly, acceptance and commitment therapy
(ACT) for perfectionism could focus on approaching one’s goals with more flexibility, de-emphasizing the need for validation from others, being mindfully aware of the current moment, and committing to living a life that is consistent with one’s values despite the presence of EC (Kemp, 2021). Working on the reduction of conditional acceptance of life events or peer approval could be another treatment goal for those struggling with perfectionism.

**No changes in social anxiety symptoms.**

Manipulating perfectionism in the High PS+EC condition did not increase social anxiety symptoms, which is contrary to previous research demonstrating that perfectionism is implicated in the development and maintenance of SAD (Abdollahi, 2019; Antony et al., 1998; Bieling et al., 2004; Brown & Kocovski, 2014; Cox & Chen, 2015; Egan et al., 2011; Hewitt et al., 2003; Newby et al., 2017; Saboonchi et al., 1999). It is possible that perfectionism is not causally related to social anxiety symptoms. Rather, perfectionism may be a risk factor for future social anxiety symptoms (Juster et al., 1996). If it is a risk factor, those who hold perfectionistic beliefs may believe that their peers expect more than what they are able to provide, leading the individual to feel inadequate and vulnerable to negative evaluation (Frost et al., 2010). On the other hand, believing one is socially inadequate may cause an individual to hold more perfectionistic cognitions in social settings in an attempt to improve their social performance and avoid negative evaluations (Frost et al., 2010).

Alternatively, it is possible that methodological issues are the reason that social anxiety symptoms did not change post-manipulation. Similar to previous studies that found that manipulations affected individuals with SAD (but not subclinical levels of SAD symptoms), it may be that perfectionism will not greatly impact an individual who is not already socially anxious (Amir et al., 2011; Enock et al., 2014; Heeren et al., 2015; MacLeod et al., 2002). It is
possible that a larger dose of the manipulation (e.g., the manipulation being applied to all
domains in life rather than the three selected), or a longer time period between the manipulation
and the follow-up assessment, is needed to see the effects on social anxiety symptoms, as
indicated by previous research demonstrating changes on SAD symptoms from pre-to-post
manipulation (Amir et al., 2009; Antony et al., 1998b; Heeren et al., 2015; Li et al., 2008;
Schmidt et al., 2009). Although previous literature has shown that perfectionism is a significant
predictor of PEP, our study indicates that there does not appear to be a causal relationship
between the two constructs (Brown & Kocovski, 2014; Clark & Wells, 1995; Shikatani et al.,
2014). One possible explanation is that the assessment of PEP using the PEPQ-R did not lead to
enough variability to see effects with perfectionism (McEvoy & Kingsep, 2006).

**Strengths and limitations.**

The current study had multiple strengths. This study, to our knowledge, is the first of its
kind to test the causal relationship between perfectionism, PEP, and social anxiety symptoms in
an experimental design. This study is a replication of Boone and colleagues’ (2012) manipulation
of perfectionism, while also being an extension by applying the manipulation to another domain
(SAD instead of eating disorders). This study also used well-validated measures of
perfectionism, social anxiety, and PEP (Duke et al., 2006; Hawkins, et al., 2006; McEvoy &
Kingsep, 2006). However, the following limitations should also be considered.

One limitation of the current study is the use of a nonclinical sample, which limits
generalizability to clinical samples. Another limitation of the study is the lack of racial diversity,
as well as gender diversity, among the participants. Future research should replicate this study
with racially diverse and gender diverse, as well as clinically diagnosed samples. Another
limitation of the study is that perfectionism was only measured 24 hours after the manipulation
took place. It could be beneficial for future researchers to investigate whether changes in perfectionism persist (or appear) after 48 hours or one week. It is also possible that results may have been influenced by social desirability bias. Future research should also consider adding a confederate to the study design for the impromptu speech task, as well as having the confederate provide neutral feedback (e.g., “it was fine”) once the speech task is completed to increase variability in speech-related PEP post-manipulation.

Overall, the contract manipulation significantly affected perfectionism in the High PS + EC condition, but not the Low PS and the High PS conditions, suggesting that EC could drive perfectionism. The contract manipulation did not affect symptoms of social anxiety or PEP, demonstrating that a larger change in perfectionism may be needed to see a change in SAD or PEP, or that these theorized causal relations do not exist.
References


### Table 1

**Participant characteristics and descriptive statistics.**

|                        | High PS  
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 22)</td>
<td>High PS+EC</td>
<td>(n = 22)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cisgender male</td>
<td>5(22.7%)</td>
<td>4(18.2%)</td>
<td>8(34.8%)</td>
</tr>
<tr>
<td>Cisgender female</td>
<td>14(63.6%)</td>
<td>16(72.7%)</td>
<td>14(60.9%)</td>
</tr>
<tr>
<td>Nonbinary</td>
<td>2(9.1%)</td>
<td>1(4.5%)</td>
<td>1(4.3%)</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black, African American, Caribbean American</td>
<td>3(13.6%)</td>
<td>2(9.1%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>Hispanic or Latine</td>
<td>0(0%)</td>
<td>4(18.2%)</td>
<td>3(13%)</td>
</tr>
<tr>
<td>Native American or American</td>
<td>0(0%)</td>
<td>1(4.5%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>6(27.3%)</td>
<td>4(18.2%)</td>
<td>3(13%)</td>
</tr>
<tr>
<td>White</td>
<td>14(63.6%)</td>
<td>16(72.7%)</td>
<td>17(73.9%)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>1(4.5%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associates degree or lower</td>
<td>10(45.5%)</td>
<td>11(50%)</td>
<td>13(56.5%)</td>
</tr>
<tr>
<td>Bachelors degree or higher</td>
<td>12(54.5%)</td>
<td>11(50%)</td>
<td>10(43.5%)</td>
</tr>
<tr>
<td>Age</td>
<td>23.18(4.69)</td>
<td>26.82(9.05)</td>
<td>22.26(4.62)</td>
</tr>
<tr>
<td>FMPS day 1</td>
<td>91.68(3.94)</td>
<td>94.78(4.53)</td>
<td>92.17(4.13)</td>
</tr>
<tr>
<td>BFNE day 1</td>
<td>42.86(2.06)</td>
<td>42.27(1.81)</td>
<td>38.83(1.83)</td>
</tr>
<tr>
<td>FMPS day 2</td>
<td>90.09(5.16)</td>
<td>103.36(4.30)</td>
<td>90.61(3.62)</td>
</tr>
<tr>
<td>BFNE day 2</td>
<td>41.82(2.44)</td>
<td>45.36(1.82)</td>
<td>38.17(1.95)</td>
</tr>
<tr>
<td>PEPQ-R day 2</td>
<td>44.52(4.59)</td>
<td>42.95(5.76)</td>
<td>49.49(4.56)</td>
</tr>
</tbody>
</table>

*Note.* FMPS = Frost Multidimensional Perfectionism Scale
Table 2
*Correlation matrix table.*

<table>
<thead>
<tr>
<th></th>
<th>BFNE day 1</th>
<th>FMPS day 1</th>
<th>PEPQ-R day 2</th>
<th>BFNE day 2</th>
<th>FMPS day 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFNE day 1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FMPS day 1</td>
<td>.370**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEPQ-R day 2</td>
<td>.216</td>
<td>.273*</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BFNE day 2</td>
<td>.593**</td>
<td>.369**</td>
<td>.440**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>FMPS day 2</td>
<td>.244*</td>
<td>.802**</td>
<td>.405**</td>
<td>.479**</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note.* BFNE = Brief Fear of Negative Evaluation Scale; FMPS = Frost Multidimensional Perfectionism Scale; PEPQ-R = Post-Event Processing Questionnaire—Revised

** = Correlation is significant at the 0.01 level (2-tailed).
* = Correlation is significant at the 0.05 level (2-tailed).
Figure 1
Study procedure diagram.

Day 1 (via Zoom and REDCap)

Consent forms

Questionnaires:
Demographics, FMPS, BFNE

Speech task

Random assignment

High PS condition
(Discussion of contract + signature)

High PS + EC condition
(Discussion of contract + signature)

Low PS condition
(Discussion of contract + signature)

Perfectionism manipulation challenge (24 hours)

Day 2 (24 hours later via REDCap)

Questionnaires:
FMPS, BFNE, PEPQ-R

Contract adherence question

Debrief + payment
Figure 2
Changes in perfectionism from sessions 1 and 2.

Note. FMPS = Frost Multidimensional Perfectionism Scale
Figure 3
Changes in organization from sessions 1 and 2.

Note. FMPS = Frost Multidimensional Perfectionism Scale
Appendix A

Demographics

Age

Gender
- Cisgender male (assigned male at birth and identifies as male)
- Transgender male (assigned female at birth but identifies as male)
- Cisgender female (assigned female at birth and identifies as female)
- Transgender female (assigned male at birth but identifies as female)
- Non-binary (does not identify as either male or female or blends elements of both male and female)
- Other
- Prefer not to say

Race/Ethnicity: Select all that apply
- Black, African American, or Caribbean American
- Hispanic or Latinx/a/o
- Native American or American Indian
- Asian/Pacific Islander
- White
- Other

What is the highest level of school you have completed or the highest degree you have received?
- Less than high school degree
- High school graduate (high school diploma or equivalent including GED)
- Some college but no degree
- Associate degree in college (2-year)
- Bachelor’s degree in college (4-year)
- Master’s degree
- Doctoral degree
- Professional degree
Brief Fear of Negative Evaluation Scale (BFNE)

*Instructions:* Read each of the following statements carefully and indicate how characteristic it is of you according to the following scale:

1 = Not at all characteristic of me  
2 = Slightly characteristic of me  
3 = Moderately characteristic of me  
4 = Very characteristic of me  
5 = Extremely characteristic of me

____ 1. I worry about what other people will think of me even when I know it doesn't make any difference.

____ 2. I am unconcerned even if I know people are forming an unfavorable impression of me.

____ 3. I am frequently afraid of other people noticing my shortcomings.

____ 4. I rarely worry about what kind of impression I am making on someone.

____ 5. I am afraid others will not approve of me.

____ 6. I am afraid that people will find fault with me.

____ 7. Other people's opinions of me do not bother me.

____ 8. When I am talking to someone, I worry about what they may be thinking about me.

____ 9. I am usually worried about what kind of impression I make.

____ 10. If I know someone is judging me, it has little effect on me.

____ 11. Sometimes I think I am too concerned with what other people think of me.

____ 12. I often worry that I will say or do the wrong things.

* For the post-manipulation administration of the BFNE, we modified instructions to include “in the past 24 hours.”
**Frost Multidimensional Perfectionism Questionnaire (FMPS)**

*Instructions:* Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent. If you strongly agree, circle 5; if you strongly disagree, circle 1; if you feel somewhere in between, circle any one of the numbers between 1 and 5. If you neither agree nor disagree, the midpoint is 3.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Neither agree nor disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My parents set very high standards for me.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Organization is very important to me.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>As a child, I was punished for doing things less than perfectly.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>If I do not set the highest standards for myself, I am likely to end up a second-rate person.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>My parents never tried to understand my mistakes.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>It is important to me that I be thoroughly competent in what I do.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>I am a neat person.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>I try to be an organized person.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>If I fail at work/school, I am a failure as a person.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>I should be upset if I make a mistake.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>My parents wanted me to be the best at everything.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>I set higher goals than most people.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>If someone does a task at work/school better than I do, then I feel as if I failed the whole task.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>If I fail partly, it is as bad as a complete failure.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>Only outstanding performance is good enough in my family.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>I am very good at focusing my efforts on attaining a goal.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>17</td>
<td>Even when I do something very carefully, I often feel that it is not quite right.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>I hate being less than the best at things.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>I have extremely high goals.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>My parents expect excellence from me.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>21</td>
<td>People will probably think less of me if I make a mistake.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>22</td>
<td>I never feel that I can meet my parents’ expectations.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23</td>
<td>If I do not do as well as other people, it means I am an inferior being.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>24</td>
<td>Other people seem to accept lower standards from themselves than I do.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>If I do not do well all the time, people will not respect me.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>26</td>
<td>My parents have always had higher expectations for my future than I have.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>I try to be a neat person.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>28</td>
<td>I usually have doubts about the simple everyday things that I do.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>29</td>
<td>Neatness is very important to me.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>30</td>
<td>I expect higher performance in my daily tasks than most people.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>31</td>
<td>I am an organized person.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>32</td>
<td>I tend to get behind in my work because I repeat things over and over.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>33</td>
<td>It takes me a long time to do something “right”.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>34</td>
<td>The fewer mistakes I make, the more people will like me.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>35</td>
<td>I never feel that I can meet my parents’ standards.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

*For the post-manipulation administration of the FMPS, we modified instructions to include “in the past 24 hours.”*
Post-Event Processing Questionnaire—Revised

*Instructions:* In the last two weeks, have you experienced **significant** anxiety in a social situation (such as at a social event, public speaking, eating in public, etc.)? If not, please do not complete this questionnaire. If so, please describe this event in a short sentence:

Could you please keep this described event in mind and answer the questions below, by dragging the button somewhere between 0 – 100 on each scale.

1. How much anxiety did you experience?

Not at all 0---Extreme 100

2. After the event was over, did you find yourself thinking about it a lot?

Not at all 0---Totally agree 100

3. Did your memories and thoughts about the event keep coming into your head even when you did not wish to think about it again?

Not at all 0---Totally agree 100

4. Did the thoughts about the event ever interfere with your concentration?

Not at all 0---Totally agree 100

5. Did you find it difficult to forget about the event?

Not at all 0---Totally agree 100

6. Did you try to resist thinking about the event?

Not at all 0---Totally agree 100
7. If you did think about the event, over and over again, did your feelings about the event get worse and worse?

Not at all 0---
Totally agree 100

8. Did you ever wish that you could turn the clock back and do it again, but do it better?

Not at all 0---
Totally agree 100

9. As a result of the event, do you now avoid similar events and did this event reinforce a decision to avoid similar situations?

Not at all 0---
Totally agree 100
Appendix B

Experiment Instructions and Contract (Boone et al., 2012)

High PS Condition
“In this second part of the experiment [the first part consisted of filling out a questionnaire at least 24 hours before the start of the second part], we will come to an agreement, which needs to be followed strictly during the next 24 hours. After this period, you will receive a link to your email to fill out a survey exactly 24 hours after this session.

First, I will explain the purpose of the agreement. Second, we will go through the exact things we ask of you and discuss some examples. Finally, we will provide you with an electronic copy of the agreement. You can read it carefully and write down some examples we discussed before. Finally, if you agree with this procedure, you may sign the agreement.

We would like to ask you that everything you do in the next 24 hours will be done to the highest possible standards. We ask you to set high standards for yourself and to have high expectations for your performance and to strive to adhere to them as best as you can, in all circumstances. This includes everything you think, say and do, in all situations for the next 24 hours, concerning the domains of life as we will discuss in a moment. We ask you to take this task seriously and if something is unclear, please feel free to ask for clarification. It is important that you know and understand what you are being asked to do, so that you can perfectly strive to reach your high standards.

Let me ask you now; in which domains of life do you strive for high standards? In other words, in which domains do you have high expectations for yourself? Could you mention some domains, so that we can discuss these briefly? We ask that you list some examples from your life where you do set high standards for yourself, and we ask that you describe what you typically do to adhere to these high standards. These are examples that you can fill out in the contract.”
This is an agreement made between ___________________________ (participant) and ________________________________ (researcher) on __/__/____.

By signing this agreement, I agree that for the next 24 hours, everything I do will be done to the highest possible standards, as discussed previously with the experimenter. This means that I will have high expectations for my performance in some personally important domains of life. I will do the best I can to achieve the standards I set for myself.

In particular, I agree to (up to 10 items will be specified):

(1) 

(2)

(3) 

(4) 

(5) 

(6) 

(7) 

(8) 

(9) 

(10) 

I declare that I understand the instructions and can reach out to the researcher with any questions regarding the contract. I know that I have the right to discontinue participation in this experiment at any time.

Signature:
High PS + EC Condition

“In this second part of the experiment [the first part consisted of filling out a questionnaire at least 24 hours before the start of the second part], we will come to an agreement, which needs to be followed strictly during the next 24 hours. After this period, you will receive a link to your email to fill out a survey exactly 24 hours after this session.

First, I will explain the purpose of the agreement. Second, we will go through the exact things we ask of you and discuss some examples. Finally, we will provide you with an electronic copy of the agreement. You can read it carefully and write down some examples we discussed before. Finally, if you agree with this procedure, you may sign the agreement.

We would like to ask you that everything you do in the next 24 hours will be done to the highest possible standards. We ask you to set high standards for yourself and to have high expectations for your performances, in which you absolutely do not want to fail. We ask you to strive to adhere to them as best as you can, in all circumstances. This includes everything you think, say and do, in all situations for the next 24 hours, concerning the domains of life as we will discuss in a moment. We ask you to take this task seriously and if something is unclear, please feel free to ask for clarification. It is important that you know and understand what you are being asked to do, so that you can perfectly strive to reach your high standards.

Let me ask you now; in which domains of life do you strive for high standards, and would you feel like an absolute failure if you did not meet your standards? In other words, in which domains do you have high expectations for yourself, and in which domains do you not want to fall short? Could you mention some domains where you do set high standards for yourself, and where you really do not want to fail nor disappoint yourself or others? Let us discuss these briefly. So, we ask you to list some examples of your own life where you do not want to fail in meeting the high expectations you hold for yourself, and also describe what you normally do to avoid failing to adhere to these high standards. These are examples that you can fill out in the contract.”
This is an agreement made between ___________________________ (participant) and ________________________________ (researcher) on __/__/____.

By signing this agreement, I agree that for the next 24 hours, everything I do will be done to the highest possible standards, and I will do everything I can to avoid failing, as discussed previously with the experimenter. This means that I will have high expectations for my performance in some personally important domains of life. I will do the best I can to achieve the standards I set for myself, in order to not disappoint myself or the researcher.

In particular, I agree to (up to 10 items will be specified):

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

(9)

(10)

I declare that I understand the instructions and can reach out to the researcher with any questions regarding the contract. I know that I have the right to discontinue participation in this experiment at any time.

Signature:
**Low PS Condition**

“In this second part of the experiment [the first part consisted of filling out a questionnaire at least 24 hours before the start of the second part], we will come to an agreement, which needs to be followed strictly during the next 24 hours. After this period, you will receive a link to your email to fill out a survey exactly 24 hours after this session.

First, I will explain the purpose of the agreement. Second, we will go through the exact things we ask of you and discuss some examples. Finally, we will provide you with an electronic copy of the agreement. You can read it carefully and write down some examples we discussed before. Finally, if you agree with this procedure, you may sign the agreement.

We would like to ask you that everything you do in the next 24 hours will be done to the lowest possible standards. We ask you to deal with expectations or demands as relaxed as possible, to act as nonchalant and indifferent as possible, in all circumstances. This includes everything you think, say and do, in all situations for the next 24 hours, concerning the domains of life as we will discuss in a moment. We ask you to take this task seriously and if something is unclear, please feel free to ask for clarification. It is important that you know and understand what you are being asked to do, so that you can set low standards.”.

Let me ask you now; in which domains of life do you strive for high standards? In other words, in which domains do you have high expectations for yourself? Could you mention some domains, so that we can discuss these briefly? So, we ask you to list some examples of your own life where you do set high standards for yourself and describe what you normally do to adhere to these high standards. These are elements that are relevant to write down in your contract.

Now, we ask you in this experiment NOT to do these things, as much as possible. We now ask you to not strive for these high standards for the next 24 hours. Abandon these high expectations and try to stay relaxed if you encounter a setback or if you could not reach a goal. So: relax, take it easy, and try to not think about expectations or demands you have for yourself or that others could have for you.”
This is an agreement made between ___________________________ (participant) and ________________ (researcher) on __/__/____.

By signing this agreement, I agree that for the next 24 hours, everything I do will be done to the lowest possible standards, as discussed previously with the experimenter. This means that I will have low expectations for my performance in some personally important domains of life. For the next 24 hours, I won’t do any special effort to adhere to standards or demands, and I will try to remain relaxed when I encounter a setback.

In particular, I agree to (up to 10 items will be specified):

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

(9)

(10)

I declare that I understand the instructions and can reach out to the researcher with any questions regarding the contract. I know that I have the right to discontinue participation in this experiment at any time.

Signature: