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Influence of perfectionism on short-term anxious reactivity to a social-evaluative stressor

Chiara Calissano, Corinna Haenschel, Paul E. Flaxman, and Lucie Zernerova

Department of Psychology, City, University of London, Northampton Square, London, United

Kingdom, EC1V 0HB, United Kingdom

Author Note

Correspondence concerning this article should be addressed to Paul E. Flaxman,

Department of Psychology, City, University of London, Northampton Square, London EC1V

0HB, United Kingdom. E-mail: Paul.Flaxman.1@city.ac.uk.

Abstract

This laboratory study examines the unique influences of the superordinate personality dimensions *perfectionistic concerns* and *perfectionistic strivings* on change in state anxiety elicited by a social-evaluative stressor. A sample of 85 adult participants completed perfectionism measures and a Big Five inventory. The following day, the same participants attended a laboratory session, during which they were unexpectedly requested to prepare and deliver a speech. Participants completed a measure of state anxiety upon arrival at the lab and after the speech task was introduced. Results revealed that the perfectionistic concerns dimension was uniquely associated with post-stressor state anxiety, after controlling for neuroticism, perfectionistic strivings, and pre-stressor state anxiety. Perfectionistic strivings were not uniquely related to an increase in state anxiety and did not attenuate the association between perfectionistic concerns and anxious reactivity. These results are most consistent with the notion that a subtype of "pure" evaluative concerns perfectionism is associated with heightened anxious reactivity to pertinent stressors.

Keywords: Perfectionism; anxiety; social-evaluative stress

1. Introduction

The influence of perfectionism on mental health continues to attract considerable scholarly, clinical, and public interest (e.g., Limburg, Watson, Hagger, & Egan, 2017; Smith et al., 2016; Stoeber & Gaudreau, 2017). There is concern about how perfectionism has increased in response to societal changes, including the role of social media in exposing the current generation of young adults to perhaps unprecedented levels of social-evaluative pressure (Curran & Hill, 2019).

Perfectionist personality characteristics tend to load on two, relatively distinct and superordinate factors, labeled *perfectionistic strivings* and *perfectionistic concerns* (e.g., Cox, Enns, & Clara, 2002; Stoeber & Gaudreau, 2017). The perfectionistic strivings dimension captures a self-oriented motivation to set and pursue exceedingly high personal standards of performance (Stoeber & Gaudreau, 2017). The perfectionistic concerns dimension comprises heightened concern about failing or making mistakes, doubts about one's performance, and the belief that significant others demand perfection (Cox et al., 2002). Moreover, these two broad dimensions can coexist within the same individual, supporting a 2 x 2 model of perfectionism (Gaudreau, 2012) comprising four subtypes: low strivings/ low concerns (*non-perfectionism*); low strivings/ high concerns (*pure perfectionistic concerns*); high strivings/ low concerns (*pure perfectionistic strivings*); and high strivings/ high concerns (*mixed perfectionism*).

A large body of research indicates that perfectionistic concerns (or its subfacets) are consistently associated with various indicators of maladjustment, including perceived stress, avoidant coping, rumination, anxiety, depression, relationship difficulties, negative affect, and burnout (e.g., Hill & Curran, 2016; Limburg et al., 2017). By contrast, the functions of perfectionistic strivings remain contentious, with reports of neutral, negative, and positive associations between this dimension and psychological adjustment (e.g., Besser, Flett & Hewitt, 2004; Stoeber & Gaudreau, 2017). At the subtype level, there is ongoing debate as to whether being high in perfectionistic strivings attenuates, exacerbates, or has little influence on the association

between perfectionistic concerns and distress (Gaudreau, 2012; Levinson et al., 2015; Stoeber & Gaudreau, 2017).

Although there is a broad consensus surrounding the role of perfectionism (and especially perfectionistic concerns) as a risk factor for depression, the evidence that perfectionism also functions as a vulnerability factor for anxiety has been mixed (Mandel et al., 2015). This may seem surprising, given that (a) among clinical scholars, perfectionism is conceptualized as a transdiagnostic process with implications across a range of psychopathology (Egan et al., 2011), and (b) the considerable body of research showing relationships between some perfectionism dimensions and common forms of anxiety, particularly social anxiety and OCD (Burgess & DiBartolo, 2016).

Uncertainty about the nature of perfectionism's influence on anxiety has been attributed in part to the traditionally heavy reliance on cross-sectional designs in this area of study (Smith et al., 2018). In their review of the smaller body of relevant longitudinal research, Smith et al. (2018) found that only two subfacets of perfectionistic concerns (namely *concern over mistakes* and *doubts about actions*) were associated with an increase in anxiety symptoms over time. Moreover, two of the most widely researched subfacets of perfectionism (*self-oriented perfectionism* and *socially prescribed perfectionism*) were not prospectively associated with anxiety symptoms (after controlling for baseline anxiety). The same review revealed that high personal standards was linked to a small (albeit non-significant) increase in anxiety over time, throwing doubt on the notion that perfectionistic strivings may offer some protection against the detrimental influence of perfectionistic concerns on mental health.

Somewhat different findings emerged from studies focusing specifically on social anxiety (Levinson et al., 2015). In a non-clinical sample, Levinson and colleagues found a significant interaction between perfectionistic strivings and concerns in the prediction of various aspects of social anxiety (e.g., fear of scrutiny). Exploration of this interactive effect revealed that being low in strivings and high in concerns was associated with a higher level of social anxiety. The authors

interpreted this pattern as indicating that being deficient in perfectionistic strivings (i.e., having low personal standards) reflects low expectations of one's ability to obtain very high standards. When combined with high perfectionistic concerns, this apparent lack of confidence was associated with greater fear of scrutiny. This result aligns with one of the predictions of the 2 x 2 model of perfectionism: that individuals exhibiting a "pure" perfectionistic concerns subtype (i.e., high concerns/ low strivings) are particularly vulnerable to distress (Gaudreau, 2012).

To inform understanding about the connections between perfectionism and anxiety, there have been calls for an increase in longitudinal and laboratory-based research (Smith et al., 2018; Sherry et al., 2014). There are advantages to conducting lab-based studies in this area, especially when examining anxiety outcomes. Such research has the potential to address the possibility that associations between some perfectionist characteristics and anxious arousal would be stronger (and hence more observable) under certain conditions (Smith et al., 2018). From a diathesis-stress perspective, perfectionism is posited to operate as a relatively stable underlying personality vulnerability that can become activated by certain types of social-evaluative stress (e.g., Alstotter-Gleich et al., 2012; Besser et al., 2004; Hewitt, Flett, & Ediger, 1996). In the laboratory, it is possible to simulate the specific type of stressor that is (in theory) likely to trigger an anxious response among persons high in perfectionism, such as the "threat" of imminent performance evaluation and scrutiny. Also, lab-based research enables investigation of shorter-term changes in state anxiety associated with perfectionism, thereby complementing longitudinal studies that have follow-ups of 6 months or more (Sherry et al., 2014). We believe studying shorter-term change in anxiety is an important endeavor, given that heightened affective reactivity to discrete life events (e.g., to daily stress or hassles) is considered an important mechanism linking perfectionism to chronic psychological impairment (Mandel et al., 2015).

There are relatively few lab-based studies exploring the influence of perfectionist dimensions on people's affective reactions to social-evaluative threat (e.g., Altstötter-Gleich et al., 2012; Besser et al., 2004; Besser, Flett, Hewitt, & Guez, 2008; DiBartolo, Frost, Dixon &

Almodovar, 2001; Richardson, Rice & Devine, 2014; Wirtz et al., 2007; Zureck, Altstötter-Gleich, Gerstenberg, & Schmitt 2015; Zureck, Altstötter-Gleich, Wolf, & Brand, 2014). Some studies found that subfacets of perfectionistic concerns were associated with greater elevations in negative affect when participants are exposed to simulated stressors (e.g., Alstötter-Gleich et al., 2012; Besser et al., 2008). Other studies indicate that subfacets of strivings, such as self-oriented perfectionism, can be associated with heightened stress-reactivity (Besser et al., 2004). The 2 x 2 model's hypotheses of are rarely tested in lab-based research. Nonetheless, there are initial indications that the strongest stress-reactivity is experienced by a subgroup of perfectionists who are high in concerns but low in strivings (i.e., pure perfectionistic concerns; Alstötter-Gleich et al., 2012; also see Zureck et al., 2014, 2015).

Despite the strengths of such studies, we believe there are features of this lab-based work that limit its potential to inform understanding about the role of perfectionism in anxiety. First, these studies tend to focus on individual subfacets (e.g., concern over mistakes) of the broader perfectionistic concerns and strivings dimensions (e.g., Besser et al., 2004, 2008; DiBartolo et al., 2001; Zureck et al., 2014). As Smith et al. (2016) note, the perfectionistic concerns personality dimension reflects a "family of traits" (p. 201), which includes socially prescribed perfectionism, concern about failing, doubts about actions, self-criticism, and an inability to feel satisfied with one's achievements. Hence, focusing on subfacets may mean neglecting potentially influential intrapersonal or interpersonal aspects of the perfectionist vulnerability.

A second issue stems from inconsistent assessment of neuroticism. Some lab-based studies controlled for neuroticism prior to examining unique effects of perfectionism on experimentally induced stress-reactivity (e.g., Richardson et al., 2014; Wirtz et al., 2007; Zureck et al., 2014), while others did not (e.g., Alstötter-Gleich et al., 2012; Besser et al., 2004; DiBartolo et al., 2001; Zureck et al., 2015). As has been discussed elsewhere, it is important (for both conceptual and practical reasons) to determine that perfectionism functions as a distinct personality vulnerability factor beyond the influence of neuroticism (Enns et al., 2005; Smith et al., 2016). Finally, few lab-based

studies utilized a dedicated measure of state anxiety. Researchers have examined closely related constructs, such as negative affect, felt tension, or degree of rest/ unrest, without explicitly assessing change in state anxiety (e.g., Alstötter-Gleich et al., 2012; DiBartolo et al., 2001; Zureck et al., 2014).

In the current study, we investigate the degree to which perfectionist dimensions are associated with short-term change in anxiety expected to be elicited by a laboratory procedure designed to induce social-evaluative stress. To extend previous research in this area, we conduct a comprehensive assessment of perfectionism prior to the stressor being introduced, utilizing subscales drawn from three prominent perfectionism measures. In this way, we examine the influences of superordinate perfectionism dimensions on any changes in state anxiety elicited by the (unexpected) stressor. Second, we assess short-term change in anxious arousal in response to the stressor, using a well-established measure of state anxiety. On the basis of findings from the wider literature on perfectionism, we hypothesized that only the superordinate perfectionistic concerns dimension would explain unique variance in anxious reactivity, over and above any influence of neuroticism. Moreover, by simultaneously testing the main effects of the two superordinate dimensions on change in anxiety, we anticipate finding support for a key hypothesis of the 2 x 2 model of perfectionism (Gaudreau, 2012), with "pure" perfectionistic concerns expected to be associated with greater anxious reactivity than other subtypes of perfectionism.

2. Method

2.1 Participants and procedure

We recruited a convenience sample of 85 adult participants (62 females), with an average age of 22 years (range = 18 to 46). Participants were undergraduate students at a British university (n = 65), postgraduate students (n = 12), or had recently graduated (n = 7). Participants enrolled in the study for course credit, in return for a one-off payment of eight British Pounds, or on a voluntary basis. The day before the laboratory session, participants completed an online survey, which included perfectionism and Big Five measures. The next day, participants attended individually for the lab

session, which took place in a small testing room. Upon arrival at the lab, participants provided

informed consent and completed a baseline (pre-stressor) measure of state anxiety (using the State-

Trait Anxiety Inventory; Spielberger et al., 1983)

The experimenter then introduced the social-evaluative stressor, utilizing a public speaking

procedure developed by Brooks (2014). The experimenter verbally informed participants that, at the

end of the 30- to 40-minute lab session, they will be required to deliver a speech to camera (there

was a camera tripod visible in the testing room). Participants also received the following written

instructions: "You have 2 minutes to prepare a persuasive speech about *why you are a good*

working partner. You will deliver the speech in front of an experimenter and it will be recorded on

the video camera to be judged later by a committee of your peers. You now have two minutes to

write some notes for the speech on a blank piece of paper".

The experimenter visibly timed the 2-minute preparation time on a mobile phone. At the end

of the two minutes, the experimenter asked participants to place their notes out of view. Participants

then completed the second (post-stressor) measure of state anxiety. Participants subsequently

completed a set of computer-based attention and memory tasks (performance on these tasks was not

analyzed as part of this study). The experimenter remained in the lab for the entire procedure. At the

end of the session (approximately 30 to 40 minutes), participants were informed that they were not

actually required to deliver the speech and were debriefed. The study's procedures were approved

by the host University's psychology department research ethics committee.

2.2. Measures

2.2.1. Perfectionism

To capture a range perfectionistic characteristics, we administered subscales from Frost et al.'s

multidimensional perfectionism scale (FMPS; Frost, Marten, Lahart, & Rosenblate, 1990), Hewitt

and Flett's (1991) multidimensional perfectionism scale (HMPS), and the almost perfect scale-

revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Specifically, participants

completed: short-forms of the FMPS doubts about actions, concern over mistakes, and personal

standards subscales (Cox et al., 2002); short-forms of the HMPS self-oriented perfectionism (SOP)

and socially prescribed perfectionism (SPP) subscales (Cox et al., 2002); and the high standards and

discrepancy subscales from the APS-R. HMPS and APS-R items were rated a 7-point scale ranging

from (1) *strongly disagree* to (7) *strongly agree.* FMPS items were rated on a 5-point scale ranging

from (1) *strongly disagree* to (5) *strongly agree.*

The perfectionism scores were transformed into z-scores to obtain the predicted

superordinate dimensions of perfectionistic concerns (doubts about actions, concern over mistakes,

SPP, and discrepancy) and perfectionistic strivings (SOP, personal standards, and high standards).

The combined dimensions demonstrated good internal reliability (Cronbach's α): concerns = 0.86,

strivings = 0.86. We performed a confirmatory model comparison using IBM SPSS Amos 25. The

first model was a two-factor model with the four concerns subscales and three strivings subscales

loading on two higher-order latent factors, which were permitted to correlate. This two-factor model

resulted in an acceptable fit to the data: χ^2 (13, N = 85) = 23.28; GFI = .93; IFI = .97; CFI = .97;

RMSEA = .10; 90% CI .02, .16; AIC = 53.28. Also, the two-factor model provided a superior fit

when compared with a unidimensional perfectionism model that had all seven subscales loading

together on a single higher-order latent factor: χ^2_{diff} (1, N = 85) = 76.36, *p* < .001.

2.2.2. Neuroticism

The initial survey included a 20-item adaptation of the International Personality Item Pool (IPIP)

scales, offering short measures of the Big Five (Donnellan, Oswald, Baird, & Lucas, 2006).

Neuroticism was measured with 4 items (e.g., "Get upset easily"; "Am relaxed most of the time").

Participants were asked to indicate "how accurately each statement describes you". The response

scale ranges from (1) *very inaccurate* to (5) *very accurate*. One item, "I seldom feel blue", had a

detrimental effect on reliability and was excluded from the analyses. The three-item scale exhibited

satisfactory reliability: Cronbach's α = 0.67. In addition to neuroticism, we controlled for age, on

the basis that there can be a relaxing of perfectionistic standards in older age groups (Landa &

Bybee, 2007); we also controlled for gender, given evidence that females tend to have higher levels of anxiety than males (McLean & Anderson, 2009).

2.2.3. State Anxiety

We used the state subscale from Spielberger et al.'s (1983) State-Trait Anxiety Inventory (STAI-S) to assess pre- to post-stressor change in anxiety. The STAI-S is a widely used tool for capturing short-term fluctuations in anxious arousal, and has demonstrated good to excellent psychometric properties (Rossi & Pourtois, 2012). The STAI-S comprises 20 statements (e.g., "I feel nervous"; "I am worried"). Participants were asked to indicate how they feel "right now, that is, at this moment". The 4-point response scale ranges from (1) *not at all* to (4) *very much so*. Cronbach's α = .93 (pre-stressor) and = .94 (post-stressor).

3. Results

Table 1 reports descriptive statistics and bivariate correlations for all study variables. Neuroticism was significantly and positively associated with perfectionistic strivings, perfectionistic concerns, and state anxiety. The superordinate perfectionistic concerns (but not the strivings) dimension was significantly correlated with both pre- and post-stressor state anxiety.

At the level of the first-order subscales, none of the subfacets of the superordinate perfectionistic strivings dimension were significantly associated with state anxiety. However, the relationship with post-stressor anxiety was positive for all strivings subscales: self-oriented perfectionism $r = .19$; personal standards $r = .12$; and high standards $r = .17$. By contrast, every subfacet of perfectionistic concerns was significantly and positively associated with post-stressor state anxiety: doubts about actions $r = .46$, concern over mistakes $r = .36$; socially prescribed perfectionism $r = .30$; and discrepancy $r = .40$. The stress induction procedure proved effective for eliciting anxiety. Specifically, there was a statistically large increase in state anxiety between the pre- and post-stressor administrations: pre $M = 32.56$, $SE = 9.22$; post $M = 42.13$, $SE = 12.24$; $t(84) = 8.70$, $p < .001$, 95% CI 7.38, 11.75, $d = 0.94$.

Table 1

Descriptive statistics and bivariate correlations

	M	*SD*	1.	2.	3.	4.	5.	6.	7.
1. Age	21.86	6.39	-						
2. Gender	1.73	0.45	-.38**	-					
3. Neuroticism	12.75	3.06	-.17	.26*	-				
4. State Anxiety (pre)	32.56	9.22	-.16	.19	.40**	-			
5. State Anxiety (post)	42.13	12.24	-.28*	.28**	.33**	.59**	-		
6. Perf Strivings	0.00	2.65	-.09	-.01	.25*	.14	.18	-	
7. Perf Concerns	0.00	3.36	-.07	.09	.47**	.30**	.45**	.46**	-

Note. *p < .05. **p < .01.

Following the approach recommended by Gaudreau (2012) for modest sample sizes, we performed a preliminary test for an interaction between the perfectionistic strivings and concerns dimensions in the prediction of post-stressor anxiety (using PROCESS v3.2 for SPSS). The strivings*concerns interaction term was not statistically significant: $B = -.05$ (SE = .12). In the absence of the interaction, we focused on interpreting only the main effects of perfectionistic strivings and concerns. As shown in Table 2, for this purpose we computed a hierarchical multiple linear regression model with post-stressor state anxiety as the outcome variable. At step 1, age, gender, neuroticism, and pre-stressor state anxiety were entered as control variables. The superordinate perfectionistic strivings dimension was added at step 2, followed by perfectionistic concerns at step 3.

As hypothesized, the perfectionistic concerns dimension was found to be a unique and significant predictor of post-stressor anxiety, after controlling for pre-stressor anxiety, neuroticism, and perfectionistic strivings. We re-ran the regression analyses (including the moderation test) without the control variables (i.e., omitting neuroticism, age, and gender). There was no substantive

change in results, in that perfectionistic concerns remained the only significant predictor of change

in state anxiety.

Table 2

Hierarchical regression model predicting post-stressor state anxiety

Variables	B	SE B	β	R^2	ΔR^2
Step 1				.40	.40***
Age	-.27	.18	-.14		
Gender	3.03	2.64	.08		
Neuroticism	.32	.39	.08		
State Anxiety (pre)	.68	.13	.51***		
Step 2				.40	.00
Age	-.26	.18	-.13		
Gender	3.29	2.66	.12		
Neuroticism	.23	.40	.06		
State Anxiety (pre)	.67	.13	.51***		
Perf Strivings	.40	.42	.09		
Step 3				.47	.07**
Age	-.28	.17	-.15		
Gender	3.38	2.51	.12		
Neuroticism	-.22	.40	-.05		
State Anxiety (pre)	.62	.12	.47***		
Perf Strivings	-.16	.43	-.03		
Perf Concerns	1.21	.38	.33**		

Note. *$p < .05$. **$p < .01$. ***$p < .001$.

4. Discussion

This lab-based study examined associations between superordinate perfectionistic concerns and strivings dimensions and anxious reactivity to social evaluative stress. Our CFA results supported the view that perfectionism is comprised of a family of interrelated traits, which cluster into two, relatively distinct, higher-order dimensions. Our results further support the notion that the perfectionistic concerns dimension represents perfectionism's primary vulnerability factor for short-term anxious reactivity in the face of a pertinent (and unexpected) stressor.

As predicted, after controlling for neuroticism, perfectionistic strivings, and pre-stressor state anxiety, the perfectionistic concerns dimension was uniquely associated with a heightened state of anxiety in response to the stress induction. This finding extends prior research that found individual subfacets of perfectionism, such as concern over mistakes or discrepancy, to be associated with negative affective reactivity to social-evaluative threat (Alstötter-Gleich et al., 2012; Zureck et al., 2015). We further contribute to previous research on perfectionism by explicitly assessing anxious reactivity rather than examining change in related negative affective states.

Although this demonstration of the unique influence of perfectionistic concerns converges with some previous lab studies (e.g., Alstötter-Gleich et al., 2012; Besser et al., 2008), our results diverge from other research indicating that subfacets of perfectionistic strivings operate as an underlying vulnerability for stress-reactivity. Notably, Besser et al. (2004) found that SOP (but not SPP) was associated with increased negative affect in response to a reaction time task that was followed by positive or negative feedback. One explanation for such differences may be found in the nature of the tasks. In Besser et al.'s (2004) study, participants completed a computer-based speed and accuracy test and received computer-generated feedback while alone in the lab. Thus, the pressure of social evaluation and public scrutiny was not emphasized. In the current study, the experimenter remained in the room, and participants were led to believe their speech performance was to be filmed and rated by others. This type of social-evaluative cue may be required for SPP to be fully activated (see Besser et al., 2008).

In relation to the 2 x 2 model, we followed Gaudreau's (2012) approach for interpreting the main effects of perfectionistic strivings and concerns dimensions in the absence of an interaction effect. Our findings lend indirect support to a key hypothesis stated in the 2 x 2 model: that individuals exhibiting a "pure" form of perfectionistic concerns will show strongest reactivity (manifesting in elevations in anxious arousal) when facing a performance task and evaluation. It is noteworthy that we observed a small positive correlation ($r = .18$) between strivings and post-stressor anxiety, suggesting that holding high standards for performance was unlikely to mitigate the vulnerability for anxious arousal associated with perfectionist concerns.

In terms of practical implications, our results support the utility of increasing access to training programs designed to reduce the impact of perfectionism in non-clinical populations (e.g., in educational and workplace settings). CBT programs may help people with perfectionist tendencies to become more aware of how they react to challenges, and to develop cognitive and emotion regulation strategies to ensure that anxiety doesn't impair performance. Alternatively, individuals high in evaluative concerns could be trained to reappraise anxious arousal, so that it is viewed more as a sign of excitement or challenge (Brooks, 2014). Also, there is growing interest in the potential benefits of mindfulness training for helping perfectionistic individuals relate more skillfully (e.g., with less avoidance) to discomforting inner experiences (James & Rimes, 2018).

A range of study limitations should be considered when interpreting the results. First, the sample size was modest. Although we had adequate power to detect main effects, we had a lower probability of finding an overall strivings*concerns interaction. Second, we examined change in anxiety in response to a single condition and did not include a control group. It would be useful to compare levels of anxious reactivity to the same stressor among subgroups of individuals with different levels and subtypes of perfectionism. It would also be informative for future studies to compare different types of stressor. For example, exploring the relative influences of concerns and strivings dimensions on anxiety in response to solitary performance tasks with privately viewed feedback, versus tasks that carry a more explicit social-evaluative threat (Besser et al., 2008; Brook,

2014). Third, we focused on a single outcome variable (i.e., state anxiety). It would be informative for future research to supplement measures of state anxiety with measures of automatic cognitions and strategies employed to cope with sudden anxious arousal (Besser et al., 2008). Finally, future studies would benefit by supplementing self-report measures with others' reports of perfectionist characteristic (see Levinson et al., 2015), and with physiological markers of stress and recovery, such as heart rate variability. Despite these limitations, we hope that the current study will stimulate further lab-based research to explore links between dimensions of perfectionism and patterns of affective reactivity in response to performance challenge.

References

Altstötter-Gleich, C., Gerstenberg, F. X. R. & Brand, M. (2012). Performing well - Feeling bad? Effects of perfectionism under experimentally induced stress on tension and performance. *Journal of Research in Personality*, *46*, 619-622. https://doi.org/10.1016/j.jrp.2012.05.010

Besser, A., Flett, G. L., & Hewitt, P. L. (2004). Perfectionism, cognition, and affect in response to performance failure vs success. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 22*(4), 301-328. http://dx.doi.org/10.1023/B:JORE.0000047313.35872.5c

Besser, A., Flett, G. L., Hewitt, P. L., & Guez, J. (2008). Perfectionism, and cognitions, affect, self-esteem, and physiological reactions in a performance situation. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 26*(3), 206-228. http://dx.doi.org/10.1007/s10942-007-0067-0

Brooks, A. (2014). Get excited: Reappraising pre-performance anxiety as excitement. *Journal of Experimental Psychology: General, 143*(3), 1144-1158. doi: 10.1037/a0035325

Burgess, A. M., & DiBartolo, P. M. (2016). Anxiety and perfectionism: Relationships, mechanisms, and conditions. In F. M. Sirois & D. S. Molnar (Eds.), *Perfectionism, health, and well-being* (p. 177–203). Springer International Publishing AG. https://doi.org/10.1007/978-3-319-18582-8_8

Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in

clinically distressed and college student samples. *Psychological Assessment, 14*, 365-373.

http://dx.doi.org/10.1037/1040-3590.14.3.365

Curran, T., & Hill, A. P. (2019). Perfectionism is increasing over time: A meta-analysis of birth

cohort differences from 1989 to 2016. *Psychological Bulletin, 145*(4), 410–

429. https://doi.org/10.1037/bul0000138

DiBartolo, P. M., Frost, R. O., Dixon, A. & Almodovar, S. (2001). Can cognitive restructuring

reduce the disruption associated with perfectionist concerns? *Behaviour Therapy*, *32*, 167-

184. https://doi.org/10.1016/S0005-7894(01)80051-4

Donnellan, M., Oswald, F., Baird, B., & Lucas, R. (2006). The mini-IPIP scales: Tiny-yet-effective

measures of the Big Five factors of personality. *Psychological Assessment, 18*, 192-203.

http://dx.doi.org/10.1037/1040-3590.18.2.192

Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A

clinical review. *Clinical Psychology Review*, *31*, 203–212.

https://doi.org/10.1016/j.cpr.2010.04.009

Enns, M. W., Cox, B. J., & Clara, I. P. (2005). Perfectionism and neuroticism: A longitudinal study

of specific vulnerability and diathesis-stress models. *Cognitive Therapy and Research, 29*,

463-478. https://doi.org/10.1007/s10608-005-2843-04

Frost, R., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism.

Cognitive Therapy and Research, 14, 449-468. http://dx.doi.org/10.1007/BF01172967

Gaudreau, P. (2012). A methodological note on the interactive and main effects of dualistic

personality dimensions: An example using the 2 × 2 model of perfectionism. *Personality

and Individual Differences, 52*, 26–31. 10.1016/j.paid.2011.08.022.

Hewitt, P., & Flett, G. (1991). Perfectionism in the self and social contexts: Conceptualization,

assessment and association with psychopathology. *Journal of Personality and Social

Psychology, 60*, 456-470. http://dx.doi.org/10.1037/0022-3514.60.3.456

Hewitt, P. L., Flett, G. L., & Ediger, E. (1996). Perfectionism and depression: Longitudinal assessment of a specific vulnerability hypothesis. *Journal of Abnormal Psychology, 105,* 276-280.

Hill, A. P., & Curran, T. (2016). Multidimensional perfectionism and burnout: A meta-analysis. *Personality and Social Psychology Review*, *20*(3), 269–288. https://doi.org/10.1177/1088868315596286

James, K., & Rimes, K.A. (2018). Mindfulness-based cognitive therapy versus pure cognitive behavioural self-help for perfectionism: A pilot randomized study. *Mindfulness, 9,* 801–814 (2018). https://doi.org/10.1007/s12671-017-0817-8

Landa, C. E., & Bybee, J. A. (2007). Adaptive elements of aging: Self-image discrepancy, perfectionism, and eating problems. *Developmental Psychology*, *43*, 83–93. https://doi.org/10.1037/0012-1649.43.1.83

Levinson, C. A., Rodebaugh, T. L., Shumaker, E. A., Menatti, A. R., Weeks, J. W., White, E. K., Heimberg, R. G., Warren, C. S., Blanco, C., Schneier, F., & Liebowitz, M. R. (2015). Perception matters for clinical perfectionism and social anxiety. *Journal of Anxiety Disorders*, *29*, 61–71. https://doi.org/10.1016/j.janxdis.2014.11.002

Limburg, K., Watson, H. J., Hagger, M. S., & Egan, S. J. (2017). The relationship between perfectionism and psychopathology: A meta‑analysis. *Journal of Clinical Psychology, 73*(10), 1301–1326. https://doi.org/10.1002/jclp.22435

Mandel, T., Dunkley, D. M., & Moroz, M. (2015). Self-critical perfectionism and depressive and anxious symptoms over 4 years: The mediating role of daily stress reactivity. *Journal of Counseling Psychology*, *62*, 703–717. https://doi.org/10.1037/cou0000101

McLean, C. P., & Anderson, E. R. (2009). Brave men and timid women? A review of the gender differences in fear and anxiety. *Clinical Psychology Review*, *29*, 496–505. https://doi.org/10.1016/j.cpr.2009.05.003

Richardson, C. M., Rice, K. G., & Devine, D. P. (2014). Perfectionism, emotion regulation, and the

    cortisol stress response. *Journal of Counseling Psychology, 61*(1), 110–118.

    https://doi.org/10.1037/a0034446

Rossi, V., & Pourtois, G. (2012). Transient state-dependent fluctuations in anxiety measured using

    STAI, POMS, PANAS or VAS: A comparative review. *Anxiety, Stress & Coping, 25*, 603-

    645. doi: 10.1080/10615806.2011.582948

Sherry, S. B., Richards, J. E., Sherry, D. L., & Stewart, S. H. (2014). Self-critical perfectionism is a

    vulnerability factor for depression but not anxiety: A 12-month, 3-wave longitudinal study.

    Journal of Research in Personality, 52, 1–5. doi:10.1016/j.jrp.2014.05.004

Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The Revised Almost

    Perfect Scale. *Measurement and Evaluation in Counseling and Development, 34*(3), 130-145.

Smith, M. M., Sherry, S. B., Rnic, K., Saklofske, D. H., Enns, M. W., & Gralnick, T. (2016). Are

    perfectionism dimensions vulnerability factors for depressive symptoms after controlling for

    neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality,*

    30, 201-212. http://dx.doi.org/10.1002/per.2053

Smith, M. M., Vidovic, V., Sherry, S. B., Stewart, S. H., & Saklofske, D. H. (2018). Are

    perfectionism dimensions risk factors for anxiety symptoms? A meta-analysis of 11

    longitudinal studies. *Anxiety, stress, and coping*, *31*(1), 4–20.

    https://doi.org/10.1080/10615806.2017.1384466

Spielberger, C. D., Gorssuch, R. L., Lushene, P. R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual*

    for the State-Trait Anxiety Inventory: Revised Edition. Palo Alto, CA: Consulting

    Psychologists Press.

Stoeber, J., & Gaudreau, P. (2017). The advantages of partialling perfectionistic strivings and

    perfectionistic concerns: Critical issues and recommendations. *Personality and Individual*

    Differences, *104*, 379-386. doi:10.1016/j.paid.2016.08.039

Wirtz, P. H., Elsenbruch, S., Emini, L., Rüdisüli, K., Groessbauer, S., & Ehlert, U. (2007).

Perfectionism and the cortisol response to psychosocial stress in men. *Psychosomatic*

Medicine, *69*(3), 249–255. https://doi.org/10.1097/PSY.0b013e318042589e

Zureck, E., Altstötter-Gleich, C., Gerstenberg, F. X. R., & Schmitt, M. (2015). Perfectionism in the

Transactional Stress Model. *Personality and Individual Differences*, *83,* 18-23.

https://doi.org/10.1016/j.paid.2015.03.029

Zureck, E., Altstötter-Gleich, C., Wolf, O. T. & Brand, M. (2014). It depends: Perfectionism as a

moderator of experimentally induced stress. *Personality and Individual Differences*, *63*, 30-

35. https://doi.org/10.1016/j.paid.2014.01.038