The Perniciousness of Perfectionism:

A Meta-Analytic Review of the Perfectionism-Suicide Relationship

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Abstract

Over 50 years of research implicates perfectionism in suicide. Yet the role of perfectionism in suicide needs clarification due to notable between-study inconsistencies in findings, underpowered studies, and uncertainty whether perfectionism confers risk for suicide. **Objective:** We addressed this by meta-analyzing perfectionism's relationship with suicide ideation and attempts. We also tested whether self-oriented, other-oriented, and socially prescribed perfectionism predicted increased suicide ideation, beyond baseline ideation. **Method:** Our literature search yielded 45 studies (N = 11,747) composed of undergraduates, medical students, community adults, and psychiatric patients. **Results:** Meta-analysis using random effects models revealed perfectionistic concerns (socially prescribed perfectionism, concern over mistakes, doubts about actions, discrepancy, perfectionistic attitudes), perfectionistic strivings (self-oriented perfectionism, personal standards), parental criticism, and parental expectations displayed small-to-moderate positive associations with suicide ideation. Socially prescribed perfectionism also predicted longitudinal increases in suicide ideation. And perfectionistic concerns, parental criticism, and parental expectations displayed small, positive associations with suicide attempts. **Conclusions:** Results lend credence to theoretical accounts suggesting self-generated and socially based pressures to be perfect are part of the premorbid personality of people prone to suicide ideation and attempts. Perfectionistic strivings' association with suicide ideation also draws into question the notion that such strivings are healthy, adaptive, or advisable.

Keywords: perfectionism, suicide, meta-analysis

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Suicide is a major public health concern with wide-reaching consequences. Suicide claims more lives than homicide and war combined, is the second-leading cause of death among American adolescents, and costs the US economy $51 billion annually (Center for Disease Control and Prevention, 2015). By 2020, suicide is predicted to account for 2.4% of the global burden of disease (World Health Organization, 2012). Worldwide, 10 to 20 million people attempt suicide each year and nearly one million people complete suicide each year (World Health Organization, 2012). And each suicide seriously affects at least six people (McIntosh & Drapeau, 2014). Even so, the global suicide rate decreased 26% from 2000 to 2012, suggesting some forms of suicide are preventable (World Health Organization, 2012). Accordingly, researchers and clinicians are increasingly interested in identifying reliable markers of suicide to support prevention and intervention strategies. And although suicide is seldom attributable to any single factor, personality traits can play a very important role (Bogg & Roberts, 2004; Brezo, Paris, & Turecki, 2006). The present study focuses on one such trait—perfectionism.

The Alaska Suicide Follow-Back Study (Alaska Injury Prevention Center, 2007) helps illustrate the perniciousness of perfectionism. In this study, researchers interviewed family and friends of people who completed suicide and found 56% of decedents were described as perfectionistic (Alaska Injury Prevention Center, 2007, p. 32). Similarly, when Törnblom, Werbart, and Rydelius (2013, p. 248) conducted interviews with parents of adolescents who completed suicide, 68.1% reported their child's "high demands and expectations"—hallmarks of perfectionism—were contributing factors. As these examples suggest, perfectionism can be pernicious. Even so, the role of perfectionism in suicide may be under-appreciated, under-

recognized, and misunderstood due to notable inconsistencies in findings between studies, underpowered studies, and uncertainty whether perfectionism confers longitudinal risk for suicide ideation and attempts. We addressed these issues by conducting a rigorous, comprehensive meta-analytic review of the perfectionism-suicide relationship. In conducting this empirical synthesis, our goal was to bring greater clarity to this important literature.

Conceptualizing Perfectionism

The most widely adopted conceptualizations of perfectionism are associated with two measures, both titled the Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990, FMPS; Hewitt & Flett, 1991, MPS). Frost et al. (1990) defined perfectionism as "high standards of performance which are accompanied by overly critical evaluations of one's behavior" (p. 450) and introduced six dimensions—concern over mistakes, doubts about actions, parental criticism, parental expectations, personal standards, and organization. *Concern over mistakes* involves a preoccupation with mistakes to such an extent that performance is either perfect or worthless. *Doubts about actions* characterize a nagging sense of doubt regarding the quality of one's performance. *Personal standards* reflect setting unreasonably high personal standards and goals. *Parental criticism* and *parental expectations* encompass perceptions of one's parents as excessively critical and holding unrealistically high expectations. *Organization* includes an overemphasis on order, precision, and neatness. Hewitt and Flett's (1991) model underscored the personal and the interpersonal aspects of perfectionism and introduced three dimensions—*self-oriented perfectionism* (demanding perfection of oneself), *other-oriented perfectionism* (demanding perfection of others), and *socially prescribed perfectionism* (perceiving others are demanding perfection of oneself).

Other notable conceptualizations of perfectionism exist. Slaney, Rice, Mobley, Trippi,

and Ashby's (2001) Almost Perfect Scale-Revised (APS-R) conceptualizes perfectionism as having positive and negative features, with the APS-R's *discrepancy* subscale reflecting a perceived gap between how one is and how one would like to be, and the APS-R's *standards* subscale reflecting striving for excellence (Blasberg, Hewitt, Flett, Sherry, & Chen, 2016). Alternatively, Beck and associates' (Imber et al., 1990) view perfectionism as a unitary cognitive style, which we label perfectionistic attitudes. These attitudes include cognitive distortions with perfectionistic themes (e.g., black-and-white dichotomous thinking) and social difficulties with perfectionistic themes (e.g., social evaluative concerns; Sherry, Hewitt, Flett, & Harvey, 2003). Finally, Garner, Olmstead, and Polivy's (1983) Eating Disorder Inventory (EDI) conceptualizes perfectionism as a unidimensional construct characterized by both perfectionistic standards and evaluative concerns (Sherry, Hewitt, Besser, McGee, & Flett, 2004).

Perfectionistic Concerns, Perfectionistic Strivings, Other Forms of Perfectionism, and Correlates of Perfectionism

The number of perfectionism dimensions makes studying perfectionism challenging. However, this challenge can be mitigated by adopting the two-factor model (e.g., Smith, Sherry, Chen, et al., 2016). This model asserts the majority of common variance among lower-order perfectionism dimensions is attributable to two higher-order factors: perfectionistic concerns and strivings (Stoeber & Otto, 2006). Perfectionistic concerns encompass a family of traits involving socially prescribed perfectionism, concern over mistakes, doubts about actions, discrepancy, and perfectionistic attitudes (Dunkley, Sanislow, Grilo, & McGlashan, 2004; Smith, Sherry, Rnic et al., 2016). In contrast, perfectionistic strivings encompass a constellation of traits involving self-oriented perfectionism and personal standards (Stoeber & Otto, 2006).

Yet the two-factor model is unable to integrate all forms of perfectionism—particularly other-oriented perfectionism. The two-factor model is also incapable of accommodating total scores. Although the use of total scores is discouraged by some (Hewitt, Flett, Besser, Sherry, & McGee, 2003), several studies use them (e.g., Chang, 2002). To deal with such issues, we refer to other-oriented perfectionism and total perfectionism scores as measured by Frost et al. (1990) and by Garner et al. (1983) as "other forms of perfectionism." We also considered three of Frost et al.'s (1990) six facets (parental criticism, parental expectations, and organization) as "correlates of perfectionism," as opposed to core characteristics of perfectionism (Stoeber & Otto, 2006). Parental criticism and expectations assess childhood antecedents of perfectionism (Sherry & Hall, 2009), and organization does not appear definitional to the perfectionism construct (Frost et al., 1990). Given Cox, Enns, and Clara's (2002) factor analytic findings, we also combined parental criticism and parental expectations to form parental perceptions.

Suicide Ideation and Suicide Attempts

Suicide ideation involves thoughts, intent, threats, and other non-physical actions; suicide attempts involve physical behaviors in which an individual attempts to end his or her life, but survives (Kessler, Berglund, Borges, Nock, & Wang, 2005). Research suggests suicide ideation and suicide attempts lie along a continuum, such that risk for completed suicide increases as one progresses from passive thoughts about suicide, to seriously thinking about suicide, to actively attempting suicide (Joiner, 2005). Indeed, suicide ideation, and even passive thoughts about wanting to be dead, predict suicide completion (Brown, Beck, Steer, & Grisham, 2000; Brown, Steer, Henriques, & Beck, 2005). Likewise, suicide attempts are robustly tied to suicide completion (Oquendo et al., 2004). And the best predictor of completed suicide is a history of attempts (Nordström, Samuelsson, & Asberg, 1995; Joiner et al., 2005). Given these links, we

refer to the continuum of possible suicide thoughts (ideation) and actions (attempts) as suicidality.

The Perfectionism-Suicidality Relationship

Public outcry over the perfectionism-suicide link arose largely from media accounts of Sidney Blatt's (1995) article "The Destructiveness of Perfectionism." Blatt's (1995) article described how perfectionism led three remarkably talented individuals to end their lives (i.e., Vincent Foster, Alasdair Clayre, and Denny Hansen). Five years earlier, Baumeister (1990) also sounded the same alarm with his escape theory of suicide. Baumeister (1990) posited lofty personal standards can trigger a causal chain cumulating in suicide. Building on these accounts, most researchers conceptualize perfectionism as a vulnerability factor for suicide (e.g., Flett, Hewitt, & Heisel, 2014; Hewitt, Flett, Sherry, & Caelian, 2006; Roxborough et al. 2012).

So, why is perfectionism associated with thinking about, attempting, and even completing suicide? Perfectionists are their own worst critics—good enough is never enough (Hewitt & Flett, 1991). Consequently, the typical perfectionist is locked in an endless loop of self-defeating over-striving in which each new task is another opportunity for harsh self-rebuke, disappointment, and failure (DiBartolo, Frost, Chang, LaSota, & Grills, 2004; Dunkley & Grilo, 2007; Struman, Flett, Hewitt, & Rudolph, 2009). In addition, black-and-white thinking can lead perfectionists to interpret failures as catastrophes that, in extreme circumstances, are seen as warranting death (Blatt, 1995; Flett et al., 2014; Hewitt et al., 2006). Many perfectionists also struggle to participate in, and to benefit from, stable, positive interpersonal relationships (Sherry, Mackinnon, & Gautreau, 2015). And this inability to partake in harmonious relationships may leave perfectionists at risk for suicidality (see Hewitt et al., 2006). Similarly, the stress-diathesis model of perfectionism (Hewitt & Flett, 2002) asserts ego-involving stressors place

perfectionists at risk for suicide. Flamenbaum and Holden (2007), for instance, found perfectionists are prone to psychache (i.e., profound psychological pain) if they perceive unfilled needs in areas of achievement and affiliation. All told, research suggests an important relationship between perfectionism and suicide. Yet, this literature has not been meta-analyzed.

Hewitt et al.'s (2006), O'Connor's (2007), and Flett et al.'s (2014) non-empirical reviews capably summarized the perfectionism-suicide literature and concluded perfectionistic concerns were related to suicidality. However, due to notable inconsistencies between studies in findings, none of these authors reached concrete conclusions regarding perfectionistic strivings' link with suicidality. Indeed, some studies report perfectionistic strivings are negatively related to suicidality (e.g., Stoeber & Otto, 2006); some studies report perfectionistic strivings are unrelated to suicidality (e.g., Hewitt, Norton, Flett, Callander, & Cowan, 1998); and other studies report perfectionistic strivings are positively related to suicidality (e.g., Flamenbaum & Holden, 2007). Likewise, O'Connor (2007; p. 709) concluded: "there are insufficient studies to draw any firm conclusion about [other-oriented perfectionism]." And other-oriented perfectionism was absent from reviews by Hewitt et al. (2006) and by Flett et al. (2014). Additionally, as with perfectionistic strivings, inconsistent findings between studies have rendered our understanding of other-oriented perfectionism's relationship with suicidality equivocal. Some investigators report other-oriented perfectionism is negatively related to suicidality (Hunter & O'Connor, 2003); some investigators report other-oriented perfectionism is unrelated to suicidality (Hewitt, Caelian, Chen, & Flett, 2014); and other investigators report other-oriented perfectionism is positively related to suicidality in Asian, but not Caucasian, samples (Chen, Hewitt, & Flett, 2017). Nonetheless, as of 2017, there are 12 studies examining other-oriented perfectionism and suicidality (see Table 1), meaning this literature is now suitable for meta-analysis. In sum,

though perfectionistic concerns' link with suicidality is clear (Flett al., 2014; Hewitt et al., 2006; O'Connor, 2007), perfectionistic strivings' and other-oriented perfectionism's link with suicidality is unclear.

Advancing Research on the Perfectionism-Suicidality Relationship Using Meta-Analysis

Over 50 years of case reports, theoretical accounts, and empirical research implicate perfectionism in suicide (e.g., Blatt, 1995; Hassan, Flett, Ganguli, & Hewitt, 2014; Hewitt et al., 2014; Kiamanesh, Dyregrov, Haavind, & Dieserud, 2014; Shaffer, 1974). And yet, there is much to learn about the perfectionism-suicidality relationship (Flett et al., 2014). First, noteworthy inconsistencies between studies in findings (e.g., Flamenbaum & Holden, 2007; Hewitt et al., 1998; Hewitt et al., 2014; Hunter & O'Connor, 2003) have clouded our understanding of perfectionistic strivings' and other-oriented perfectionism's relationships with suicidality. And a quantitative synthesis is needed for overall conclusions to be reached. Such a quantitative synthesis could also allow for tests of moderating variables (e.g., gender) that might explain when the strength or the direction of the perfectionism-suicidality relationship changes. Second, despite evidence that correlations do not stabilize until $N \geq 250$ (Schönbrodt & Perugini, 2013), most research on perfectionism and suicide attempts is underpowered (cf. Flamenbaum & Holden, 2007). However, meta-analysis could overcome limitations of small samples (Borenstein, Hedges, Higgins, & Rothstein, 2009), and bring greater clarity to our understanding of perfectionism's relationship with suicide attempts. Third, as noted by Flett et al. (2014) and O'Connor (2007), the extent to which perfectionism dimensions confer risk for suicide has yet to be determined. Indeed, most investigators use cross-sectional designs which, unlike longitudinal designs, cannot address temporal precedence. As such, whether perfectionism leads to increases in suicidality is unclear, and researchers and clinicians can only speculate as to whether reducing

perfectionism reduces suicidality. Nevertheless, there is now sufficient data to test if self-oriented, other-oriented, and socially prescribed perfectionism predict follow-up suicide ideation, beyond baseline suicide ideation (Chen, 2012; Enns, Cox, Sareen, & Freeman, 2001; O'Connor et al., 2007a). Fourth, due to limitations of non-empirical reviews, the strength of the relation between perfectionism dimensions, suicide ideation, and suicide attempts is unclear. A meta-analysis could shed light on which perfectionism dimensions display the strongest relations with suicide ideation and suicide attempts, which in time might inform the development of interventions designed to target and to modify perfectionism's most pernicious aspects.

Objectives and Hypothesis

Our primary aim was to bring greater clarity to our understanding of the perfectionism-suicidality relationship by comprehensively synthesizing empirical research on perfectionism, suicide ideation, and suicide attempts. To date, there is no meta-analysis of findings from this longstanding and important literature. We also aimed to test the contentiously debated relation between perfectionistic strivings, suicide ideation, and suicide attempts. Such evidence would inform debate on the pros and the cons of demanding perfection of oneself (e.g., Stoeber & Otto, 2006; Sherry, Hewitt, Sherry, Flett, & Graham, 2010). Another aim was to test if self-oriented, other-oriented, and socially prescribed perfectionism predicted longitudinal increases in suicide ideation over time. Controlling for baseline suicide ideation represents a stringent test of the perfectionism-suicidality relationship, as baseline suicide ideation is a strong predictor of subsequent suicide ideation (e.g., Joiner et al., 2005).

Building on theory and research (Flett et al., 2014, Hewitt et al., 2006; O'Connor, 2007), we hypothesized perfectionistic concerns (socially prescribed perfectionism, concern over mistakes, doubts about action, discrepancy, and perfectionistic attitudes) would display positive

relationships with suicide ideation and attempts. We also hypothesized socially prescribed perfectionism would place people at risk for longitudinal increases in suicide ideation. However, given the inconsistency of research on suicidality in relation to perfectionistic strivings (self-oriented perfectionism, personal standards), other forms of perfectionism (other-oriented perfectionism, EDI-perfectionism total scores, FMPS-perfectionism total scores), and correlates of perfectionism (parental criticism, parental expectations, organization), we considered our investigation into these questions to be more exploratory.

Method

Selection of Studies

In 2016, a literature search using PsycINFO, Medline, Web of Science, ERIC, and ProQuest Dissertations and Theses was conducted using the keywords and Boolean search terms "perfect*" and "suicid*." This search yielded 100 studies from PsycINFO, 122 studies from Medline, 226 studies from Web of Science, and 38 studies from ProQuest. We also compiled a list of 353 authors who had published on perfectionism. We then contacted each author individually and requested unpublished findings. However, none of the authors contacted provided relevant data. Additionally, we monitored the Perfectionism Network Mailing List to identify studies that were accepted, but not published, at the time of our literature search. This yielded one study: Chen, Hewitt, and Flett (2017). Both the first and the third author then reviewed abstracts of all studies identified, selecting studies meeting inclusion criteria. Studies were included that (a) contained data on perfectionism and suicidality (ideation and attempts) and (b) were in English. Included studies also (c) reported an effect size, reported enough information for computing an effect size, or effect size information was obtained from a study author. All authors contacted ($N = 1$) provided the requested information.

This literature search yielded 57 studies for inclusion. Interrater agreement on inclusion or exclusion in the meta-analysis was 95%. Disagreement was resolved by revisiting articles and coming to a consensus. The reference lists of included articles were also examined to locate additional relevant literature. On August 7, 2016, we terminated all search strategies and started data reduction and analysis. We excluded 12 studies (see Supplemental Material A). The final sample of included studies was composed of 45 studies with 54 samples.

Coding of Studies

The first and the third author coded each study based on nine characteristics: sample size, sample type, mean age of participants, percentage of female participants, percentage of ethnic minority participants, publication status, measure used to assess perfectionism, measure used to assess suicide ideation, and measure used to assess suicide attempts.

Meta-Analytic Procedures

Random-effects analyses were conducted using Comprehensive Meta-Analysis software (Borenstein, Hedges, Higgins, & Rothstein, 2005). We chose random-effects models, over fixed-effects models, as the 45 included studies varied widely in design. We also weighed mean effects following the procedure suggested by Hunter and Schmidt (1990). This allowed us to estimate mean effect sizes and variance in observed scores after considering sampling error (Card, 2012). Next, effect size estimates were weighted by sample size and aggregated. For studies with more than one measure of suicide ideation, we averaged effect sizes so only one effect was included (Borenstein, Hedges, Higgins, & Rothstein, 2009; Card, 2012). Effect sizes presented in metrics other than *r* (i.e., means, *t*-tests, *d*, or *F* scores), were converted and expressed as correlations following formulas provided by Borenstein et al. (2009). We also used Borenstein et al.'s (2009) formula to calculate power under the random-effects model for each weighted mean effect.

Additionally, most included studies measured perfectionism and suicide ideation with imperfect reliability. As this can attenuate the magnitude of observed correlations, effects were adjusted by dividing the observed correlation by the square root of the product of the two corresponding reliability coefficients (Card, 2012). When reported, the actual reliability statistics for a study were used; when not reported, the corresponding meta-analyzed mean reliability was used (Card, 2012). However, we were unable to adjust for unreliability in suicide attempts. Thus, in the interest of methodological consistency we used the common, albeit conservative, strategy of interpreting observed effects, which generally underestimates the true magnitude of effect sizes (Borenstein et al. 2009). Nonetheless, for readers who disagree with this strategy, effect sizes adjusted for unreliability are presented in our supplementary material.

To examine the extent to which baseline self-oriented, other-oriented, and socially prescribed perfectionism predict follow-up suicide ideation, after controlling for baseline ideation, we computed partial correlations using the "corpcor" package (Schafer, Opgen-Rhein, Zuber, Silvia, & Strimmer, 2015) for R (R Core Team, 2013). Although there was insufficient data to examine unique effects between perfectionism dimensions and suicide attempts, there was sufficient data to examine unique effects between perfectionism dimensions and suicide ideation. Thus, again using the "corpcor" package (Schafer et al., 2015), we computed partial correlations for MPS perfectionism dimensions by residualizing self-oriented, other-oriented, and socially prescribed perfectionism based on their overlap with each other prior to being correlated with suicide ideation. Likewise, for FMPS perfectionism dimensions, we computed partial correlations by residualizing concern over mistakes, doubts about action, parental criticism, parental expectations, personal standards, and organization based on their overlap with each other prior to being correlated with suicide ideation.

To assess moderation, we evaluated the total heterogeneity of weighted mean effect sizes (Q_T). A significant Q_T indicates variance in weighted mean effect sizes is greater than expected by sampling error (Card, 2012); a non-significant Q_T suggests a weak basis for moderation. For each analysis, we also computed the inconsistency in observed effects (I^2) across studies. I^2 indicates the percentage of total variance across studies due to heterogeneity: values of 25%, 50%, and 75% correspond to low, medium, and high heterogeneity, respectively.

When Q_T was significant, we stipulated a categorical structure and the total heterogeneity explained by the categorization (Q_B) was calculated (Card, 2012). A significant Q_B indicates meaningful differences in effects between categories and provides a firm basis for moderation (Borenstein et al. 2009). When Q_B was significant, we examined differences in effect sizes between studies grouped by publication status (articles and dissertations), age (adult, young adult, adolescent), and sample (community adults, undergraduate students, psychiatric patients) by performing a series of all possible two-group comparisons to test which group differed significantly in effect size (Card, 2012). For each group comparison, the resultant Q_B from the two groups was tested using a χ^2 test with one *df*. We also recorded gender (percentage female) and ethnicity (percentage ethnic minority) as continuous variables and used mixed-effects meta-regression to test the potential moderating effects of gender and ethnicity.

To assess publication bias, we inspected funnel plots with observed and imputed studies, and computed Egger's test of regression to the intercept (Egger, Smith, Schneider, & Minder, 1997). Such funnel plots allow for visual inspection of how the effect size shifts when imputed studies are included (Borenstein et al., 2009). And in the absence of publication bias, Egger's regression intercept does not differ significantly from zero (Egger et al., 1997).

Description of Studies

Our search identified 45 studies and 54 samples containing relevant effect size data (see Table 1). The total number of participants pooled across studies was 11,747. Relevant data were obtained from 38 journal articles and 7 dissertations. There were 21 samples of university undergraduates, 29 samples of psychiatric patients, 1 sample of medical students, and 3 samples of community adults. There were 48 cross-sectional samples and six longitudinal samples. Sample size varied between 17 and 1,436 with an average of 217.5 (*SD* = 259.8). The mean age of participants was 26.8 years (*SD* = 10.2; range 12.9-58.6). The average percentage of female participants was 63.3%; the average percentage of ethnic minority participants was 24.4%. Effect size information for each individual study is presented in Supplemental Material B. Adjusted effect size information for each individual study is presented in Supplemental Material C.

Measures

Perfectionism. Following theory and research (e.g., Dunkley et al., 2004; Stoeber & Otto, 2006), personal standards (FMPS) and self-oriented perfectionism (MPS, CAPS) were considered facets of perfectionistic strivings; concern over mistakes (FMPS), doubts about actions (FMPS), socially prescribed perfectionism (MPS, CAPS), discrepancy (APS-R), and perfectionistic attitudes (DAS-P) were considered facets of perfectionistic concerns. Parental criticism and expectations, and organization were designated correlates of perfectionism. As well, parental criticism and parental expectations were combined and labeled as parental perceptions (see Cox et al., 2002). Other-oriented perfectionism (MPS), FMPS-perfectionism, and EDI-perfectionism were designated other forms of perfectionism.

Suicide ideation and suicide attempts. Suicide ideations was assessed via self-reported suicidal thinking. Suicide attempts were assessed via self-reported number of prior suicide attempts (e.g., Adkins & Parker, 1996), clinician's ratings of the number of prior suicide

attempts (e.g., Fedorowicz et al., 2007), and group comparisons between suicide attempters and non-attempters (e.g., Hewitt et al., 2014). Although, Pfeffer's (1986) Child Suicide Potential Scale (CPS) and Linehan's (1981) Suicide Behavior Questionnaire (SBQ) assess suicidal ideation and suicide attempts, we categorized the CPS and SBQ as measures of suicide ideation given the majority of CSPS and SBQ items assess suicidal thoughts.

Results

Overall Effect Sizes

Weighted mean effect sizes between perfectionism, correlates of perfectionism, and suicide ideation and suicide attempts are in Table 2 (see Supplemental Material D for adjusted effect sizes). Following Cohen's (1992) guidelines for small, medium, and large effects (r = .10, .30, and .50, respectively), perfectionistic concerns, socially prescribed perfectionism, concern over mistakes, doubts about actions, discrepancy, perfectionistic attitudes, perfectionistic strivings, self-oriented perfectionism, personal standards, parental perceptions, parental criticism, parental expectations, and FMPS-perfectionism displayed small-to-moderate, positive relationships with suicide ideation. Other-oriented perfectionism's and organization's relationships with suicide ideation were non-significant. And perfectionistic concerns, socially prescribed perfectionism, concern over mistakes, doubts about action, FMPS-perfectionism, parental perceptions, parental criticism, and parental expectations displayed small, positive relationships with suicide attempts; perfectionistic attitudes', perfectionistic strivings', self-oriented perfectionism's, personal standards', other-oriented perfectionism's, EDI-perfectionism's, and organization's relationships with suicide attempts were non-significant.

Weighted mean effect sizes for the relationships between self-oriented, other-oriented, and socially prescribed perfectionism at baseline and suicide ideation at follow-up, while

controlling for ideation at baseline, are in Supplemental Material E (see Supplemental Material F for adjusted longitudinal effect sizes). Despite the large, positive relationship between baseline and follow-up suicide ideation, socially prescribed perfectionism still displayed a small, positive relationship with follow-up suicide ideation, after controlling for baseline suicide ideation. Self-oriented and other-oriented perfectionism's relationships with follow-up suicide ideation, after controlling for baseline ideation, were non-significant.

MPS perfectionism dimensions displayed small-to-large positive correlations with each other (see Supplemental Material G for observed effects and Supplemental Material H for adjusted effects). After controlling for overlap in MPS dimensions, self-oriented perfectionism ceased to significantly predict suicide ideation; other-oriented perfectionism had a small unique negative association with suicide ideation; and socially prescribed perfectionism had a small unique positive relationship with suicide ideation. FMPS-perfectionism dimensions had marginal-to-large correlations with each other (see Supplemental Material G for observed effects and Supplemental Material H for adjusted effects). After controlling for overlap in FMPS dimensions, the relationships among suicide ideation and concern over mistakes, personal standards, parental expectations, and organization were non-significant. However, after controlling for overlap among FMPS dimensions, doubts about actions and parental criticism displayed small unique positive relationships with ideation (see Supplemental Material G for observed effects and Supplemental Material H for adjusted effects).

The test of the total heterogeneity of variance of weighted mean effect sizes (Q_T) was significant for suicide ideation's relations with perfectionistic concerns, concern over mistakes, discrepancy, personal standards, perfectionistic attitudes, other-oriented perfectionism, FMPS-perfectionism, and organization (see Table 2). Q_T was also significant for the link between

suicide attempts and perfectionistic concerns (see Table 2). The percentage of total variance owing to heterogeneity (I^2) ranged from small to large, suggesting possible moderators.

Moderator Analysis

Moderator analyses (see Supplemental Material I) tested if effect sizes with significant heterogeneity (Q_T) were moderated by publication status (peer reviewed articles; dissertations), age (adolescent samples ≥ 13 and ≤ 17 years; young adult samples ≥ 18 and ≤ 25 years; adult samples ≥ 25 years), sample (university undergraduates; community adults; psychiatric patients), or perfectionism measure. Perfectionistic concerns' relationship with suicide attempts was non-significant for the CAPS, but significant for the FMPS and the MPS. Meta-regression also revealed the strength of the relationship between perfectionistic concerns and suicide attempts decreased as the proportion of females in a sample increased. However, we advise caution in interpreting our moderator analyses given the small number of studies per subgroup.

Publication Bias

Funnel plots (see Supplemental Material J) and Egger's regression intercept (see Table 2) provided mixed evidence for publication bias. Egger's regression intercept was significant for perfectionistic concerns' relationship with suicide ideation and suicide attempts. Moreover, the funnel plot for perfectionistic concerns and suicide attempts was asymmetrical. Accordingly, for perfectionistic concerns relationship with suicide ideation and suicide attempts, trim and fill estimates may provide more accurate estimates. Nonetheless, after imputing missing studies, the adjusted point estimates for perfectionistic concerns' relationships with suicide ideation and suicide attempts provided the same substantive implications (see Table 2).

Discussion

Suicide claims one life every 45 seconds (World Health Organization, 2012). Given the wide-reaching personal and societal costs of suicide, it is vital to identify contributing factors. One such factor, supported by over 50 years of case histories, theoretical accounts, and empirical research, is perfectionism (Blatt, 1995; Hassan et al., 2014; Hewitt et al., 2014; Kiamanesh et al., 2014; Shaffer, 1974). Yet, despite the abundance of research, the role of perfectionism in suicide remains under-appreciated, under-recognized, and misunderstood due to inconsistencies between studies in findings, underpowered studies, and uncertainty surrounding whether perfectionism dimensions predict longitudinal increases in suicidality. We aimed to rectify this by rigorously conducting the first meta-analytic review of the perfectionism-suicidality relationship.

An Improved Understanding of the Perfectionism-Suicidality Relationship

Our meta-analysis of 45 studies, 54 samples, and 11,747 participants represents the most comprehensive test of the perfectionism-suicidality link to date. All dimensions or correlates of perfectionism (except for other-oriented perfectionism and organization) were positively related to suicide ideation. And these effect sizes were generally consistent across samples, methods, and measures. Socially prescribed perfectionism also predicted longitudinal increases in suicide ideation. And seven dimensions or correlates of perfectionism were related positively to suicide attempts (i.e., perfectionistic concerns, socially prescribed perfectionism, concern over mistakes, doubts about actions, FMPS-perfectionism, and parental criticism and expectations).

These findings complement case histories and theoretical accounts (e.g., Baumeister, 1990; Blatt, 1995; Hewitt et al., 2006) suggesting people high in perfectionism appear to think, behave, perceive, and relate in ways that have suicidogenic consequences. We refined this literature, showing that perfectionism dimensions are differentially related to suicidality, with perfectionistic strivings (self-oriented perfectionism and personal standards) predicting suicide

ideation and perfectionistic concerns (socially prescribed perfectionism, concern over mistakes, doubts about actions, and perfectionistic attitudes) predicting suicide ideation and attempts. People high in perfectionistic strivings are only satisfied when events in their lives suggest they are perfect; when life events inevitably suggest they are not perfect, suicidal ideation may follow (Blatt, 1995; Hewitt & Flett, 2002). People high in perfectionistic concerns believe others hold lofty expectations for them, and feel incapable of living up to the perfection they perceive others demand. Such people also tend to see their social world as rejecting, and to see others as disappointed in them. This sense of disappointing others may fuel suicide ideation and attempts for people high in perfectionistic concerns (Hewitt et al., 2006; Sherry et al., 2015).

Our results also suggest socially prescribed perfectionism acts as a risk factor, predicting longitudinal increases in suicide ideation. Given the strong link between baseline suicide ideation and subsequent suicide ideation, these analyses represent a particularly stringent test of the connection between socially prescribed perfectionism and suicide ideation. Socially prescribed perfectionism appears to be composed of stable, underlying traits that trigger suicide ideation. In fact, our findings lend credence to the longstanding notion that feeling incapable of living up to the lofty standards of others is a part of the premorbid personality of people at risk for suicide (for a review, see Hewitt et al., 2006). Our findings also join a wider literature suggesting that, when people experience their social world as pressure-filled, judgmental, and hyper-critical, they think about and/or engage in various potential means of escape (e.g., alcohol misuse and binge eating), including suicide (e.g., Baumeister, 1990; Sherry & Hall, 2009). In addition, preliminarily, our findings suggest parental criticism and expectations are parenting styles with enduring negative consequences. It seems the conditions that give rise to perfectionism (e.g., critical and demanding parents; Blatt, 1995) might also be linked to suicidality.

Other-oriented perfectionism's and organization's relationships with suicide ideation and attempts were non-significant. While other-oriented perfectionists appear to elicit great distress in other people (Nealis, Sherry, Stewart, & Macneil, 2015), our results suggest other-oriented perfectionists themselves do not suffer greater suicidality. Our findings also indicate organization is benign as regards suicide ideation. However, we are unable to reach a concrete conclusion regarding organization's relationship with suicide attempts as only two studies assessed organization and suicide attempts (Adkins & Parker, 1996; Portzky, van Heeringen, & Vervaet, 2014). Moreover, concerns exist about whether organization is part of the perfectionism construct (Stoeber & Otto, 2006). Indeed, Frost et al. (1990) considered organization to be associated with perfectionism, but not a defining trait.

Although both perfectionistic concerns and strivings were related to suicide ideation, only perfectionistic concerns were related to suicide attempts. Our results thus suggest perfectionistic concerns are linked to more severe, and potentially more lethal, suicide behaviors. That said, perfectionistic strivings link with suicide ideation is important. The strength of the relation between perfectionistic strivings and suicide ideation may intensify in the presence of ego-involving stressors (Flett et al., 2014; Hewitt et al., 2006). And the small, but positive, relation between perfectionistic strivings and suicide ideation diverges with some authors' notion that perfectionistic strivings are adaptive traits that protect against suicidality (e.g., Stoeber & Otto, 2006). In contrast, our results suggest people high in perfectionistic strivings appear driven to achieve perfection in a manner that makes them want to die. In relation to the broader personality research literature, conscientiousness is negatively related to suicide ideation (Bogg & Roberts, 2004), whereas we found perfectionistic strivings are positively related to suicide ideation. These results suggest the reliable, self-disciplined behavior typifying conscientiousness differs from the

unrealistic goal-pursuit and expectations central to perfectionistic strivings, and perfectionistic strivings are more than just conscientiousness or an extreme need for achievement.

Turning to unique effects, findings aligned with studies showing perfectionistic strivings' relation with suicide ideation is due to overlap with perfectionistic concerns (e.g., Flamenbaum & Holden, 2007). Controlling for overlap in MPS perfectionism dimensions, socially prescribed perfectionism was positively related to suicide ideation, other-oriented perfectionism was negatively related to suicide ideation, and self-oriented perfectionism was unrelated to suicide ideation. And controlling for overlap in FMPS perfectionism dimensions, doubts about actions and parental criticism, but not concern over mistakes or parental expectations, were related to suicide ideation. However, we caution against over-interpretation of these unique effects.

Researchers are wary that removing variance attributable to perfectionistic concerns, when examining the effects of perfectionistic strivings, may change the conceptual meaning of perfectionistic strivings and result in a form of perfectionism seldom seen in real life (Hill, 2014; Molnar, Sadava, Flett, & Colautti, 2012; Powers, Koestner, Zuroff, Milyavskaya, & Gorin, 2011). Indeed, it is unclear what residualized perfectionistic strivings measures (Hill, 2014). Until such questions are answered, we urge caution in interpreting our results involving residualized perfectionistic strivings. And we note that, at best, perfectionistic strivings stripped of its overlap with perfectionistic concerns are unrelated to suicide ideation; at worst, perfectionistic strivings, when not residualized, are related to suicide ideation—neither of which suggests that self-driven pressure to be perfect is conducive to mental health.

Limitations of Overall Literature

Though there are a growing number of longitudinal studies (e.g., O'Connor et al., 2007a), most research on the perfectionism-suicidality link is cross-sectional. As cross-sectional studies

are incapable of testing for risk factors, this is problematic. Accordingly, although our findings provide compelling evidence that most perfectionism dimensions are concomitants of suicidality, there is much to learn about whether perfectionism comes before, occurs during, or persists after suicidality (see Durbin & Hicks, 2014).We also need stringent tests of the extent to which perfectionism adds incrementally to our understanding of suicidality beyond other established predictors of suicidality such as personality traits (e.g., borderline traits), psychological symptoms (e.g., depression), and sociocultural factors (e.g., poverty). Also, while five perfectionistic concerns' dimensions were tested in our meta-analysis, only two perfectionistic strivings' dimensions were included (self-oriented perfectionism, personal standards). Thus, it is likely perfectionistic concerns captured a more comprehensive construct, limiting our ability to compare the contributions of perfectionistic concerns and strivings. Moreover, most research on the perfectionism-suicidality link is on trait perfectionism. As such, little consideration is given to other dimensions of perfectionism (e.g., perfectionistic self-presentation; Hewitt et al., 2003).

Limitations of the Present Study

Limitations in the literature translate into limitations in our analyses. For some scales, data were available for suicide ideation but not suicide attempts (and vice versa). Also, while there were enough data to test the extent to which MPS dimensions predict longitudinal changes in suicide ideation, there was insufficient data to test the extent to which the other perfectionism dimensions or correlates confer longitudinal risk for suicide ideation. And, although there were sufficient data to assess MPS and FMPS dimensions' relationships with suicide ideation, after controlling for overlap, there was insufficient data to assess MPS and FMPS dimensions' relationships with suicide attempts, after controlling for overlap. Likewise, research on organization's relationship with suicide attempts is limited and further research is needed to

obtain more accurate results. Future research also should integrate our findings into empirically tested models explaining when and why perfectionism combines with constructs such as stress and social problems to predict suicidality. Finally, included studies involved mainly Caucasians from Canada, the USA, and the UK, meaning our findings may have limited generalizability to ethnically diverse samples. Given Chen et al.'s (2017) recent work on ethnic variations in the perfectionism-suicide link, investigating ethnic differences in the perfectionism-suicide relationship is an important area for further inquiry.

Concluding Remarks

Our meta-analysis offers the most rigorous, comprehensive test of the perfectionism-suicidality relationship to date. In synthesizing extant research, we corroborated and extended theoretical accounts underscoring the perniciousness of perfectionism (Blatt, 1995; Flett et al., 2014; Hewitt et al., 2006; O'Connor, 2007). In fact, 13 of 15 perfectionism dimensions had positive relationships with suicide ideation, with the most perniciousness form of perfectionism involving perceived external pressure to be perfect.

Decades of empirical research suggest relentlessly pursuing perfection engenders intense psychological pain (Smith, Sherry, Rnic, et al., 2016). Perfectionists have a harsh way of relating to a self they often find deficient (e.g., self-attack; Hewitt & Flett, 1991). And pressure, hassles, and stress are abundant in the lives of many perfectionists (Dunkley et al., 2000). A prickly and a conflictual style of relating to others also typifies perfectionists, leaving them feeling disconnected from others (Sherry et al., 2015). Amid such pain, perfectionists may think about, or engage in, suicide as a means of escaping a life they find unbearable (Baumeister, 1990).

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Preparation of this manuscript was supported by a Canada Graduate Scholarship from the Social Sciences and Humanities Research Council (752-2016-2229) awarded to Martin M. Smith. Preparation of this manuscript was also supported by a Social Sciences and Humanities Research Council of Canada Insight Grant (35154) awarded to Simon Sherry, Michael Pratt, Sherry Stewart, and Dayna Lee-Baggley.

Acknowledgement

The authors thank Vanja Vidovic for her assistance in preparing this manuscript.

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Table 1

Characteristics of studies included in the meta-analysis

	Sample							Measures		
	N	Sample type	Mean age	Female %	Ethnic %	Status	Design	Perfectionism	Suicide ideation	Suicide attempts
Adkins (1994)	129	university[a]	NR	NR	10.1	dissertation	cross-sectional	FMPS-total	ASIQ	—
Adkins and Parker (1996)	129	university[a]	21.8	65.0	11.0	article	cross-sectional	FMPS-COM FMPS-DAA FMPS-PC FMPS-PE FMPS-PS FMPS-ORG	AAHS-ST[e]	attempts[f]
Beck et al. (1993)	908	psychiatric[b]	36.4	55.0	NR	article	cross-sectional	DAS-P	SSI	attempts[f]
Beevers and Miller (2004) time 1	121	psychiatric[b]	38.0	74.4	6.6	article	longitudinal	DAS-P	MSSI	—
Beevers and Miller (2004) time 2	100	psychiatric[b]	38.0	74.4	6.6	article	longitudinal	DAS-P	MSSI	—
Blankstein et al. (2007) women	144	university[a]	22.1	100.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	CSI	—
Blankstein et al. (2007) men	61	university[a]	22.1	0.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	CSI	—
Blasberg et al. (2016)	371	university[a]	21.0	61.0	NR	article	cross-sectional	FMPS-PS	SSI	—
Caelian (2005)	55	psychiatric[b]	15.5	74.5	25.5	dissertation	cross-sectional	CAPS-SOP CAPS-SPP	SIQ	attempts[f]
Chang (2002)	371	university[a]	23.5	80.6	7.0	article	cross-sectional	FMPS-total	ASIQ	—
Chen (2012) women	279	community[c]	58.6	100.0	13.5	dissertation	longitudinal	MPS-SOP MPS-OOP MPS-SPP	SSI	—

Chen (2012) men	157	community[c]	58.6	0.0	13.5	dissertation	longitudinal	MPS-SOP MPS-OOP MPS-SPP	SSI	—
Chen et al. (2017)	240	university[a]	18.9	63.8	50.0	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SSI ASIQ	—
Dean and Range (1996)	168	university[a]	21.9	69.0	28.0	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SBQ	—
Dean and Range (1999)	132	psychiatric[b]	35.5	71.2	33.3	article	cross-sectional	MPS-SOP MPS-SPP	SSI	—
Dean et al. (1996)	114	university[a]	24.4	84.2	28.1	article	cross-sectional	MPS-SPP	SSI	—
Enns et al. (2001)	96	medical[d]	25.1	41.7	NR	article	longitudinal	MPS-SOP MPS-OOP MPS-SPP FMPS-COM FMPS-DAA FMPS-PC FMPS-PE FMPS-PS FMPS-ORG	SIQ	—
Fedorowicz et al. (2007)	940	psychiatric[b]	26.0	0.0	NR	article	cross-sectional	EDI	—	attempts[g]
Flamenbaum and Holden (2007)	264	university[a]	18.9	75.8	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	BSS-M BSS-P intent[h]	attempts[f]
Foulon et al. (2007)	304	psychiatric[b]	22.3	97.7	NR	article	cross-sectional	EDI	—	attempts[i]
Franko et al. (2004)	246	psychiatric[b]	NR	100.0	NR	article	cross-sectional	EDI	—	attempts[i]
Freudenstein et al. (2012)	100	psychiatric[b]	16.6	47.0	12.0	article	cross-sectional	CAPS-SOP CAPS-SPP	CSPS	attempts[i]

Hamilton and Schweitzer (2000)	389	university[a]	22.7	74.3	NR	article	cross-sectional	FMPS-PS FMPS-COM FMPS-DAA FMPS-PC FMPS-PE FMPS-total	GHQ-ST	—
Hewitt et al. (1992)	87	psychiatric[b]	35.7	52.9	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	BDI-SI	—
Hewitt et al. (1994) study 1	91	psychiatric[b]	35.5	53.8	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SSI RST-past RST-future	—
Hewitt et al. (1994) study 2	160	university[a]	21.7	65.6	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SSI RST-past RST-future	—
Hewitt et al. (1997) women	33	psychiatric[b]	15.4	100.0	NR	article	cross-sectional	CAPS-SOP CAPS-SPP	SIQ	—
Hewitt et al. (1997) men	33	psychiatric[b]	15.4	0.0	NR	article	cross-sectional	CAPS-SOP CAPS-SPP	SIQ	—
Hewitt et al. (1998)	78	psychiatric[b]	32.8	53.8	30.8	article	cross-sectional[i]	MPS-SOP MPS-OOP MPS-SPP	—	attempts[i]
Hewitt et al. (2014)	55	psychiatric[b]	15.5	74.5	25.5	article	cross-sectional	CAPS-SOP CAPS-SPP	SIQ	attempts[i]
Hunter and O'Connor (2003) sample 1	43	psychiatric[b]	34.6	53.4	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	—	attempts[i]
Hunter and O'Connor (2003) sample 2	44	psychiatric[b]	34.6	47.7	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	—	attempts[i]

Izadi (2015)	50	community[c]	27.0	74.0	42.0	dissertation	cross-sectional	MPS-SPP FMPS-COM FMPS-PC FMPS-PE	SBQ-SI	attempts[f]
Jacobs et al. (2009)	439	psychiatric[b]	14.6	54.0	26.0	article	cross-sectional	DAS-P	SIQ-JR	—
Jeglic (2003)	97	university[a]	18.4	73.2	33.0	dissertation	cross-sectional	FMPS-total	—	attempts[i]
Jeglic et al. (2007) study 2	440	university[a]	18.5	62.0	40.0	article	cross-sectional	FMPS-total	—	attempts[i]
Muyan and Chang (2015)	288	university[a]	21.3	59.0	NR	article	cross-sectional	FMPS-COM FMPS-DAA FMPS-PC FMPS-PE FMPS-PS FMPS-ORG	FSII	—
O'Connor and Forgan (2007)	255	university[a]	22.0	78.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	GHQ-ST	—
O'Connor et al. (2007a) study 2	151	university[a]	24.0	72.2	NR	article	longitudinal	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
O'Connor et al. (2007b) sample 1	65	psychiatric[b]	24.1	72.2	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
O'Connor et al. (2007b) sample 2	61	psychiatric[b]	24.1	72.2	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
Pisetsky et al. (2013)	635	psychiatric[b]	31.7	NR	NR	article	cross-sectional	FMPS-COM FMPS-DAA FMPS-PS	—	attempts[i]
Portzky et al. (2014)	1,436	psychiatric[b]	24.2	95.4	NR	article	cross-sectional	EDI FMPS-COM	—	attempts[i]

								FMPS-DAA FMPS-PC FMPS-PE FMPS-PS FMPS-ORG		
Ranieri et al. (1987) sample 1	50	psychiatric[b]	44.3	56.0	8.0	article	cross-sectional	DAS-P	BSSI	attempts[f]
Ranieri et al. (1987) sample 2	25	psychiatric[b]	41.7	60.0	NR	article	cross-sectional	DAS-P	BSSI	attempts[f]
Rasmussen et al. (2008) sample 1	17	psychiatric[b]	38.0	57.5	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
Rasmussen et al. (2008) sample 2	23	psychiatric[b]	38.0	57.5	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
Rasmussen et al. (2012a)	161	psychiatric[b]	33.7	59.0	NR	article	cross-sectional	MPS-SPP	SPS-SI	—
Rasmussen et al. (2012b)	214	university[a]	20.1	57.0	25.7	article	cross-sectional	APS-D	DSI-SS	—
Roxborough et al. (2012)	152	psychiatric[b]	12.9	45.4	28.5	article	cross-sectional	CAPS-SOP CAPS-SPP	intent[h]	—
Slish (2006)	48	university[a]	20.1	52.1	62.5	dissertation	cross-sectional	APS-D	DSI-SS	—
Wallack (2007)	181	university[a]	19.8	79.6	26.0	dissertation	cross-sectional	APS-D	SIS	—
Wang et al. (2013)	466	university[a]	26.4	49.6	NR	article	cross-sectional	APS-D	SIS	—
Yamaguchi et al. (2000)	51	psychiatric[b]	21.2	96.1	NR	article	cross-sectional	EDI	—	attempts[i]

Note. ***N*** = total number of participants; **NR** = not reported; **female %** = percentage female; **ethnic %** = percentage ethnic minority; **status** = publication status of the study; **FMPS** = Frost's et al.'s (1990) Multidimensional Perfectionism Scale; **total** = total score; **ASIQ** = Reynolds' (1991) Adult Suicide Ideation Questionnaire; **COM** = concern over mistakes; **DAA** = doubts about actions; **PC** = parental criticism; **PE =** parental expectations; **PS** = personal standards; **ORG** = organization; **AAHS-ST** = National Adolescent Health Survey suicidal thinking modified version (1989); **DAS-P** = Weissman and Beck's (1978) Dysfunctional Attitude Scale-Perfectionism Subscale; **SSI** = Beck et al.'s (1988) Scale for Suicidal Ideation; **MSSI** = Miller et al.'s (1986) Modified Scale for Suicidal Ideation; **MPS** = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; **SOP** = self-oriented perfectionism; **OOP** = other-oriented perfectionism; **SPP** = socially prescribed perfectionism; **CSI** = Blankstein's (2004) Current Suicide Ideation Scale; **CAPS** = Flett et al.'s (2016) Child-Adolescent Perfectionism Scale; **SIQ** = Reynolds' (1987a) Suicidal Ideation Questionnaire; **EDI** = Garner et al.'s (1983) Eating Disorder Inventory

perfectionism subscale; **BSS** = Beck and Steer's (1993) Suicide Ideation Scale; **M** = motivation; **P** = preparation; **Intent** = suicidal intent; **CSPS** = Pfeffer's (1986) Child Suicide Potential Scale; **GHQ-ST** = Goldberg and Williams' (1988) General Health Questionnaire suicidal thinking subscale; **BDI-SI** = Beck's (1967) Depression Inventory item-9 (suicidal intent); **RST-past** = rating of the frequency of past suicidal thoughts; **RST-future** = rating of the frequency of future suicidal thoughts; **SBQ** = Linehan's (1981) Suicidal Behavior Questionnaire; **SI** = suicidal ideation; **SIQ-JR** = Reynolds' (1987b) Suicidal Ideation Questionnaire-Grades 7-9; **FSII** = Chang and Chang's (2016) Frequency of Suicide Ideation Inventory; **SPS** = Cull and Gill's (1982) Suicide Probability Scale; **BSSI** = Beck et al.'s (1979) Scale for Suicidal Ideation; **APS-D** = Slaney et al.'s (2001) Almost Perfect Scale-Revised discrepancy subscale; **DSI-SS** = Metalsky and Joiner's (1997) Depressive Symptoms Inventory-suicidality subscale; **SIS** = Rudd's (1989) Suicidal Ideation Scale.

[a]University undergraduates

[b]Psychiatric patients

[c]Community adults

[d]Medical students

[e]Participants reported whether they had ever seriously thought about attempting suicide.

[f]Self-reported number of prior suicide attempts.

[g]Prior number of suicide attempts assessed by a clinician.

[h]Participants asked "How likely is it that you will attempt suicide someday"?

[i]Compared suicide attempters and non-attempters.

Table 2

Summary of overall effect sizes for the relationship between perfectionism and suicidality

Variable	*k*	*N*	r^{+}	95% CI	Q_T	I^2 (%)	Egger's intercept	95% CI	k^{TF}	"Trim and fill" estimates r^{+} [95% CI]	Power
Suicide ideation											
Perfectionistic concerns[a]	42	7,936	.28***	[.24, .32]	99.10***	58.63	1.75	[0.76, 2.73]	0	.28 [.24, .31]	.99
Socially prescribed perfectionism	30	3,640	.28***	[.25, .32]	37.04	21.71	0.35	[-1.00, 1.69]	0	.28 [.25, .32]	.99
Concern over mistakes	5	952	.25***	[.13, .36]	12.19*	67.20	2.51	[-4.36, 9.38]	0	.25 [.13, .36]	.98
Doubts about actions	4	902	.27***	[.18, .35]	5.14	41.62	2.94	[-5.67, 11.58	2	.20 [.11, .30]	.99
Discrepancy	4	904	.26***	[.14, .38]	9.17*	67.27	3.38	[-4.79, 11.54]	1	.24 [.12, .35]	.98
Perfectionistic attitudes	5	1,533	.37***	[.19, .52]	33.55***	88.08	4.07	[-0.33, 8.48]	2	.26 [.09, .41]	.98
Perfectionistic strivings[b]	31	4,588	.10***	[.07, .13]	32.14	6.65	0.18	[-0.94, 1.30]	0	.10 [.07, .13]	.99
Self-oriented perfectionism	27	3,315	.11***	[.08, .15]	20.96	0.00	-0.46	[-1.56, 0.64]	0	.11 [.08, .15]	.99
Personal standards	5	1,273	.10*	[.00, .19]	10.33*	61.27	3.34	[-4.71, 11.39]	0	.10 [.00, .19]	.52
Other forms of perfectionism											
Other-oriented perfectionism	20	2,755	.01	[-.04, .06]	32.87*	42.19	0.27	[-1.78, 2.30]	1	.01 [-.04, .06]	.08
FMPS total score	4	1,018	.31***	[.15, .45]	19.71***	84.77	4.72	[-16.92, 26.36]	1	.27 [.12, .40]	.96
EDI perfectionism	0	—	—	—	—	—	—	—	—	—	—
Correlates of perfectionism											
Parental perceptions[c]	5	1,904	.19***	[.10, .27]	12.79*	68.71	2.04	[-5.58, 9.66]	0	.19 [.10, .27]	.98
Parental criticism	5	952	.20***	[.11, .29]	7.98	49.87	0.92	[-5.56, 7.40]	0	.20 [.10, .29]	.98
Parental expectations	5	952	.16**	[.06, .26]	8.42	52.47	1.96	[-3.91, 7.84]	1	.13 [.03, .23]	.88
Organization	3	513	-.02	[-.20, .17]	7.92*	74.75	2.53	[-77.38, 82.43]	0	-.02 [-.20, .17]	.05
Suicide attempts											
Perfectionistic concerns[d]	15	5,275	.12***	[.07, .17]	24.48*	42.81	1.15	[0.21, 2.08]	5	.08 [.03, .14]	.99
Socially prescribed perfectionism	8	689	.19**	[.08, .29]	12.57	44.32	0.21	[-3.65,4.07]	0	.19 [.08, .29]	.93
Concern over mistakes	5	1,827	.09***	[.04, .14]	0.12	0.00	0.08	[-0.35, 0.52]	1	.09 [.04, .13]	.97
Doubts about action	3	1,777	.06*	[.01, .11]	2.76	0.00	1.00	[-2.01, 4.01]	2	.05 [-.02, .11]	.71
Discrepancy	0	—	—	—	—	—	—	—	—	—	—
Perfectionistic attitudes	3	983	.09	[-.03, .22]	2.54	21.26	1.42	[-1.55, 4.40]	2	.05 [-.07, .17]	.32
Perfectionistic strivings[a]	10	1,436	.02	[-.02, .06]	5.25	0.00	-0.10	[-1.10, 0.87]	0	.02 [-.01, .06]	.19
Self-oriented perfectionism	6	539	.07	[-.01, .16]	3.04	0.00	-1.61	[-3.20, -0.02]	0	.07 [-.01, .15]	.37
Personal standards	4	1,777	.01	[-.04, .06]	0.60	0.00	-0.49	[-1.82, 0.83]	0	.01 [-.04, .05]	.06
Other forms of perfectionism											
Other-oriented perfectionism	4	429	-.03	[-.13, .06]	1.26	0.00	-1.42	[-2.58, -0.28]	0	-.03 [-.13, .06]	.11
FMPS total score	3	666	.14***	[.07, .21]	1.30	0.00	-0.31	[-0.55, -0.07]	0	.16 [.08, .23]	.99

EDI-perfectionism	5	2,975	.03	[-.01, .06]	1.83	0.00	1.06	[-0.98, 2.73]	1	.03 [-.01, .06]	.33
Correlates of perfectionism											
Parental perceptions[c]	3	3,230	.07***	[.04, .11]	0.53	0.00	0.45	[-6.43, 7.33]	0	.07 [.04, .11]	.98
Parental criticism	3	1,615	.08**	[.03, .12]	0.65	0.00	0.63	[-5.23, 6.50]	2	.07 [.02, .11]	.85
Parental expectations	3	1,615	.07**	[.02, .12]	0.10	0.00	0.01	[-3.86, 3.87]	0	.07 [.02, .11]	.79
Organization	2	1,565	-.01	[-.06, .04]	0.82	0.00	—	—	—	—	—

Note. ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; r^+ = weighted mean bivariate correlation; ***CI*** = confident interval; Q_T = measure of heterogeneity of effect sizes; I^2 = percentage of heterogeneity; k^{TF} = number of imputed studies as part of "trim and fill" method; **FMPS** = Frost's et al.'s (1990) Multidimensional Perfectionism Scale; **EDI-Perfectionism** = Garner et al.'s (1983) Eating Disorder Inventory perfectionism subscale.

[a]Perfectionistic concerns assessed as aggregate of socially prescribed perfectionism, concern over mistakes, doubts about actions, and discrepancy.

[b]Perfectionistic strivings assessed as aggregate of self-oriented perfectionism and personal standards.

[c]Parental perceptions assessed as aggregate of parental criticism and parental expectations (Cox et al., 2002).

[d]Perfectionistic concerns assessed as aggregate of socially prescribed perfectionism, concern over mistakes, and doubts about actions.

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.