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## A Meta-Analysis of Parental Multidimensional Perfectionism and Child Psychological Outcomes

### Abstract

Multidimensional perfectionism is a vulnerability factor for poor individual psychological well-being. Less is known about how parental perfectionism is associated with risk for poor child psychological outcomes. The aim of the current meta-analysis was to summarise the nature and magnitude of the association between dimensions of parental perfectionism (perfectionistic concerns; PC or perfectionistic strivings; PS) and child psychological outcomes. Fourteen studies ( $N = 2,721$ ) met inclusion criteria. The random effects meta-analysis revealed a small, significant, and positive average association between parental PC and child distress when unadjusted,  $r_{avg} = .153$ ,  $CI [.08, .22]$ , and when accounting for the contributions of parental PS,  $r_{avg} = .164$ ,  $CI [.08, .25]$ . Moderation analysis of the unadjusted effects found that they varied as a function of the perfectionism scale used, but were robust to differences in parent and child gender. For parental PS, there was a non-significant negative average association with child distress,  $r_{avg} = -.049$ ,  $CI [-.13, .04]$ , which was significant after accounting for the contributions of parental PC,  $r_{avg} = -.084$ ,  $CI [-.15, -.02]$ . The current findings suggest that the differential links of perfectionism dimensions with psychological well-being extend to the parent-child relationship, and that parental PC creates vulnerability for child distress.

**Key words:** Perfectionism, parents, children, distress, well-being

22 **Abbreviations:** CPOs: child psychological outcomes, PC: perfectionistic concerns, PS:  
23 perfectionistic strivings.

24

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26 public, commercial, or not-for-profit sectors.

## 27 **1. Introduction**

28 The desire to improve and pursue ideal standards is characteristically human, and has  
29 driven great accomplishments throughout history. Yet this pursuit can be unrelenting,  
30 whereby some people set unrealistically high standards and criticise themselves for not  
31 achieving goals or making mistakes (see Frost, Marten, Lahart, & Rosenblate, 1990). This  
32 concept is referred to as ‘perfectionism’, which is commonly viewed as a trait that remains  
33 stable over time (Sirois & Molnar, 2016). Previously perfectionism was understood as a  
34 unidimensional concept (e.g. Horney, 1950, as cited in Sirois & Molnar, 2016). However,  
35 theorists now recognise perfectionism as a multidimensional construct, with dimensions that  
36 have distinguishable and often divergent effects on behaviour and consequential outcomes  
37 (Sirois & Molnar, 2016).

38 Although multidimensional perfectionism has been conceptualised in a number of  
39 ways (e.g. see Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt, Flett, Turnbull-Donovan,  
40 & Mikail, 1991; and Slaney, Rice, Mobley, Trippi, & Ashby, 2001), confirmatory factor  
41 analyses support two higher-order factors (Bieling, Israeli, & Anthony, 2004). Perfectionistic  
42 strivings (PS) refer to the tendency to set extremely high personal standards that demand  
43 nothing short of perfection from the individual (Sirois & Molnar, 2016), whereas  
44 perfectionistic concerns (PC) involve obsessive self-scrutiny, critical self-evaluations,  
45 preoccupation with others’ evaluations, and a lack of satisfaction even when a goal is  
46 achieved (Sirois & Molnar).

### 47 **1.1 Perfectionism and Psychological Health**

48 There is a growing evidence base suggesting that PS and PC are differentially related  
49 to a number of consequential outcomes with respect to psychological health and well-being.  
50 For example, PC has been linked to poor mental health and distress across a number of  
51 contexts and domains (e.g., Dunkley, Mandel, & Ma, 2014; Hill & Curran, 2015). Research

52 also indicates that PC is associated with poor well-being (Chang, Watkins, & Banks, 2004;  
53 Dunkley, Zuroff, & Blankenstein, 2003), and higher levels of negative affect (Gadreau &  
54 Thompson, 2010). The higher levels of negative affect that characterise PC are proposed to  
55 arise from the persistent negative self-evaluations that plague PC in the form of self-blame  
56 for failure, self-criticism, and a tendency towards rumination (Sirois, Molnar & Hirsch,  
57 2017), which when combined can contribute to poor self-regulation and further distress. In  
58 contrast, PS has been linked to levels of positive affect (Bieling, Israeli, Smith, & Anthony,  
59 2003), lower levels of negative affect (Gadreau & Thompson, 2010), and higher life  
60 satisfaction (Bergman, Nyland, & Burns, 2007), which in turn can translate to better self-  
61 regulation (Sirois, Molnar & Hirsch).

62         Despite this, it is questionable whether PS consistently relates to positive  
63 psychological outcomes. For instance, Limburg, Watson, Hagger, and Egan (2017) found that  
64 both PC and PS were significantly associated with various psychological disorders, including  
65 suicidal ideation and psychological distress. PS were also uniquely associated with anorexia  
66 nervosa. Furthermore, research by Flett, Nepon, and Hewitt (2016) found that socially-  
67 prescribed perfectionism (a form of PC) and self-orientated perfection (a form of PS) were  
68 both associated with high levels of worry and rumination. This raises the question of whether  
69 PS contributes to negative or positive psychological outcomes, and if so, in what contexts this  
70 might occur. It also challenges the aforementioned idea that PC and PS are differentially  
71 related to positive or negative psychological outcomes. Alternatively, it may be that a  
72 combination of PC and PS affect outcomes in different ways, as research has found that the  
73 combination of high PC and PS is associated with poor physical health (Sirois et al., 2019).

## 74 **1.2 Perfectionism in Parents and Child Health Outcomes**

75         The implications of personal characteristics for psychological health are not confined  
76 to a dynamic that occurs within an individual. Research suggests that parental personality

77 traits and cognitions are associated with child psychological outcomes (CPOs, defined here as  
78 forms of child distress or well-being). For example, decreased parental acceptance, increased  
79 parental control, and modelling of anxious behaviours have all been associated with child  
80 anxiety (see Degnan, Almas, & Fox, 2010; Drake & Ginsberg, 2011; McLeod, Wood, &  
81 Weisz, 2007; and Wood, McLeod, Sigman, Hwang, & Chu, 2003 for reviews). Similarly,  
82 parental perfectionism may be a trait that has detrimental effects on CPOs. Indeed, the idea  
83 that parental perfectionism can affect outcomes for children was first observed by Bruch and  
84 Hewlett in 1947, with respect to children who were diagnosed with diabetes. They stated that  
85 the family response is rooted in their tendency to have a “perfectionistic attitude toward the  
86 child” (p. 205). Bruch subsequently published work on the nature and aetiology of anorexia  
87 nervosa, proposing that girls experiencing this condition were driven to achieve perfect  
88 standards that are underpinned by the perfectionistic demands of their parents (Bruch, 1962).

89       Because PC can involve interpersonal dynamics, it is possible that parental PC could  
90 have an effect on children’s well-being. To this end, Greblo and Bratko (2014) found that  
91 parental ‘negative’ perfectionism (i.e. PC) was positively associated with parental criticism  
92 and controlling behaviours, which may lower the child’s self-esteem or increase anxiety.  
93 Maternal acceptance has also been found to be negatively correlated with child depressive  
94 symptoms (Garber, Robinson, & Valentiner, 1997), whilst PC could reduce acceptance  
95 because it features high parental criticism and expectations. In addition, Flett, Hewitt, Oliver,  
96 and McDonald (2002) suggest a parenting model, whereby perfectionistic parents are anxious  
97 about being imperfect, and so attempt to reduce error through over controlling behaviours.  
98 This theory suggests that children of perfectionistic parents are at higher risk of negative  
99 mental health outcomes, by conveying that mistakes represent threats. Considering that  
100 children often internalise messages received from caregivers to inform self-beliefs (e.g. Ryle  
101 & Kerr, 2002), it appears likely that if those messages contain high levels of unrealistic

102 expectations and criticism (as per PC), children may be predisposed to feelings of low self-  
103 esteem or failure. Furthermore, they may be at higher risk of anxiety about failure or negative  
104 evaluation, and depression when excessively high standards are not met. This theory and  
105 evidence therefore suggests that PC in parents may have negative implications for their  
106 child's psychological health, through their parenting behaviours.

107         There is less evidence to support theory regarding PS and their effect on CPOs,  
108 although Lee, Schoppe-Sullivan, and Kamp Dush (2012) found that self-orientated  
109 perfectionism was associated with higher levels of parenting satisfaction in mothers, and  
110 greater self-efficacy, higher parental satisfaction and lower parenting stress in fathers. This  
111 contrasts with findings from Randles, Flett, Nash McGregor, and Hewitt (2010), who found  
112 that whilst self-orientated perfectionism (a form of PS) is associated with behavioural  
113 activation, it is also associated with behavioural inhibition, suggesting avoidance tendencies  
114 that could theoretically have an effect on parenting style. To explain their results, Lee,  
115 Schoppe-Sullivan and Kamp Dush suggest that negative outcomes associated with PS are not  
116 only related to perceived self-failures, but the extent to which 'failure' is accompanied by  
117 criticism (which pertains to PC). Therefore, and as suggested to operate within individuals,  
118 perhaps a combination of parental PS and PC contribute to negative psychological outcomes  
119 in children. However, Curran, Hill, Madigan, and Stornæs (in press) found that parental PS  
120 (but not PC) correlated with child perceptions of conditional regard. Therefore, it may be that  
121 parental high self-standards affect parenting style, e.g. through a parent striving to do what  
122 they believe makes a 'good parent', which might feature control. In addition, Curran, Hill,  
123 Madigan, and Stornæs found that child perceptions of conditional regard are associated in  
124 turn with child PS and PC. This could activate negative psychological outcomes in the child,  
125 as already described.

### 126 **1.3 The Current Study**

127           The theory and research presented highlights the importance of understanding the  
128 nature of the relationship between parental multidimensional perfectionism and CPOs. Yet to  
129 date it is unclear whether the association between PC and negative psychological outcomes at  
130 the individual level can be extended to the relationship between parental PC and child  
131 distress/lower well-being. In addition, the relationship of PS to psychological outcomes,  
132 which is often inconsistent, has yet to be fully tested for parental-child relationships.

133           The aim of this meta-analysis was to test the nature and magnitude of the association  
134 between dimensions of parental perfectionism (PC or PS) and CPOs (child distress or child  
135 well-being). Specifically, it was expected that parental PC would be positively related to  
136 child distress, and negatively related to child well-being. In contrast, parental PS was  
137 expected to be negatively associated with child distress, and positively related to child well-  
138 being. Because PC and PS are known to be moderately correlated (Sirois, Molnar, & Hirsch,  
139 2017), researchers recommend that this overlap be accounted for to better understand the  
140 unique contribution of each higher order perfectionism dimension to consequential outcomes  
141 (Stoeber & Gaudreau, 2017; Stoeber & Otto, 2006). Accordingly, meta-analyses were  
142 conducted on both the unadjusted associations of parental PS/PC and distress/well-being, and  
143 the semi-partial correlations of PC/PS.

144           Taking a meta-analytic approach provides a robust way of understanding how  
145 parental perfectionism dimensions may differentially relate to CPOs, which is valuable for  
146 areas where that has been a substantial growth in research (Cumming, 2014). However,  
147 meta-analysis also provides the means to probe the factors that may limit or amplify these  
148 associations by testing for potential moderators. Consistent with other meta-analyses (Sirois  
149 & Molnar, 2017; Sirois et al., 2017), it was hypothesised that the associations between  
150 parental multidimensional perfectionism and child distress/well-being would vary as a  
151 function of the perfectionism scale used. Specifically, studies that used the Almost Perfect

152 Scale – Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001) were expected to  
153 have effects that were larger in magnitude, as has been found in previous research (Sirois,  
154 Molnar, & Hirsch, 2017). This is because there is some debate as to whether the APS-R  
155 confounds perfectionism with negative affect (Flett, Mara, Hewitt, Sirois, & Molnar, 2016),  
156 and conscientiousness (Blasberg, Hewitt, Flett, Sherry, & Chen, 2016). As previous research  
157 has also noted that perfectionism is associated with gender and age (Stoeber & Stoeber,  
158 2009), and gender differences are associated with mental health (World Health Organisation,  
159 n.d.), these demographic factors were tested as potential moderators.

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## 2. Method

### 2.1 Search Strategy

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Systematic literature searching was conducted for empirical research into parental perfectionism and CPOs between 14 January and 18 February 2019, using online databases covering allied health fields up to January 2019 (Scopus, Medline, Web of Science and PsycInfo). A final scan was completed between 24<sup>th</sup> June and 9<sup>th</sup> July to retrieve any more recent studies. The PICO framework (population of interest, intervention, condition and outcome) informed the search strategy. Search terms were informed by those used in the available literature and by mapping terms to subject headings on electronic databases whilst scoping for titles. Variations on terms regarding parents/carers included “parent\*”, “caregiver”, “mother” or “father”, terms relating to children/adolescents included “child\*”, “adolescen\*”, “son” or “daughter”, and variants regarding psychological outcomes in children were “well-being\$”, “distress”, “anxiety”, “depression”, “mental health”, “negative affect”, “positive affect” or “stress”. Variations of “parental perfectionism” (including “parental satisfaction”, “overcontrol”, “criticism”, “pressure”, “achievement goals” and “perceived parenting”) were also included during initial scoping, however using these terms

177 did not yield any further papers that met the eligibility criteria than simply using the term  
178 “perfect\*”. Rather, they generated a large number of irrelevant titles, and literature  
179 consistently distinguished these constructs from perfectionism. Therefore, these terms were  
180 not included in the final search.

181 Reference lists within eligible papers were also checked, along with unpublished  
182 literature (i.e. ‘grey literature’; see Quintana, 2015). Grey literature was searched using the  
183 New York Academy of Medicine grey literature search engine. Electronic databases used  
184 also found grey literature, as searches were not filtered by paper source.

## 185 **2.2 Eligibility Criteria**

186 A broad eligibility criteria was set, as the relationship between parental  
187 multidimensional perfectionism and CPOs has not been reviewed before. There were no  
188 exclusion criteria set in terms of date of publication, country, population or study design.  
189 Also, if associations between parental perfectionism and CPOs were assessed in the context  
190 of wider study aims, the paper was eligible but only findings related to the aims of this  
191 review were included. In terms of exclusion, only papers reporting empirical studies featuring  
192 usable effects and those written in English were included.

193 **2.2.1 Parental Perfectionism.** Studies needed to assess an aspect of parental PC or  
194 PS as an independent variable, and parents were defined as any person with parental  
195 responsibility (as defined under the Children Act, 1989). Studies measuring unidimensional  
196 constructs of perfectionism were excluded. Similarly, studies measuring other-orientated  
197 perfectionism were not eligible, as there is limited research regarding how this relates to PC  
198 or PS (Sirois & Molnar, 2016). Furthermore, papers that reported aspects of perfectionism  
199 (e.g. perfectionistic parenting) as an independent variable were included, provided that it was  
200 possible to identify whether it corresponded to parental PC or PS.

201 **2.2.2 CPOs.** Studies were eligible if they measured child distress or well-being as a

202 dependent variable (using any outcome measure completed by a parent or child). Child  
203 distress was defined as a child's feeling of emotional ill-being, and could be characterised  
204 through symptoms of anxiety and depression (Veit & Ware, 1983; Tanaka & Huba, 1984),  
205 stress and strain (Ridner, 2004), emotional suffering (Drapeau et al., 2010), irritability and  
206 obsessive-compulsions (Tanaka & Huba, 1984). Child well-being was conceptualised as a  
207 child's positive emotionality, happiness, high self-esteem or life satisfaction (see Diener, Suh,  
208 Lucas, & Smith, 1999). It should be noted that low scores of 'distress' (on measures where  
209 high scores pertain to high distress) might indicate a form of higher well-being, and vice  
210 versa. However, the absence of distress as defined above does not necessarily indicate  
211 positive emotionality, happiness, high self-esteem or life satisfaction, and it would be  
212 contentious to conclude that the absence of well-being must therefore indicate a form of  
213 'distress'. Given these issues, we assumed that effects extracted from studies would reflect  
214 the relationship between multidimensional perfectionism and the chosen dependent variable  
215 that study measures were designed to capture. The child could be any age, as long as they  
216 were conceptualised as a 'child' in relation to a parent.

### 217 **2.3 Data Management and Selection Process**

218 All were screened by the title and abstract. There were no papers found via grey  
219 literature searches and all papers screened were published. Of the 78 full-texts that remained  
220 after screening, 64 did not meet inclusion criteria. Therefore, 14 studies were included in the  
221 final review. See Figure 1 for a summary.

### 222 **2.4 Data Extraction**

223 Study characteristics were extracted, including the authors, year of publication,  
224 country of origin, study design, sample type, parent age, parent gender, child gender,  
225 measures used to assess parental PC or PS, type of CPO measured, measures used to assess  
226 CPO, and main effects regarding the relationship between parental perfectionism and

227 CPOs/data that enabled the calculation/checking of effect sizes (see section 2.5.1). All  
228 eligible studies were types of observational study (i.e. cross-sectional or case-control).

229 Further information regarding effect sizes was requested from authors of four studies.  
230 The requested information was provided for two papers, one author did not respond, and the  
231 other was unable to provide the requested data. The paper written by the author that did not  
232 respond did not report effect sizes, but did provide *F*-values, which was used to calculate  
233 effect sizes. Regarding the paper where the author was unable to provide requested  
234 information, results regarding some subscales from the perfectionism measure used were  
235 reported and some were not (see Table 1). Therefore, results were generated using available  
236 information only.

## 237 **2.5 Meta-analytic Strategy**

238 This meta-analysis was conducted with Comprehensive Meta-Analysis, version 3  
239 (CMA; Borenstein, Hedges, Higgins, & Rothstein, 2013). A random-effects model was  
240 selected to integrate effect sizes, to reduce the chance of a Type 1 error occurring  
241 (Borenstein, Hedges, Higgins, & Rothstein, 2010). CMA transforms all effect sizes into  
242 Fisher's *z* (Hedges & Olkin, 1985) to enable the calculation of an integrated effect size.  
243 Integrated effect sizes are presented as *r* in this meta-analysis to enable clear reporting.  
244 According to Cohen (1992), effect sizes  $r = .10$  are considered small,  $r = .30$  are medium and  
245  $r = .50$  are large. These guidelines are used to assess the strength of relationships reported in  
246 this meta-analysis. The criteria for statistical significance was set at an alpha value of  $< .05$   
247 in line with convention (Borenstein, Hedges, Higgins, & Rothenstein, 2009), and data is  
248 presented regarding 95% confidence intervals of the effect size.

249 As aims were to differentiate how higher-order dimensions of parental perfectionism  
250 related to positive or negative forms of CPOs (i.e. child distress or well-being), separate  
251 meta-analyses were planned for (1) parental PS to child distress, (2) parental PS to child

252 well-being, (3) parental PC to child distress, and (4) parental PC to child well-being.  
253 However, only two studies measured aspects of child well-being (life satisfaction; Randall,  
254 Bohnert, & Travers, 2015; and self-esteem; Soenens, Vansteenkist, Duriez, & Goossens,  
255 2006). Therefore, it was not possible to run a meta-analysis for parental PS or PC and child  
256 well-being.

257 **2.5.1 Statistical Approach to Integrating Effect Sizes.** The majority of papers  
258 included in this meta-analysis ( $k = 12$ ) reported Pearson's  $r$  between parental PS/PC and  
259 CPOs. Two studies (Lloyd, Schmidt, Simic, & Tchanturia, 2015, and Woodside et al., 2002)  
260 reported between-group differences in parental parental PS/PC (in mothers with children with  
261 anorexia, or without). Lloyd et al. conducted  $t$ -tests to compare groups and reported effect  
262 sizes as Cohen's  $d$ . Therefore, an independent-groups design was used to check Cohen's  $d$  (as  
263 per Morris & DeShon, 2002), by imputing means, standard deviations and the sample size  
264 into an online calculator (Lenhard & Lenhard, 2014). The  $t$ -test values were input to  
265 aggregate effects with  $r$  in CMA. Woodside et al. conducted analysis of variance – as the first  
266 degrees of freedom were equal to 1 and the mean squared error was not reported, methods  
267 described by Thalheimer and Cook (2002) were appropriate to follow, whereby Cohen's  $d$   
268 can be calculated based on  $F$ -values and sample sizes provided for each group. These  
269 calculations were carried out using the online calculator.

270 As recommended by Card (2012), weighted averages were calculated (using CMA) in  
271 cases where multiple effect sizes were reported in one paper (e.g. where papers reported  
272 relationships between parental PC/PS and multiple measurements of distress), and where  
273 effects were reported separately for mothers and fathers. This resulted in one overall effect  
274 size for each perfectionism dimension per paper (see Table 1).

275 **2.5.2 Heterogeneity.** Heterogeneity was tested for using the  $Q$ -test and the  $I$ -squared  
276 test statistic. As per Higgins, Thompson, Deeks, and Altman (2003),  $I^2$  values of 25%

277 variance were interpreted to represent low variance, 50% suggested moderate variance, and  
278 75% indicated high variance. A forest plot to visualise effect sizes and confidence intervals  
279 was also produced.

280 Moderation analyses were run where tests of heterogeneity yielded significant results.  
281 Moderators were identified *a priori*, comprising the perfectionism measure used, parent age,  
282 parent gender, and child gender. Sub-group moderation analyses were conducted where  
283 variables were categorical (i.e. perfectionism measure used), and were only run if there were  
284  $\geq 3$  studies per group (in line with Card, 2012). Type of distress was also considered as a  
285 potential moderator, however it was not possible to test because there were  $k < 3$  that could  
286 be meaningfully placed per sub-group. Meta-regression was used with continuous moderators  
287 (i.e. parent age, parent gender and child gender, represented as the proportion of females in  
288 the study), and were only run if there were at least 10 studies.

289 **2.5.3 Publication Bias.** According to Quintana (2015) studies with large effect sizes are  
290 more likely to be published, meaning that there is potential for bias in studies included in  
291 meta-analyses. In line with Quintana, publication bias was assessed for using a funnel plot (to  
292 visualise standard errors vs. effect sizes, with the trim-and-fill method used where the funnel  
293 plot was asymmetrical), Egger's regression test, and the fail-safe  $N$ .

### 294 **3. Results**

295 Fourteen studies were included in this meta-analysis. Table 1 presents extracted data  
296 and weighted average effect sizes, and semi partial correlations (where possible) for each  
297 study. Table 1 presents effect size data for the meta-analysis of parental perfectionism  
298 dimensions and CPOs. There were  $k = 11$  papers in the analysis testing the association  
299 between parental PS and child distress (including  $N = 1,710$  participants), and  $k = 14$  in the  
300 analysis testing parental PC and child distress (with  $N = 2,721$  participants). All papers  
301 measured child distress using mono-source designs, whereby perceptions of distress

302 (measured via psychometric measures) were used. The meta-analysis of the unadjusted  
 303 effects revealed a non-significant negative association between parental PS and child distress,  
 304  $r_{avg} = -.049$  [ $CI$   $-.13, .04$ ],  $p = .256$ , and a significant, positive and small effect size for  
 305 parental PC and child distress,  $r_{avg} = .153$ ,  $CI$   $[.08, .22]$ ,  $p < .0001$ .

306 There were seven studies (total  $N = 1,029$ ) for which the semi-partial correlations  
 307 could be calculated. For parental PS, the meta-analysis revealed a significant small and  
 308 negative average association with distress,  $r_{avg} = -.084$ ,  $CI$   $[-.15, -.02]$ ,  $p = .012$ , after the  
 309 contribution of parental PC was accounted for. For parental PC, the meta-analysis revealed a  
 310 significant small and positive average association with distress,  $r_{avg} = .164$ ,  $CI$   $[.08, .25]$ ,  $p <$   
 311  $.0001$ , after the contribution of parental PS was accounted for. The tests of heterogeneity  
 312 were non-significant for parental PS,  $Q(6) = 6.62$ ,  $p = .36$ ;  $I^2 = 9.33$ . For parental PC the tests  
 313 of heterogeneity were significant,  $Q(6) = 10.92$ ,  $p < .001$ ;  $I^2 = 45.07$ , indicating a moderate  
 314 degree of variance in the sizes of the effects across studies. However, as there were only  
 315 seven studies, moderation tests were not viable and therefore not conducted.

316 Tests of heterogeneity of the effect sizes were significant for both parental PS – child  
 317 distress,  $Q_{total} (10) = 27.20$ ,  $p < .01$ ;  $I^2 = 63.23$ , and parental PC – child distress,  $Q_{total} (13)$   
 318  $= 36.64$ ,  $p < .0001$ ;  $I^2 = 64.52$ . The  $I^2$  values for both dimensions of parental perfectionism to  
 319 child distress were above 50%, suggesting moderate between-study heterogeneity. Therefore,  
 320 moderator analyses were run to probe the source of this heterogeneity.

### 321 **3.1 Moderator analyses of PPS and Child Distress**

322 Papers were grouped according to the perfectionism measure used. However, there  
 323 were  $k < 3$  papers in groups using the APS-R, PNPS and MPS-HF. Consideration was given  
 324 to grouping papers using these scales into an ‘other’ group, yet this was not deemed sufficient  
 325 to provide a meaningful analysis, because it would only involve comparisons of the MPS-F  
 326 versus all other measures. Therefore, the moderating role of perfectionism measure was not

327 assessed for parental PS.

328 Table 2 shows the results of the meta-regression testing for a moderating effect of  
329 parent and child gender. There were  $k = 10$  studies reporting parent age, and so a meta-  
330 regression using this variable could not be conducted (Higgins & Green, 2011). Both meta-  
331 regressions for parent gender ( $b = -.001$ ,  $CI [-.006, .004]$ ,  $p = .84$ ) and child gender ( $b = -$   
332  $.002$ ,  $CI [-.002, .006]$ ,  $p = .33$ ) were not significant, suggesting that the associations of  
333 parental PS with child distress were robust to differences in gender.

### 334 3.2 Moderator analyses of PPC and Child Distress

335 Table 3 summarises the sub-group moderator analyses of parental PC and child  
336 distress. Papers were grouped by perfectionism measure used. Papers using the APS-R and  
337 PNPS were grouped into an ‘other’ group as both measures conceptualise multidimensional  
338 perfectionism as consisting of ‘adaptive’ and ‘maladaptive’ forms (see Slaney, Rice, Mobley,  
339 Trippi, & Ashby, 2001 and Terry-Short, Owens, Slade, & Dewey, 1995). The analysis found  
340 significant between-group heterogeneity ( $Q_{\text{between}}(2) = 8.93$ ,  $p = .011$ ), indicating that the  
341 magnitude of the effects varied as a function of the perfectionism measure used. The largest  
342 effect size was also found in the ‘other’ group, and all subgroup effect sizes were significant.

343 The meta-regression of the effects of gender of the association of parental PC and  
344 child distress were not significant. This suggests that the effects were robust to the influence  
345 of parent ( $b = -.00$ ,  $CI [-.005, .004]$ ,  $p = .8$ ) and child ( $b = -.00$ ,  $CI [-.006, -.002]$ ,  $p = .3$ )  
346 gender. As there were only five studies that reported parent age, meta-regression was not  
347 conducted for this variable.

### 348 3.3 Publication Bias

349 For parental PC to child distress, the fail-safe  $N$  analysis found that 171 studies with  
350 null results would be needed to reduce the significance of the effects to be greater than  $p$  to  $<$   
351  $.05$ . This was well above the threshold of 65 studies using methods described in Rosenthal

352 (1979). The funnel plot (see Figure 2) was relatively symmetrical and confirmed this result.  
353 Similarly, the trim-and-fill test resulted in zero studies being trimmed, and Egger's test also  
354 found a non-significant result ( $t(9) = 1.57, p = .151$ ). Collectively, these tests suggested the  
355 absence of publication bias.

356 For parental PS and child distress, tests were less conclusive regarding evidence of  
357 publication bias. The fail-safe  $N$  statistic was 0, which was below the threshold value of 65.  
358 However, the funnel plot was fairly symmetrical (although two studies fell outside of the  
359 funnel area; see Figure 3). Furthermore, Egger's test was non-significant ( $t(9) = 2.17, p =$   
360  $.06$ ), and the trim-and-fill test resulted in zero studies being trimmed.

#### 361 **4. Discussion**

362 The current meta-analysis is the first to examine the relationship between  
363 multidimensional parental perfectionism (PC and PS) and CPOs. Across the 14 studies  
364 included in the meta-analysis, there was a small, significant, and positive average association  
365 between parental PC and child distress, which remained after accounting for the contributions  
366 of parental PS, further highlighting PC as a core vulnerability factor for poor psychological  
367 well-being. In contrast, parental PS was not significantly associated with child distress for the  
368 unadjusted associations. However, when the overlap between PC and PS was accounted for,  
369 the average association between parental PS and child distress was positive and significant.  
370 However, as this was a very small effect, caution is advised when concluding an effect of  
371 parental PS on child distress. There were, however, not enough studies to meta-analyse the  
372 association between parental PS or PC and child well-being.

373 Moderation analyses found that the perfectionism measure used significantly  
374 explained between-study heterogeneity in the effects of parental PC and child distress.  
375 Specifically, papers using measures included in the 'other' group (i.e. APS-R and PNPS)  
376 generated larger effects sizes. The APS-R has been found to inflate effect sizes for PC in

377 other research (Sirois & Molnar, 2017; Sirois et al., 2017), in part because it has been  
378 suggested that it confounds perfectionism with negative affect (Blasberg et al., 2016). The  
379 current findings are consistent with this suggestion and previous research (e.g. Smith et al.,  
380 2019). Moderation analyses also indicated that there remained a large amount of unexplained  
381 variance, which was not explained by parent or child gender for both PS and PC. Besharat  
382 (2003) has suggested that cultural factors influence the relationship between mothers' or  
383 fathers' perfectionism and test anxiety. Similarly, Rice, Tucker, and Desmond (2008) found  
384 differential relationships between parental perfectionism and child distress, depending on  
385 parents' ethnicity. This research suggests that cultural factors may be an important moderator  
386 to explore. Future research that includes a larger number of studies would be well positioned  
387 to facilitate a more thorough investigation of the sources of this variance via other potential  
388 moderators.

389         Although effects found are statistically significant, all of the effects found were small.  
390 Therefore, it may be that the effect between parental perfectionism and child distress is  
391 transmitted via third variables. Indeed, many eligible papers in this meta-analysis suggested a  
392 link between parental perfectionism and child distress through the use of parental  
393 overcontrol. For example, Soenens, Vansteenkiste, Duriez, and Goossens (2006)  
394 demonstrated that parental overcontrol was an intervening variable between parental  
395 perfectionism and adolescent depression, loneliness, and self-esteem. Affrunti and Woodruff-  
396 Borden (2014) also found that parental overcontrol mediated the relationship between  
397 parental perfectionism and child anxiety. In addition, Barber and Harmon (2002) have  
398 discussed how psychologically controlling parenting can hinder the development of the  
399 child's autonomy, whilst autonomy has been positively associated with well-being (Reis,  
400 Sheldon, Gable, Roscoe, & Ryan, 2000). Overcontrol may therefore be an important  
401 moderator of the relationship between parental perfectionism and CPOs, and may warrant

402 further study. One other proposed variable that might influence the significant but small  
403 effects found between parental PC and child distress is child perfectionism. Specifically,  
404 parental perfectionism has been associated with the development of perfectionism in children  
405 (e.g. Frost, Lahart, & Rosenblate, 1991; Vieth & Trull, 1999). Using a parenting model  
406 proposed by Flett, Hewitt, Oliver, and McDonald (2002) regarding how parental overcontrol  
407 might relate to child anxiety, it can be theorised that children become anxious when their  
408 parent's perfectionism conveys threat, which they try to mitigate against by trying to achieve  
409 perfectionism themselves. Therefore, it is possible that child perfectionism may be implicated  
410 in, and could amplify the association between parental perfectionism and CPOs.

411         According to Beck's causal theory of depression (1967), 'dysfunctional' parenting  
412 gives rise to 'dysfunctional' attitudes in children, putting them at higher risk of developing  
413 depression. Although 'dysfunctional parenting' is defined as consisting of low care and  
414 overprotection (Whisman & Kwon, 1992), Randolph and Dykman (1998) expanded upon this  
415 to include perfectionistic expectations and parental criticism, which align with definitions of  
416 PC (but not PS; Sirois & Molnar, 2016). Therefore, perhaps the finding that parental PC (but  
417 not parental PS) is associated with child distress is because only this dimension of  
418 perfectionism leads to dysfunctional attitudes in children. This would particularly make sense  
419 given that PC feature interpersonal dimensions of perfectionism (Hewitt & Flett, 1991), and  
420 therefore be more likely to contribute to dysfunctional attitudes in children.

#### 421 **4.1 Implications**

422         Our findings have a number of important implications for theory and research on  
423 perfectionism and its outcomes. The findings of this meta-analysis are consistent with  
424 previous theory and evidence that parental traits are instrumental in the development of CPOs  
425 (e.g. Degnan, Almas, & Fox, 2010; Drake & Ginsberg, 2011; McLeod, Wood, & Weisz,  
426 2007; and Wood, McLeod, Sigman, Hwang, & Chu, 2003). More specifically, findings

427 suggest that parental PC should be considered as a parental trait that can predispose children  
428 to distress, perhaps through the use of parental overcontrol or through its contribution to the  
429 development of child perfectionism. Findings from this meta-analysis could also suggest that  
430 it would be beneficial to consider interventions for parents that have potential to reduce  
431 criticism, harsh self-scrutiny and self-evaluation, as per parental PC. However, this is  
432 speculative; more research is needed to account for other possible intervening variables.

#### 433 **4.2 Limitations and Strengths**

434         The findings of this meta-analysis should be considered in the context of its strengths  
435 and limitations. The studies and data analysed in the meta-analysis were mainly cross-  
436 sectional, making it difficult to ascertain the direction of the associations (i.e. whether CPOs  
437 are dependent on parental perfectionism or vice versa). However, the theorised direction from  
438 perfectionism to CPO is consistent with a trait view of perfectionism, and a meta-analysis of  
439 longitudinal research which found that perfectionism predicts depression (Smith et al., 2016).  
440 Another limitation was that some potential sources of between-study heterogeneity were not  
441 assessed. It was not possible to include type of distress as a moderator, as each study  
442 measured a different form of child distress. Furthermore, there were only 14 studies included  
443 in the meta-analysis. As such, it was not always possible to run moderation analyses to  
444 explain heterogeneity. For example, effect sizes generated by papers using the APS-R and  
445 PNPS had to be grouped together when looking for a moderating effect of perfectionism  
446 measure between parental PC and child distress. There were also an insufficient number of  
447 studies to conduct meaningful subgroup analysis for the role of perfectionism scale in the  
448 association between parental PS and CPO. Meta-regressions into the potentially moderating  
449 effect of parent age between both parental PC and parental PS with child distress were also  
450 not possible due to the low number of studies. Finally, because all studies measured  
451 perceptions of child distress, findings cannot be generalised to an association between



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470 An asterix precedes studies that were included in the meta-analysis.

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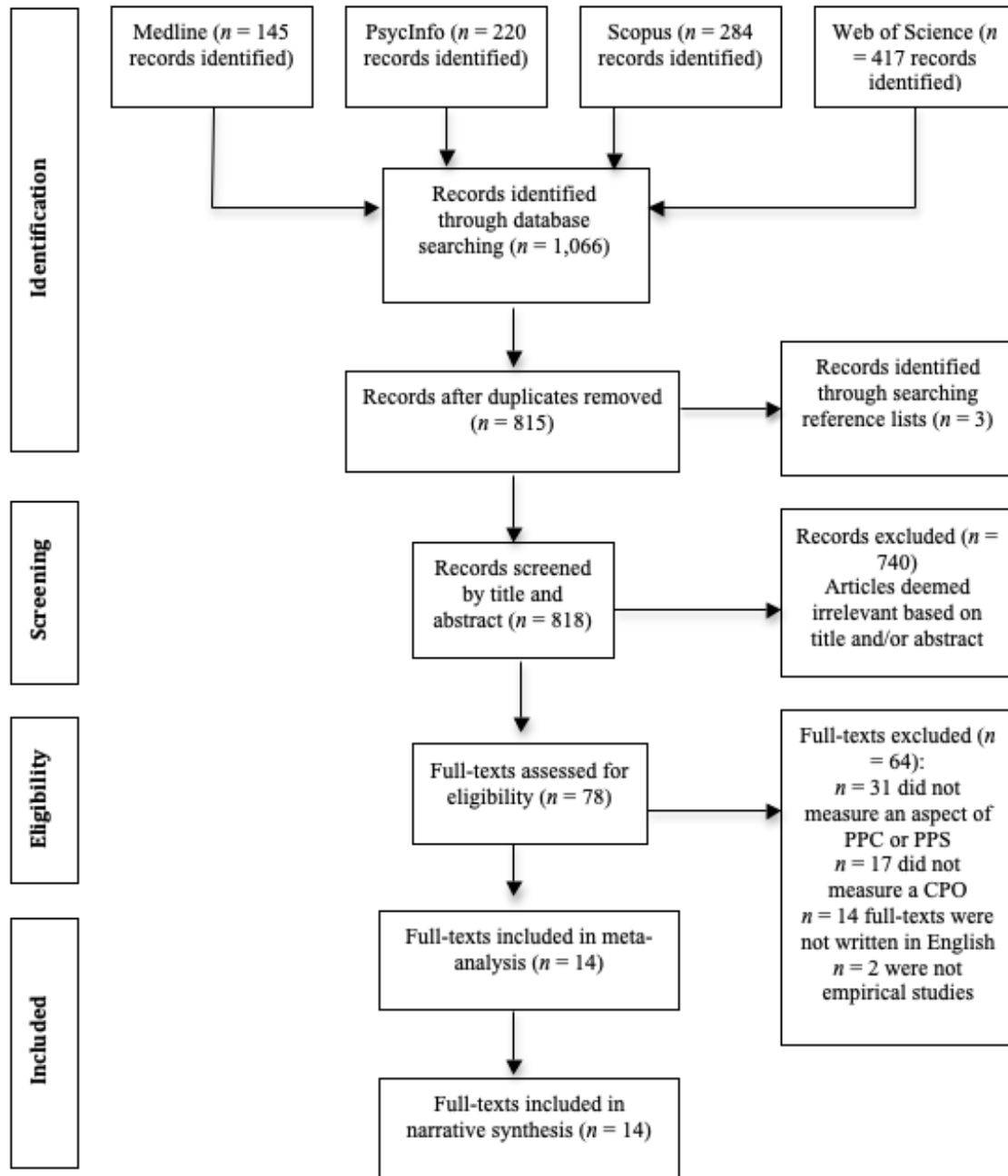
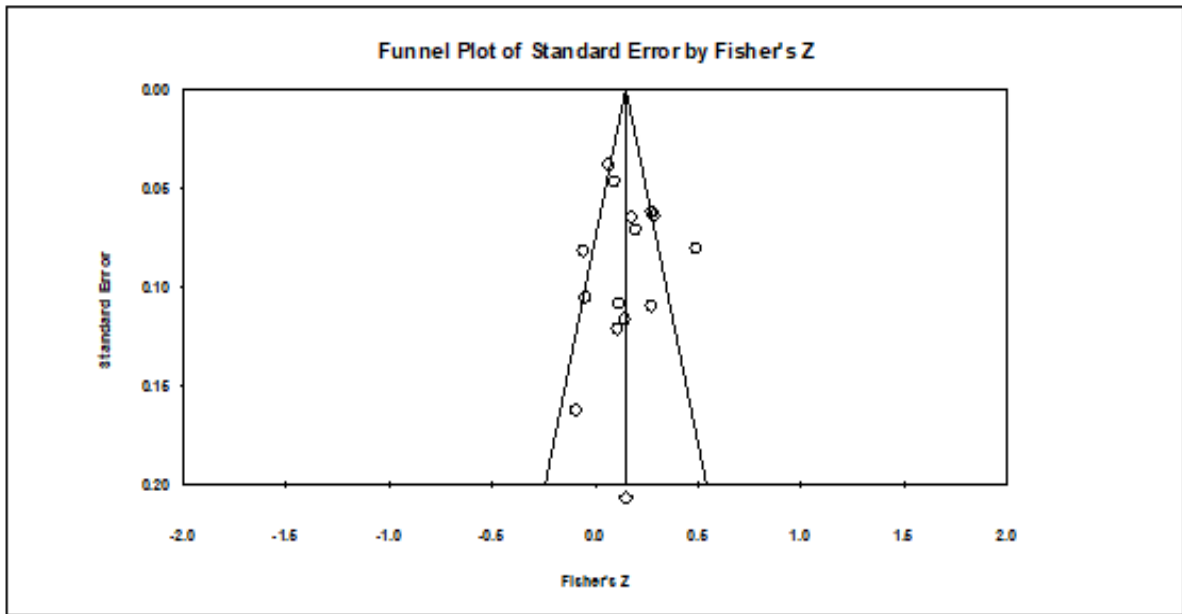


Figure 1: PRISMA (2009) Flow diagram. Adapted from Moher, Liberati, Tetzlaff, and Altman, D.G. (2009).



*Figure 2:* Funnel Plot to Assess Publication Bias – PPC to child distress.

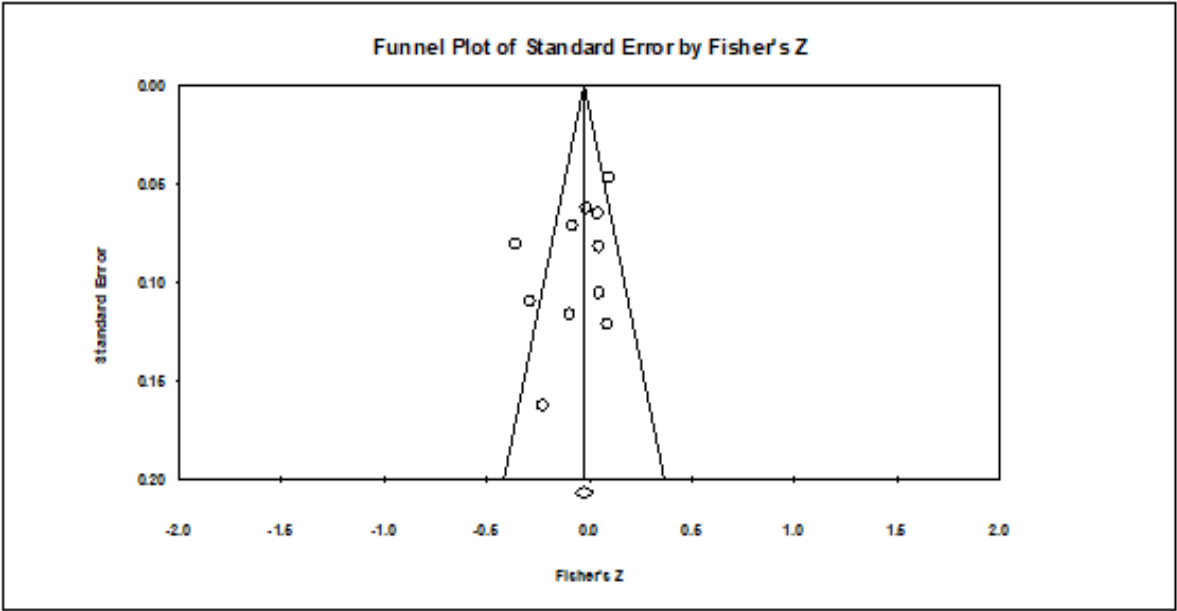


Figure 3: Funnel Plot to Assess Publication Bias – PPS to child distress.

Table 1.

*Meta-Analysed Effect Sizes Between Child Psychological Outcomes (CPOs), Parental Perfectionistic Concerns (PPC), and Parental Perfectionistic Strivings (PPS) Across 14 Studies (Total N = 2,721).*

Study	<i>N</i>	CPO	Perfect. measure	PPC – PPS <i>r</i>	PPC- CPO <i>r</i>	PPC-CPO <i>s<sub>r</sub></i>	PPS – CPO <i>r</i>	PPS – CPO <i>s<sub>r</sub></i>
1. Affrunti, Geronimi, & Woodruff-Borden (2015)	71	Anxiety (ADIS-IV – P/C)	MPS-F	.438	.107	.065	.086	.034
2. Affrunti & Woodruff-Borden (2014)	77	Anxiety (ADIS-IV – P/C)	MPS-F	.356	.143	.180	-.096	-.150
3. Besharat (2003)	90	Test anxiety (STAI)	PNPS	---	.453	---	-.345	---
4. Cook & Kearney (2009)	97	Youth internalised psychopathology (YSR)	MPS-HF	0.57	-.058	-.094	.052	.092
5. Enns, Cox, & Clara (2002)	261	Depression proneness (BDI, DPRS)	MSPS + PPSS	0.28	.268	.272	-.015	-.093
6. Frost, Lahart, & Rosenblate (1991)	93	General psychiatric symptoms (BSI, PST and (PSDI).	MPS-F	---	-.048	---	.047	---

7. Lloyd, Schmidt, Simic, & Tchanturia (2015)	41	Anorexia nervosa (pre-diagnosed).	MPS-F	---	.09	---	.225	---
8. Randall, Bohnert, & Travers (2015)	88	Adolescent adjustment (YSR) and life satisfaction (SWLS).	MPS-HF	---	.115	---	---	---
9. Randall et al. (2018)	23 9	Pain-related fear (FPQC) and pain catastrophising (PSPC)	MPS-HF	.46	.175	.168	.04	-.077
10. Randolph & Dykman (1998)	24 6	Depression (BDI), depression proneness (DPRS) and dysfunctional cognitions (MIS)	MSPS	---	.279	---	---	---
11. Rice, Tucker, & Desmond (2008)	84	Depression (CES-D)	APSR	-.147	.267	.225	-.282	-.242
12. Sarkhanlou & Kiamenesh (2015)	20 0	Depression, anxiety and stress (DASS-21)	PNPS	.178	.194	.209	-.083	-.118
13. Soenens, Vansteenkist, Duriez, & Goossens (2006)	67 7	Depression (CES-D), self-esteem (child self-worth subscale of the SPP-AC) and loneliness (STLS)	MPS-F	---	.065	---	---	---

14. Woodside et al. (2002)	45 7	Presence of anorexia nervosa (pre- diagnosed)	MPS-F	---	.093	---	.094	---
Meta-analysis results		Average r (k)			.153	.164	-.049	-.084
		95 % CI			[.08, .22]	[.08, .25]	[-.13, .04]	[-.15, -.02]
		N			2,721	1,029	1,710	1,029

Note:  $r$  = effect size,  $S_r$  = partial effect size, MPS-F = Frost Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990), ADIS-IV – P/C = Anxiety Disorders Interview Schedule-Fourth Edition-Parent/Child (Silverman & Albano, 1996), PNPS = Positive and Negative Perfectionism Scale (Terry-Short, Owens, Slade, & Dewey, 1995), STAI = State Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970), MPS-HF = Hewitt and Flett Multidimensional Perfectionism Scale (Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991), YSR = Youth Self Report (Achenbach & Rescorla, 2001), PPSS = Parental Personal Standards Scale (Enns, Cox, & Clara, 2002), MSPS = Modified Socially Prescribed Perfectionism Scale (Randolph & Dykman, 1998), BDI = Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), DPRS = Depression Proneness Rating Scale (Zemore, Fischer, Garratt, & Miller, 1990), BSI = Brief Symptom Inventory (Derogatis & Melisaratos, 1983), PST = Positive Symptom Total, PSDI = Positive Symptom Distress Index, YSR-D = Youth Self Report – Depression (Achenbach & Rescorla), YSR-A = Youth Self Report – Anxiety (Achenbach & Rescorla), SWLS = Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), FPQC = Fear of Pain Questionnaire for Children (Simons, Sieberg, Carpino, Logan, & Berde, 2011), PCSC = Pain Catastrophising Scale for Children (Sullivan, Bishop, & Pivik, 1995; Vervoort, Goubert, Eccleston, Bijttebier, Crombez, 2005), DAS = Dysfunctional Attitudes Scale (Weissman & Beck, 1978), MIS = Magical Ideation Scale (Eckblad & Chapman, 1983), AA = African-American, APS-R = Almost Perfect Scale – Revised (Slaney, Rice, Mobley, Trippi, & Ashby, 2001), CES-D = Center for Epidemiological Studies – Depression Scale

(Radloff, 1977), DASS-21 = Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995), SPPA = Self Perception Profile for Adolescents (Harter, 1988; Straathof & Treffers, 1988; Wichstrøm, 1995), STLS = State-trait Loneliness.

Table 2.  
*Meta-regression of the associations of Parental PS and PC with child distress*

Moderator	<i>Parental PS</i>							
	<i>N</i>	<i>k</i>	<i>r</i> <sup>2</sup>	<i>b</i>	[95% <i>CI</i> ]	<i>Q</i> <sub>mod</sub> <i>el</i>	<i>df</i>	<i>p</i>
Parent gender	1,449	10	.00	-.001	[-.006, .004]	.04	1	.84
Child gender	1,669	10	.00	.002	[-.002, .006]	.95	1	.33
	<i>Parental PC</i>							
	<i>N</i>	<i>k</i>	<i>r</i> <sup>2</sup>	<i>b</i>	[95% <i>CI</i> ]	<i>Q</i> <sub>mod</sub> <i>el</i>	<i>df</i>	<i>p</i>
Parent gender	2,214	12	.00	-.00	[-.005, .004]	0.07	1	.80
Child gender	2,680	13	.00	-.00	[-.006, .002]	1.08	1	.30

*N* = number of participants, *k* = number of papers, *b* = co-efficient, *CI* = confidence interval, *Q*<sub>model</sub> = Q-test statistic regarding model, *df* = degrees of freedom, *p* = p-value

Table 3.  
*Sub-group analyses of the associations of Parental PC with child distress*

Moderator	Groups	<i>N</i>	<i>k</i>	<i>r</i>	95% <i>CI</i>	<i>p</i>
Perfectionism measure	MPS-F	1,416	6	.069	[.02, .12]	.010**
	MPS-HF	931	5	.178	[.07, .28]	.001**
	Other (PNPS and APS-R)	374	3	.298	[.13, .47]	.001**

*N* = number of participants, *k* = number of papers, *r* = effect size, *CI* = confidence interval, *p* = p-value, MPS-F = Frost Multidimensional Perfectionism Scale, \*\**p* < .01, MPS-HF = Hewitt and Flett Multidimensional Perfectionism Scale, PNPS = Positive and Negative Perfectionism Scale, APS-R = Almost Perfect Scale – Revised