



Parenting behaviors and trait perfectionism: A meta-analytic test of the social expectations and social learning models

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ARTICLE INFO

Keywords:

Perfectionism
Parenting
Review
Meta-analysis
Intergenerational

ABSTRACT

The social expectations model posits that children become perfectionistic in response to the contingent self-worth associated with parental expectations and parental criticism. Alternatively, the social learning model contends children emulate their parents' perfectionistic tendencies through observation and imitation. However, inconsistent findings and underpowered studies have obscured understanding of these important models. We addressed this by conducting the first meta-analytic test of the social expectations and social learning models. Our search yielded 46 studies ($N = 13,364$). Results showed parental expectations had unique positive relationships with self-oriented, other-oriented, and socially prescribed perfectionism. In contrast, parental criticism was only uniquely associated with socially prescribed perfectionism. Additionally, parents' self-oriented and socially prescribed perfectionism displayed one-to-one correspondence with offspring's self-oriented and socially prescribed perfectionism.

1. Introduction

Perfectionism is a risk factor for various forms of psychopathology (Limburg et al., 2017). For instance, perfectionism predicts longitudinal increases in depressive symptoms, even after controlling for covariates such as neuroticism (Smith et al., 2016a). Perfectionism is also associated with early mortality (Fry & Debats, 2009), poor physical health (Sirois & Molnar, 2016), eating disorders (Bardone-Cone et al., 2007), suicide ideation (Smith et al., 2018b), anxiety (Smith et al., 2018a), and limits the success of psychotherapy (Hewitt et al., 2020). Likewise, Curran and Hill (2019) presented meta-analytic evidence that levels of trait perfectionism have increased linearly over the past three decades. Hence, research that supports prevention, assessment, and treatment efforts by identifying factors contributing to the onset and maintenance of perfectionism is urgently needed. Finally, though perfectionism arises from a complex interplay of biopsychosocial factors (Hewitt et al., 2017), theoretical accounts converge on a common theme—perfectionism emerges in childhood and relationships with parents can play a crucial role (e.g., Blatt, 1995; Horney, 1950; Missildine, 1963).

Two widely researched developmental models of perfectionism are the social expectations and social learning models. According to the

social expectations model (Flett et al. 2002), perfectionism develops in response to the contingent regard associated with parental expectations and parental criticism. Alternatively, the social learning model (Flett et al., 2002) maintains that children develop perfectionism by observing and imitating their parent's perfectionistic behavior. Yet, inconsistent findings and underpowered studies have clouded our understanding of these important models. In the present study, we addressed this through the first meta-analytic test of the social expectations and social learning models. In addition, to catalyze a search for moderators that may resolve heterogeneity, we conducted exploratory tests of the moderating role of gender, age, sample type, and year of publication on observed relationships. Parenthetically, though we focus on parents, other socialization agents and broader societal and cultural factors also likely contribute to the development of perfectionism (Flett et al., 2002).

1.1. Conceptualizing perfectionism

Various conceptualizations of perfectionism are proposed (e.g., Dunkley et al., 2003). Arguably the most detailed and validated is Hewitt et al.'s (2017) Comprehensive Model of Perfectionistic Behavior (CMPB). The CMPB views perfectionism as a multifaceted and multilevel personality style that has intertwined trait, self-presentational, and

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cognitive components (Hewitt et al., 2017). The trait component (Hewitt & Flett, 1991) has three dimensions: *self-oriented perfectionism* (requiring perfection of the self), *other-oriented perfectionism* (requiring perfection of other people), and *socially prescribed perfectionism* (believing others require perfection of the self). Both self-oriented and socially prescribed perfectionism are robust predictors of psychopathology (Limburg et al., 2017). For instance, Castro-Fornieles et al. (2007) found that relative to control groups, bulimic and anorexic patients tended to score higher on self-oriented perfectionism, with approximately 1 in 5 having clinically significant levels. Socially prescribed perfectionism predicts longitudinal increases in borderline personality organization, depressive symptoms, and suicide ideation (Chen et al., 2019a, 2019b; Smith et al., 2018b, 2021). And other-oriented perfectionism is a unique predictor of narcissistic grandiosity, Machiavellianism, and psychopathy (Stoeber, 2014; Smith et al., 2016c), as well as interpersonal dysfunction (Stoeber et al., 2021). The CMPB also includes a self-presentational component that reflects how people express perfectionism interpersonally (Hewitt et al., 2003) and a cognitive component (Flett et al., 1998) that captures automatic self-directed thoughts with perfectionistic themes. Though all levels of the CMPB are important (Hewitt et al., 2017), we focus on trait perfectionism as there is insufficient research on the development of perfectionistic self-presentation and perfectionistic cognitions for inclusion in a quantitative review.

Frost et al. (1990) proposed another influential model and conceptualized perfectionism as involving six dimensions: parental criticism and expectations, personal standards, concern over mistakes, doubts about action, and organization. Guided by writings on the development of perfectionism (e.g., Missildine, 1963), Frost et al. (1990) viewed *parental expectations* and *parental criticism* as integral to understanding perfectionism's etiology. In their own words, "for the perfectionist, self-evaluations of performance are inextricably tied to assumptions about parental expectations and approval or disappointment" (Frost et al., 1990, p. 451). *Parental expectations* capture the tendency to perceive one's parents as holding unreasonably lofty standards for their performance. In contrast, *parental criticism* reflects perceptions of one's parents as overly disapproving and judgmental of their so-called imperfections. A wealth of evidence suggests parental expectations and parental criticism are associated with an array of psychopathology (Shafran & Mansell, 2001) and myriad negative consequences (e.g., Bieling & Alden, 1997; Cheavens et al. 2005). For instance, Sassaroli et al. (2008) showed that relative to a non-clinical reference group, parental criticism and parental expectations were higher among patients with major depressive disorder, obsessive-compulsive disorder, and eating disorders.

However, the validity of Frost et al.'s (1990) four remaining subscales is debatable. Frost et al. (1990) recommended removing organization due to a low item-total correlation. Theory and evidence suggest personal standards are not perfectionistic standards per se (Blasberg et al., 2016; Gaudreau, 2019; Smith et al., 2019). Concern over mistakes contains items from the Dysfunctional Attitudes Scale (Weissman & Beck, 1978)—a measure of attitudes that confer risk for depression. And doubts about actions overlaps with the Maudsley Obsessional-Compulsive Inventory (MOCI; Hodgson & Rachman, 1977) due to having several items from the MOCI (Limburg et al., 2017). Hence, we focus on trait perfectionism and view parental expectations and criticism as putative developmental antecedents (e.g., Damian et al., 2013; Stoeber, 2018).

1.2. Social expectations model

The social expectations model asserts perfectionism arises in response to the contingent approval associated with parental expectations and parental criticism (Flett et al., 2002). This model draws heavily on the work of Missildine (1963), who theorized perfectionists had parents who relentlessly encouraged them to do better. Instead of

rewarding them for self-improvement, these parents reminded their child to set their standards higher. Over time this causes children to learn that nothing they do will ever be good enough. Missildine (1963) also theorized that perfectionists had parents who harshly criticized them when they fell short of their expectations. Thus, through the lens of the social expectation model, parental expectations and parental criticism provide conditions conducive to perfectionism. To illustrate, parental expectations can result in children learning that following a success, the proper course of action is to set their standards higher. Similarly, perfectionists may introject parental criticism, leaving them prone to self-rebuke instead of self-soothing in the face of failure. However, though the social expectation model is promising, inconsistent findings limit our understanding of whether parental expectations and parental criticism are differentially related to trait perfectionism dimensions.

Indeed, Enns et al. (2002) reported parental expectations predicted "adaptive perfectionism" (a composite composed of self-oriented perfectionism, other-oriented perfectionism, and personal standards), but not "maladaptive perfectionism" (a composite composed of socially prescribed perfectionism, concern over mistakes, and doubts about action). Conversely, Enns et al. (2002) reported parental criticism was uniquely associated with "maladaptive perfectionism," but not "adaptive perfectionism." However, the use of composite scores makes interpreting their findings a challenge. For instance, did parental criticism predict "maladaptive perfectionism" due to socially prescribed perfectionism? Or perhaps it had less to do with socially prescribed perfectionism and more to do with concern over mistakes and doubts about actions? Likewise, in the only longitudinal test of the social expectations model, Damian et al. (2013) found that, contrary to Enns et al. (2002), parental expectations predicted longitudinal increases in adolescents' socially prescribed perfectionism but not self-oriented perfectionism. Moreover, unlike Enns et al. (2002), Damian et al. (2013) found parental criticism was not uniquely related to self-oriented or socially prescribed perfectionism. Even so, Damian et al. (2013) omitted other-oriented perfectionism and it is difficult to ascertain how parental criticism and expectations would manifest in demanding perfection from others (i.e., other-oriented perfectionism) without pivoting to social learning.

1.3. Social learning model

The social learning model derives from Bandura and colleagues landmark research (see Bandura, 1986) and contends children become perfectionistic by observing and imitating their parents' perfectionistic behavior (Flett et al., 2002). For instance, Bandura and Kupers (1964) demonstrated that children who watched an adult reward themselves only after meeting high standards were less likely to reward themselves unless they also met high standards. Likewise, Flett et al. (2002) posited perfectionism could be transmitted intergenerationally due to the tendency for children to idolize and want to imitate seemingly perfect caregivers. To this end, researchers test the social learning model by examining the relationships between parent-reported and child-reported trait perfectionism dimensions (e.g., Curran et al., 2020). This practice rests on two assumptions.

First, because perfectionism displays high rank-order stability (Smith et al., 2021), parents who score higher on perfectionism are assumed to have engaged in more perfectionistic behavior around their child. Second, children exposed to more perfectionistic behavior are assumed to have more opportunities to model their parent's perfectionistic behavior and to develop similar tendencies. Now, the relationship between parent-reported and child-reported perfectionism could, of course, be due to genetics. Nonetheless, roughly 60% of personality differences are attributable to the environment (Vukasović & Bratko, 2015), and social learning is a crucial environmental factor (Rosenthal & Zimmerman, 2014). Accordingly, researcher who test of the social learning model contend that observation and imitation are the primary driving force behind the overlap between parent and child perfectionism (e.g.,

Appleton et al., 2010).

Even so, evidence obtained via Monte Carlo simulations suggests correlations only stabilize in samples larger than 250 (Schönbrodt & Perugini, 2013). As such, most research on the intergenerational transmission of trait perfectionism is underpowered (see Table 1), which could explain the marked variation in the magnitude and direction of effects reported. For instance, Hewitt et al. (2017) studied 130 mother-daughter dyads and observed small-to-moderate correspondence between mother-reported and daughter-reported self-oriented, other-oriented, and socially prescribed perfectionism. Similarly, Curran et al. (2020) found small positive relationships between parent-reported and child-reported self-oriented and socially prescribed perfectionism in parent-athlete dyads ($N = 114$). On the other hand, Piercey et al. (2020) studied adolescents with inflammatory bowel disease and their parents ($N = 76$) and found marginal negative relationships between parent-reported and child-reported self-oriented, other-oriented, and socially prescribed perfectionism.

Statistical power becomes even more problematic when attempting to gauge the relevance of the same-sex modeling hypothesis to perfectionism. The same-sex modeling hypothesis posits children's personality more closely resembles their same-sex parents' personality than their different-sex parent (Perry & Bussey, 1979). As regards perfectionism, congruent with the same-sex modeling hypothesis, Vieth and Trull (1999) found small-to-moderate positive correspondence for self-oriented and socially prescribed perfectionism in son-father dyads and mother-daughter dyads. Conversely, they found correspondence ranging from -0.28 to 0.03 for self-oriented and socially prescribed perfectionism across son-mother ($N = 58$) and daughter-father ($N = 119$) dyads. Additionally, Vieth and Trull (1999) found that parents' other-oriented perfectionism was not related to children's other-oriented perfectionism regardless of parent and child gender. In contrast, Appleton et al. (2010) studied parent-athlete dyads ($N = 109$ to 178) and reported that parents' self-oriented, other-oriented, and socially prescribed perfectionism had small-to-moderate positive relationships with children's self-oriented, other-oriented, and socially prescribed perfectionism. However, contrary to the same-sex modeling hypothesis, these authors found that the intergenerational transmission of perfectionism extended beyond same-sex parent-child dyads. Finally, tests of the social learning model typically report effects across the same dimensions, but not different dimensions. This has obscured understanding of discriminant validity. For example, suppose a child has a parent with elevated self-oriented perfectionism but minimal socially prescribed perfectionism. If imitation and observation of this parent's perfectionistic behavior is the sole factor driving the development of perfectionism, then this child should be higher on self-oriented perfectionism but not socially prescribed perfectionism. In contrast, if this child had higher socially prescribed perfectionism, it would suggest factors other than social learning are at play.

1.4. Advancing research on the social expectations and social learning models

Inconsistent findings (e.g., Enns et al., 2002; Damian et al., 2013) and underpowered studies have clouded understanding of the social expectations and social learning models. However, a meta-analysis could overcome distorting artifacts that arise from small sample sizes (Borenstein et al., 2021) and, by doing so, allow for more accurate and concrete conclusions to be reached. That said, a traditional bivariate meta-analysis is ill-suited for clarifying whether parental criticism and parental expectations are independently related to trait perfectionism dimensions. Likewise, a bivariate meta-analysis is inappropriate for determining the unique relationships between parent-reported and child-reported trait perfectionism dimensions. Though possible to create a pooled correlation matrix by meta-analyzing correlations one by one, results will be inaccurate if predictors, such as parental criticism and expectations, correlate (Cheung & Hong, 2017). A bivariate meta-

analysis would also require we omit studies with missing data, potentially leading to parameter estimates further away from the underlying population values (Jak et al., 2013). Lastly, though meta-regression can simultaneously examine the influence of multiple mediators, it cannot test the impact of study-level moderators on path coefficients.

The use of meta-analytic structural equation modeling (MASEM; Cheung, 2015) will address these limitations and provide a methodologically rigorous way of clarifying relationships among study variables. Likewise, conducting a bivariate meta-analysis alongside MASEM will allow us to draw on the strengths of each approach. Namely, our bivariate meta-analysis will enable us to assess publication bias and use meta-regression to identify moderators that remain significant when entered alongside other potential moderators. Alternatively, MASEM will allow us to examine multivariate relationships between parental criticism, parental expectations, parent's trait perfectionism and children's trait perfectionism and evaluate whether moderators identified via meta-regression remain significant after controlling for overlap among predictors.

1.5. Present study

Against this background, we aimed to clarify the extent to which parental expectations and parental criticism are differentially related to self-oriented, other-oriented, and socially prescribed perfectionism. Such evidence would inform whether parental expectations and parental criticism are more pertinent to certain trait perfectionism dimensions and may add greater specificity to the social expectations model. We also will evaluate the social learning model by testing correspondence between parent-reported and child-reported self-oriented, other-oriented, and socially prescribed perfectionism. This would yield a more concrete and accurate understanding of the extent to which perfectionism is intergenerationally transmitted from parents to children (Flett et al., 2002) and enable us to assess the same-sex modeling hypothesis (Vieth & Trull, 1999). We also aimed to catalyze a search for moderators that may resolve heterogeneity by testing the moderating role of age, gender, sample type, and year of publication on relationships of interest. We evaluated the year of publication as a moderator because Curran and Hill (2019) maintained that increases in parental expectations might explain why levels of trait perfectionism dimensions appear to be rising among young people. Likewise, we assessed age and gender as moderators, given that meta-analytic reviews have found that age and gender moderate the relationships between certain trait perfectionism dimensions, Five Factor Model traits, and social disconnection (Smith et al., 2019, 2020). Lastly, we assessed sample type as a moderator as we wished to evaluate the generalizability of our findings to people with mental health problems.

Guided by theory (e.g., Flett et al., 2002; Hewitt et al., 2017) and evidence (e.g., Damian et al., 2013), we hypothesized parental expectations would display a unique positive relationship with self-oriented perfectionism independent of parental criticism. However, due to inconsistent findings, whether parental expectations would predict other-oriented and socially prescribed perfectionism independent of parental criticism and whether parental criticism would predict self-oriented, other-oriented, and socially prescribed perfectionism independent of parental expectations is exploratory. Additionally, informed by theory (e.g., Bandura, 1986; Flett et al., 2002) and research (e.g., Curran et al., 2020; Vieth & Trull, 1999), we hypothesized parents' self-oriented perfectionism would display a unique positive relationship with children's self-oriented perfectionism independent of parents' socially prescribed perfectionism. Similarly, we hypothesized that following removal of variance attributable to parents' self-oriented perfectionism, parents' socially prescribed perfectionism would display a unique positive relationship with children's socially prescribed perfectionism. Due to contradictory findings (e.g., Appleton et al., 2010; Vieth & Trull, 1999), we consider our tests of the same-sex modeling hypothesis exploratory.

Table 1
Characteristics of samples included in the meta-analysis.

	Sample							Measures	
	N	Sample type	Mean age	Female %	Ethnic %	Status	Design	Perfectionism	Parenting variables
Akram et al. (2015), Time 1	76	community ^a	25.3	80.0	7.9	article	longitudinal	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Akram et al. (2015), Time 2	57	community ^a	26.1	84.0	7.0	article	longitudinal	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Akram et al. (2017)	78	community ^a	22.2	87.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Appleton et al. (2010), Sample 1	129	daughter-mother dyads	14.6 ^c 44.1 ^d	100.0 ^c 100.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Appleton et al. (2010), Sample 2	173	son-mother dyads	14.6 ^c 44.1 ^d	0.0 ^c 100.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Appleton et al. (2010), Sample 3	108	daughter-father dyads	14.6 ^c 46.5 ^d	100.0 ^c 0.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Appleton et al. (2010), Sample 4	151	son-father dyads	14.6 ^c 46.5 ^d	0.0 ^c 0.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Azizi and Besharat (2011), Sample 1	364	offspring-mother dyads	NR NR	53.3 ^c 100.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Azizi and Besharat (2011), Sample 2	342	offspring-father dyads	NR NR	50.3 ^c 0.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP'	MPS-SOP MPS-OOP MPS-SPP
Brown (2011), Study 1	232	university ^b	18.5 ^c	76.0	81.0	dissertation	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PC FMPS-PE
Brown (2011), Study 2	101	university ^b	29.5 ^d	69.4	71.0	dissertation	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PP
Campbell (2014)	324	athletes	19.6	71.6	55.5	dissertation	cross-sectional	MPS-SOP MPS-SPP	FMPS-PPP
Chang et al. (2008)	248	university ^b	19.8	100.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Cook (2007), Sample 1	53	daughter-mother dyads	14.3 ^c NR	54.6 ^c NR	24.0 ^c NR	dissertation	cross-sectional	CAPS-SOP CAPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Cook (2007), Sample 2	44	son-mother dyads	14.3 ^c NR	54.6 ^c NR	24.0 ^c NR	dissertation	cross-sectional	CAPS-SOP CAPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Cook (2007), Sample 3	53	daughter-father dyads	12.3 ^c NR	54.6 ^c NR	24.0 ^c NR	dissertation	cross-sectional	CAPS-SOP CAPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Cook (2007), Sample 4	54	son-father dyads	12.3 ^c NR	54.6 ^c NR	24.0 ^c NR	dissertation	cross-sectional	CAPS-SOP CAPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Cook (2013), Sample 1	116	offspring-mother dyads	12.3 ^c NR	58.1 ^c NR	36.3 ^c NR	dissertation	cross-sectional	CAPS-SOP CAPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Cook (2013), Sample 2	116	offspring-father dyads	12.3 ^c	58.1	36.3	dissertation	cross-sectional	CAPS-SOP CAPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Cooks (2017)	125	university ^b	19.0	73.6	27.2	dissertation	cross-section	MPS-SOP MPS-OOP	FMPS-PE FMPS-PC

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Table 1 (continued)

	Sample							Measures	
	N	Sample type	Mean age	Female %	Ethnic %	Status	Design	Perfectionism	Parenting variables
								MPS-SPP	
Cox and Enns (2003), Time 1	105	patients with mental health problems	41.6	69.5	NR	article	longitudinal	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Cox and Enns (2003), Time 2	105	patients with mental health problems	41.6	69.5	NR	article	longitudinal	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Cox et al. (2002), Sample 1	412	patients with mental health problems	40.8	58.5	NR	article	cross-sectional	MPS-SOP MPS-OOP MSP-SPP	FMPS-PP
Cox et al. (2002), Sample 2	288	university ^b	19.1	63.2	NR	article	cross-sectional	MPS-SOP MPS-OOP MSP-SPP	FMPS-PP
Curran et al. (2020)	114	offspring-parent dyads	14.1 ^c 49.9 ^d	45.2 ^c NR	NR NR	article	cross-sectional	MPS-SOP MPS-SPP	MPS-SOP MPS-SPP
Damian et al. (2013), Time 1	483	students	16.7	57.6	NR	article	longitudinal	CAPS-SOP CAPS-SPP	FMPS-PE FMPS-PC
Damian et al. (2013), Time 2	381	students	16.7	61.4	NR	article	longitudinal	CAPS-SOP CAPS-SPP	FMPS-PE FMPS-PC
De Cuyper et al. (2015)	687	university ^b	18.5	84.7	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Donovan et al. (2014)	167	university ^b	19.2	100.0	NR	article	cross-sectional	EDI-2-SOP EDI-2-SPP	FMPS-PE FMPS-PC
Dunkley et al. (2006)	163	university ^b	20.0	60.7	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Dunn et al. (2006), Sample 1	138	athletes	18.3	0.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	Sport-MPS-PPP
Dunn et al. (2006), Sample 4	121	athletes	14.5	100.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	Sport-MPS-PPP
Eckerd (2004)	325	university ^b	18.7	100.0	NR	dissertation	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Enns and Cox (1999)	145	patients with mental health problems	43.6	62.1	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Flett et al. (1995)	261	university ^b	23.4	67.4	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Frost et al. (1993)	488	university ^b	NR	51.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC

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Table 1 (continued)

	Sample							Measures	
	N	Sample type	Mean age	Female %	Ethnic %	Status	Design	Perfectionism	Parenting variables
Harvey (2019) Time 1	202	students	9.8	56.7	NR	dissertation	longitudinal	CAPS-SOP CAPS-SPP	FMPS-PE FMPS-PC
Hewitt et al. (2017)	130	daughter-mother dyads	NR ^c NR	100.0 ^c 100.0 ^d	NR NR	book	cross-sectional	CAPS-SOP CAPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Hewitt et al. (1991), men	35	patients with mental health problems	38.1	0.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Hewitt et al. (1991), women	25	patients with mental health problems	38.1	100.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Izadi (2014)	50	community ^a	27.0	74.0	42.0	dissertation	cross-sectional	MSP-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Kaçar-Başaran et al. (2020)	427	community ^a	28.7	75.0	NR	article	longitudinal	BTPS-SOP BTPS-OOP BTPS-SPP	FMPS-PE FMPS-PC
Kaye et al. (2008)	372	university ^b	21.2	40.3	63.4	article	cross-sectional	MSP-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Longbottom et al. (2010)	215	university ^b	21.2	50.2	15.3	article	cross-sectional	MPS-SOP MPS-SPP	FMPS-PP
Mallinson and Hill (2011)	205	athletes	15.3	57.1	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	Sport-MPS-PPP
Pannhausen et al. (2021)	274	community ^a	27.6	79.2	NR	article	cross-sectional	MSP-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Piercy et al. (2020)	76	offspring-mother dyads	15.0 ^c	44.0	45.0	article	cross-sectional	CAPS-SOP CAPS-SPP	MPS-SOP MPS-SPP
Purdon et al. (1999)	322	patients with mental health problems	36.0	49.7	19.9	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Randall (2012)	88	students	15.5	60.2	14.0	dissertation	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MIPS-PPP
Rice et al. (2007)	207	university ^b	19.4	74.4	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Rosenbaum (1995)	293	university ^b	30.3	77.1	44.0	dissertation	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Rudolph (2005)	170	university ^b	19.9	100.0	NR	dissertation	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Sironic and Reeve (2015)	938	students	16.3	62.1	NR	article	cross-sectional	CAPS-SOP CAPS-SPP	FMPS-PE FMPS-PC

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Table 1 (continued)

	Sample							Measures	
	N	Sample type	Mean age	Female %	Ethnic %	Status	Design	Perfectionism	Parenting variables
Slaney et al. (2001)	174	university ^b	19.2	51.4	86.0	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Smith et al. (2017a)	159	daughter-father dyads	19.9 ^c 52.3 ^d	100.0 ^c 0.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-SPP	MPS-OOP
Smith et al. (2017b)	218	daughter-mother dyads	20.0 ^c NR	100.0 ^c 100.0 ^c	NR NR	article	cross-sectional	MPS-SPP	MPS-OOP
Smith et al. (2019), Sample 1	102	offspring-father dyads	20.6 ^c NR	69.6 ^c 0.0 ^d	NR NR	article	cross-sectional	MPS-SPP	MPS-OOP
Smith et al. (2019), Sample 2	168	offspring-mother dyads	20.6 ^c NR	69.6 ^c 0.0 ^d	NR NR	article	cross-sectional	MPS-SPP	MPS-OOP
Stornæs et al. (2019)	832	students	13.5	53.0	NR NR	article	cross-sectional	CAPS-SOP CAPS-SPP	FMPS-PE FMPS-PC
Suddarth and Slaney (2001)	196	university ^b	20.3	78.6	6.2	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC
Vieth and Trull (1999), Sample 1	58	son-mother dyads	19.0 ^c 46.3 ^d	0.0 ^c 100.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Vieth and Trull (1999), Sample 2	119	daughter-mother dyads	19.0 ^c 46.3 ^d	100.0 ^c 100.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Vieth and Trull (1999), Sample 3	58	son-father dyads	19.0 ^c 48.4 ^d	0.0 ^c 0.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Vieth and Trull (1999), Sample 4	119	daughter-father dyads	19.0 ^c 48.4 ^d	100.0 ^c 0.0 ^d	NR NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	MPS-SOP MPS-OOP MPS-SPP
Wheeler et al. (2011)	214	patients with mental health problems	37.0	69.0	29.0	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	FMPS-PE FMPS-PC

Note. NR = not reported; N = total number of participants; FMPS = Frost et al.'s (1990) Multidimensional Perfectionism Scale; PC = parental criticism, PE = parental expectations; PPP = perceived parental pressure; PP = parental pressure (composite of FMPS-PC and FMPS-PE); MPS = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; SOP = self-oriented perfectionism; SPP = socially prescribed perfectionism; CAPS = Flett et al.'s (2000) Child-Adolescent Perfectionism Scale; Sport-MPS-PP = Dunn et al.'s (2006) Sport Multidimensional Perfectionism Scale perceived parental pressure; EDI = Sherry et al.'s (2014) modified Eating Disorder Inventory (Garner et al., 1983). BTPS = Smith et al.'s (2016) Big Three Perfectionism Scale. MIPS = Stoeber et al.'s (2005) Multidimensional Inventory of Perfectionism in Sport.

^a Community members.

^b University students.

^c Offspring.

^d Parent.

2. Method

2.1. Selection of studies

We conducted a broad and inclusive literature search using PsycINFO, Academic Search Premier, CINAHL, Social Work Abstracts, SPORTDiscuss, ERIC, Web of Science, Scopus, Embase, and ProQuest Dissertations using the following search terms and Boolean operators: "perfect*" AND "Mom* OR dad* OR mother* OR father* OR maternal OR paternal OR matriarch* OR patriarch* OR caregiv* OR caretak* OR

guardian OR rear* OR disciplin* OR parent* OR famil* OR dyad OR attachment OR son OR daughter OR child* OR infant OR demand* OR respons* OR authoritative OR authoritarian OR permissive OR indulgen* OR neglect* OR overprotect* OR inconsist* OR control OR warmth OR involvement OR abuse OR maltreatment OR punish* OR spank* OR monitoring OR sensitivity OR socializ* OR "parental criticism" OR "parental expectation*". This search yielded 15,672 studies. Next, the first and fifth author reviewed studies using the following predetermined inclusion criteria (a) the study assessed trait perfectionism as conceptualized by the CMPB, (b) the study assessed parental

criticism, parental expectations, and/or parent-reported trait perfectionism, (c) the study reported an effect size (e.g., correlation coefficient), and (d) the published study was in English. No search period was specified. On April 26, 2021, we terminated search strategies and began data reduction and analysis. The fifth author and three trained research assistants screened the title and abstract of each article identified for inclusion. Inter-rater agreement was 97%, and discrepancies were resolved through discussion with the first, second, and third authors. Next, the first author screened the full text of articles identified for inclusion. A total of 15 studies were excluded (see Supplemental Material A for justification and Fig. 1 for PRISMA diagram). Agreement on excluded articles among the first, second, and third authors was 100%. The final set of studies comprised 46 studies with 64 samples (see Table 1). Individual effects are in Supplemental Material B, study-level and meta-analyzed Cronbach's alphas are in Supplemental Material C, and effects corrected for unreliability in measurement are in Supplemental Material D.

2.2. Coding of studies

The fifth author coded studies based on sample type, sample size, mean age, mean percentage of female participants, ethnicity (i.e., percentage ethnic minority), sample type, design, and publication status (i.e., peer-reviewed journal article versus dissertation). Subsequently, the first author double-checked the accuracy of the data extracted by the fifth author and resolved any discrepancies by consulting full texts.

2.3. Procedure

When aggregating effects across studies, measurement error biases overall weighted effects toward zero, inflates heterogeneity and can cause publication bias analysis to indicate the presence of bias when none exists (Wiernik & Dahlke, 2020). Hence, to address this, before

aggregation, we corrected individual effects for measurement error by dividing each effect by the square root of the product of the two corresponding reliability coefficients (Borenstein et al., 2021). For studies that did not report reliability, we used the corresponding meta-analyzed reliability coefficient (see Supplemental Table C3) to correct effects for measurement error (Card, 2012).

2.3.1. Bivariate meta-analytic procedure

We used Comprehensive Meta-Analysis software (Version 3; Borenstein et al., 2005) to calculate uncorrected and corrected weighted effects using random-effects models. We used random-effects models instead of fixed-effect models as we wished to generalize findings from our sample to the population (Card, 2012). Hunter and Schmidt (2004) procedure for computing weighted effects sizes in observed scores after accounting for sampling error was followed. Homogeneity was evaluated by inspecting Q_T (the overall heterogeneity among weighted mean effects) and I^2 (the percentage of variance across studies attributable to heterogeneity). To attempt to explain heterogeneity for weighted mean effects with significant Q_T ($p < .05$), we used random-effects meta-regression with maximum likelihood estimation to evaluate the moderating effect of three continuous moderators and one categorical moderator: gender (mean percentage of females), age (mean age), the year of publication, and sample type (clinical versus non-clinical). For each weighted mean effect, we tested five models: a model with gender as the predictor, a model with age as the predictor, a model with the year of publication as the predictor, a model with sample type as a predictor, and a model with gender, age, the year of publication, and sample type included as predictors simultaneously (see Supplemental Material E). Scatter plots for moderators identified as significant are in Supplemental Material F. Given the large number of significant tests involved in our bivariate meta-analysis, we report significance in Table 1 and Supplemental Table E1 using a complementary False Discover Rate (FDR) criterion set at 5% (Benjamini and Hochberg, 1995).

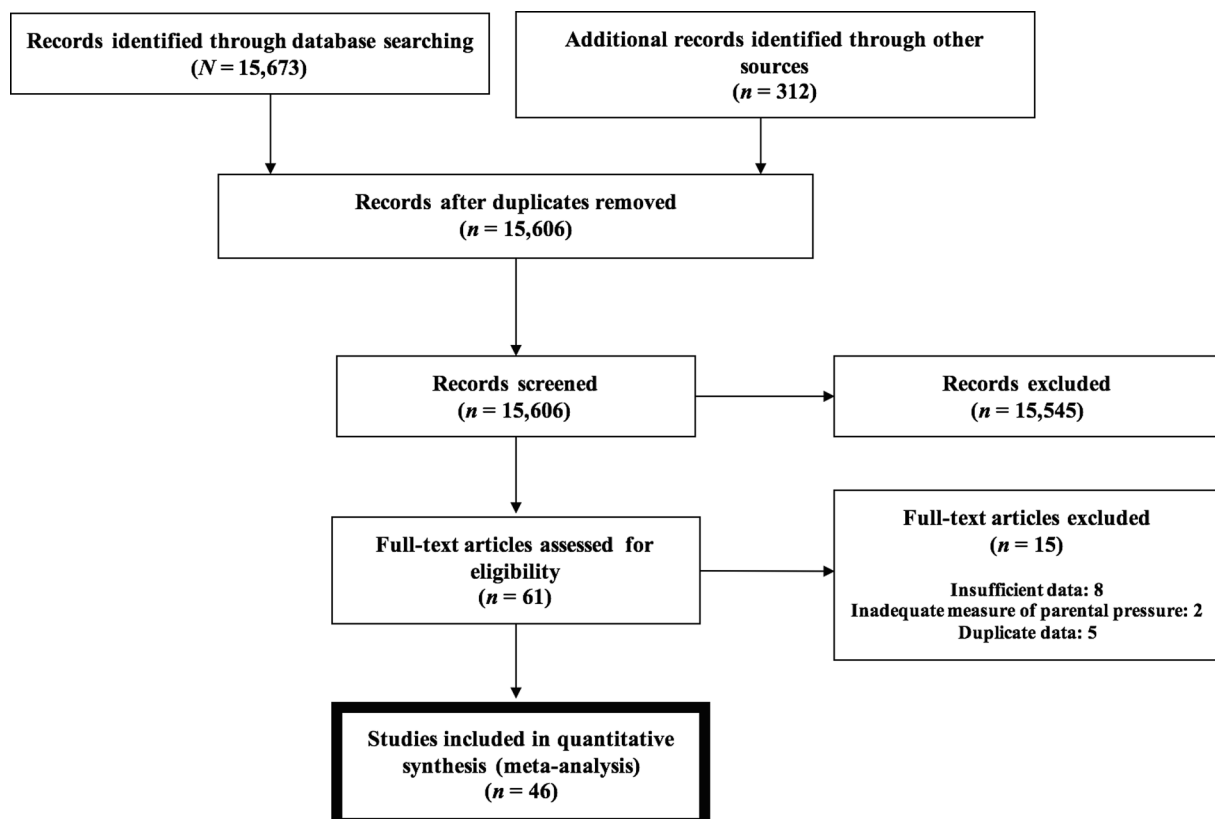


Fig. 1. Study selection procedure.

To evaluate the same-sex modeling hypothesis, when Q_T was significant ($p < .05$), we stipulated a categorical structure to the data and calculated the proportion of heterogeneity explained by Q_B . A significant Q_B ($p < .05$) indicates significant differences between categories and provides a firm basis for moderation. As such, when Q_B was significant, we proceeded to test the extent to which weighted mean effects differ across son-father, daughter-father, son-mother, and daughter-mother dyads (Supplemental Material G). Additionally, for all weighted mean effects, we examined publication bias by inspecting funnel plots with observed and imputed studies (Supplemental Material H) and by computing Egger's test of regression to the intercept (Egger et al., 1997; see Table 2). Symmetry near the top of the funnel plot and asymmetry near the bottom of the funnel plot suggests publication bias, as does a significant Egger's regression coefficient.

2.3.2. Meta-analytic structural equation modeling procedure

To test the social expectations and social learning models, we conducted meta-analytic structural equation modeling (MASEM) using webMASEM (Jak et al., in press). Briefly, MASEM assumes each study has its own population correlation matrix and uses weighted least squares estimation to model between-study differences and to generate an overall weighted mean pooled correlation matrix. Next, the the path models displayed in Figs. 2 and 3 will be imposed on the corresponding weighted pooled correlation matrixes in Table 2. As both models are just-identified, fit will be perfect. Lastly, we will evaluate the extent to which any moderators identified as significant in our bivariate meta-analysis remained significant when examined with MASEM (Jak & Cheung, 2020). Consistent with Jak and Cheung's (2020) recommendations, we will standardize continuous moderators (i.e., age, gender, and year of publication) but not dichotomous moderators (i.e., sample type). Parenthetically, MASEM requires at least one study has no missing data. As such, we are unable to include other-oriented perfectionism in our MASEM test of the social learning model (see Fig. 3 and

Supplemental Table B3). The number of studies and sample size per pooled correlation matrix are reported in Supplemental Material I.

2.4. Description of studies

Our literature search yielded 46 studies and 64 samples containing relevant data (see Table 1). Studies were obtained from 34 peer-reviewed articles, 11 dissertations, and 1 book chapter. The number of participants across samples was 13,364. Sample size varied considerably ($M = 208.81$; $SD = 178.07$; range = 25 to 938). There were 18 university samples, 6 youth samples, eight samples of adults with mental health problems, six community adult samples, four athlete samples, and 22 samples of parent-child dyads. We categorized samples of adults with mental health problems as "clinical samples" and categorized university, youth, community adult, and athlete samples as "non-clinical samples." Studies were published between 1991 and 2021 ($M = 2009.4$, $SD = 8.6$), with the median year of publication of 2011. The mean age of participants was 22.8 years ($SD = 8.4$; range = 9.8 to 43.6). The average percentage of female participants was 58.4% ($SD = 27.8\%$).

2.5. Measures

2.5.1. Trait perfectionism

Self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism were assessed via four measures: the *Multidimensional Perfectionism Scale* (MPS; Hewitt & Flett, 1991), the *Child Adolescent Perfectionism Scale* (CAPS; Flett et al., 1998), Sherry et al.'s modified version of Garner et al.'s (1983) *Eating Disorder Inventory* self-oriented perfectionism and socially prescribed perfectionism subscales, and Smith et al. (2016b) *Big Three Perfectionism Scale* self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism subscales (see Table 1).

Table 2
Summary of overall bivariate effect sizes.

Variable	k	N	r^+	r_c^+	95% CI	Q_T	I^2 (%)	Egger's intercept	95% CI	k^{TF}	"Trim and fill" estimates r^+	[95% CI]
Parental Criticism												
self-oriented perfectionism	32	8,647	.20***	.25***	[.21; .29]	113.22***	72.62	1.37	[-0.38; 3.12]	6	.22	[.18; .27]
other-oriented perfectionism	26	5,643	.16***	.21***	[.17; .26]	76.26***	67.22	-0.51	[-2.51; 1.50]	4	.19	[.14; .24]
socially prescribed perfectionism	32	8,494	.51***	.63***	[.59; .66]	227.35***	86.37	-1.25	[-3.70; 1.21]	0	.63	[.59; .66]
Parental Expectations												
self-oriented perfectionism	32	8,647	.32***	.38***	[.34; .42]	130.61***	76.27	0.14	[-1.82; 2.10]	4	.37	[.33; .41]
other-oriented perfectionism	26	5,643	.23***	.30***	[.25; .34]	71.81***	65.18	0.57	[-1.37; 2.51]	5	.27	[.22; .32]
socially prescribed perfectionism	32	8,494	.58***	.71***	[.65; .77]	821.27***	96.23	-2.89	[-7.51; 1.74]	0	.71	[.65; .77]
Parental Pressure												
self-oriented perfectionism	41	19,206	.27***	.33***	[.29; .35]	220.47***	81.86	0.62	[-1.25; 2.49]	4	.31	[.27; .34]
other-oriented perfectionism	33	12,659	.18***	.24***	[.20; .28]	190.84***	83.23	-0.37	[-2.74; 2.00]	5	.21	[.16; .26]
socially prescribed perfectionism	40	18,900	.55***	.68***	[.64; .72]	844.73***	95.27	-1.75	[-5.31; 1.80]	0	.68	[.64; .72]
Parent Self-Oriented Perfectionism												
child self-oriented perfectionism	8	1,395	.17***	.19***	[.10; .28]	22.71**	69.18	1.09	[-4.74; 6.93]	0	.19	[.10; .28]
child other-oriented perfectionism	3	641	.11***	.14***	[.07; .20]	0.61	0.00	0.87	[-9.31; 11.04]	1	.13	[.07; .20]
child self-oriented perfectionism	6	1,088	.11***	.13***	[.07; .19]	5.07	1.31	0.31	[-4.18; 4.80]	0	.13	[.07; .19]
Parent Other-Oriented Perfectionism												
child self-oriented perfectionism	6	1,275	.08**	.09***	[.04; .15]	2.82	0.00	1.63	[-2.31; 5.56]	1	.08	[.03; .14]
child other-oriented perfectionism	4	948	.17***	.22***	[.15; .29]	3.45	0.33	1.44	[-12.23; 15.30]	1	.21	[.15; .27]
child socially prescribed perfectionism	7	1,410	.13***	.14***	[.06; .22]	12.65	52.58	0.89	[-6.26; 8.06]	0	.14	[.06; .22]
Parent Socially Prescribed Perfectionism												
child self-oriented perfectionism	6	1,088	.06*	.07*	[.01; .13]	4.23	0.00	-1.79	[-5.08; 1.98]	1	.05	[.00; .10]
child other-oriented perfectionism	2	641	.14***	.20***	[.12; .27]	0.16	0.00	-	-	-	-	-
child socially prescribed perfectionism	8	1395	.17***	.21***	[.13; .29]	17.44*	59.87	-1.95	[-7.44; 3.55]	0	.21	[.13; .29]

Note. k = number of studies; N = total number of participants in the k samples; r^+ = observed weighted mean correlation; r_c^+ = disattenuated weighted mean correlation; disattenuated effect sizes were obtained by dividing the observed correlation by the square root of the product of the two corresponding Cronbach's alpha coefficients; CI = confident interval for r_c^+ ; Q_T = measure of heterogeneity for r_c^+ ; I^2 = percentage of heterogeneity for r_c^+ ; k^{TF} = number of imputed studies as part of "trim and fill" method for r_c^+ . **Parental pressure** = compositive parental criticism and parental expectations. Underlined correlations are significant at an FDR of 0.05.

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

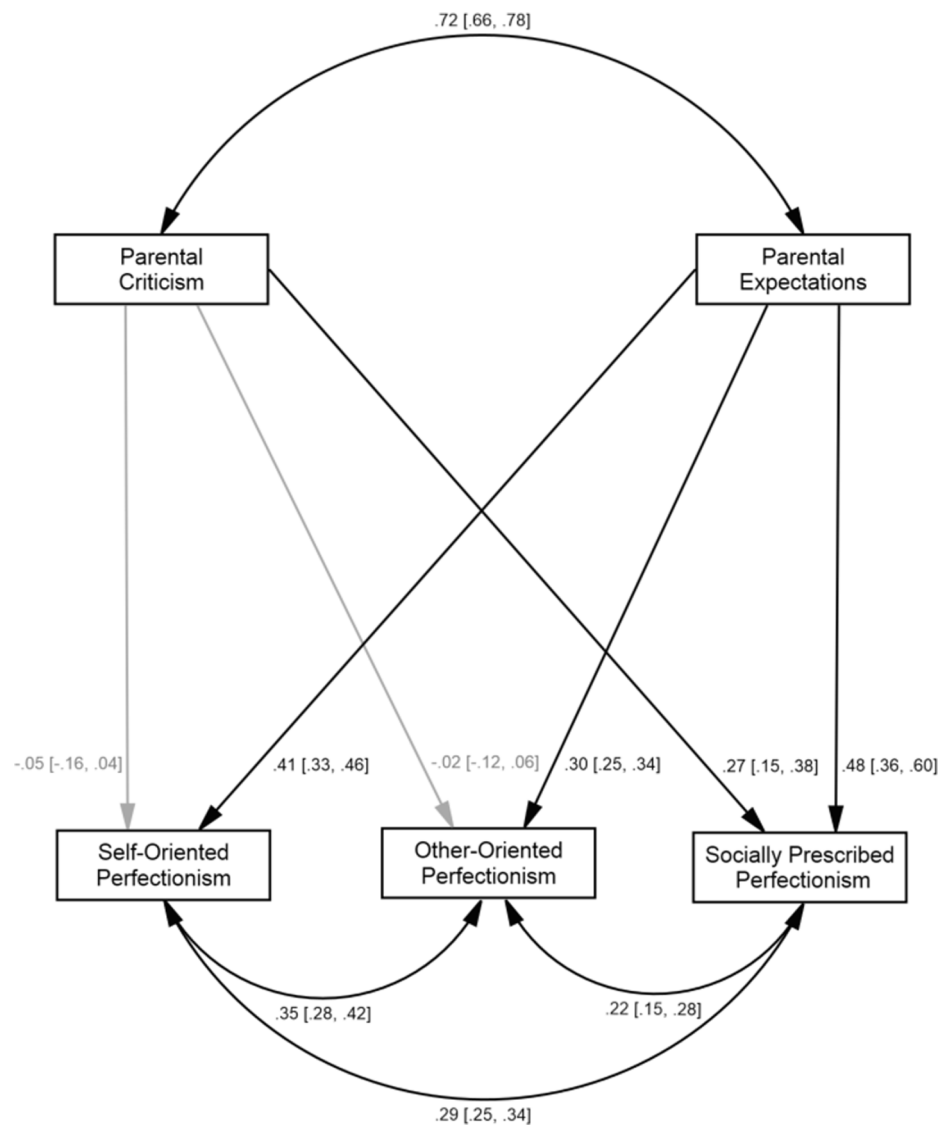


Fig. 2. Social expectations model. Rectangles represent observed variables. Standardized path coefficients are reported with 95% confidence intervals in brackets. Black double headed arrows represent significant ($p < .05$) correlations. Single headed black arrows represent significant ($p < .05$) paths. Single headed grey errors represent non-significant paths ($p > .05$).

2.5.2. Parental expectations and parental criticism

Parental expectations and parental criticism were assessed using three measures: Frost et al.'s (1990) *Multidimensional Perfectionism Scale* (FMPS) parental criticism and parental expectations subscales, Dunn et al.'s (2006) *Sport Multidimensional Perfectionism Scale* (Sport-MPS) perceived parental pressure subscale, and Stoeber et al.'s (2005) *Multidimensional Inventory of Perfectionism in Sport* perceived parental pressure subscale. Factor analytic evidence suggests parental expectations, parental criticism, and parental pressure load strongly onto a single factor (Cox et al., 2002; Stöber, 1998). Hence, we present overall effects for parental criticism and parental expectations separately, but also report overall effects for a composite of parental expectations, parental criticism, and parental pressure in Table 2.

3. Results

3.1. Overall bivariate effect sizes

Uncorrected and corrected weighted mean effect sizes are in Table 2. Following the FDR correction, all effects remained significant at $p < .05$. Parental criticism had small positive relationships with self-oriented

perfectionism and other-oriented perfectionism, and a large positive relationship with socially prescribed perfectionism. Similarly, parental expectations displayed moderate positive relationships with self-oriented perfectionism and other-oriented perfectionism, and a large positive relationship with socially prescribed perfectionism. Turning to parent-reported and child-reported perfectionism, parent's self-oriented perfectionism displayed small positive relationships with children's self-oriented, other-oriented, and socially prescribed perfectionism. Additionally, parents' other-oriented perfectionism displayed a marginal positive relationship with children's self-oriented perfectionism and small positive relationships with children's other-oriented and socially prescribed perfectionism. Lastly, parent's socially prescribed perfectionism displayed a marginal positive relationship with children's self-oriented perfectionism and small positive relationships with children's other-oriented and socially prescribed perfectionism.

3.2. Moderator analysis

All Q_T 's were significant for relationships between parental criticism, parental expectations, and trait perfectionism dimensions and values of I^2 range from 66.7% to 96.3%, suggesting the potential influence of

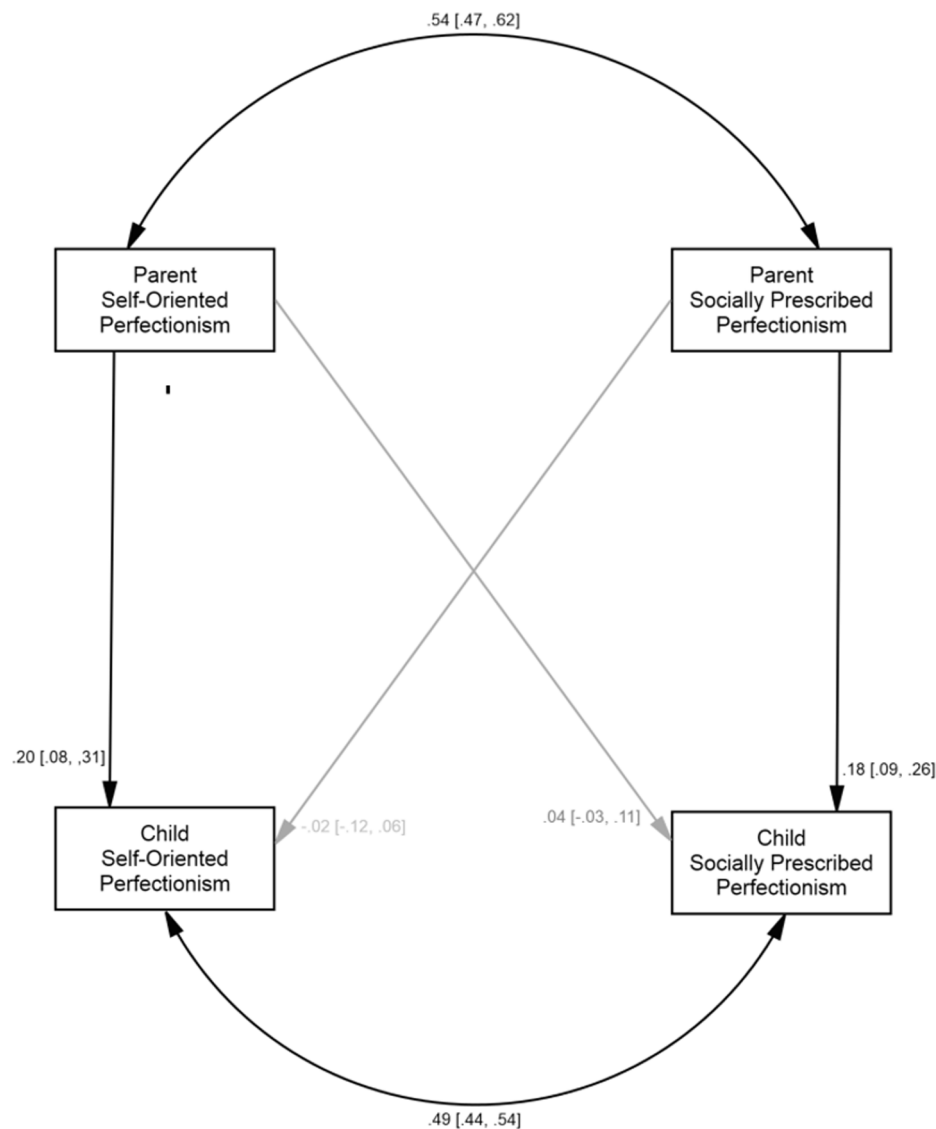


Fig. 3. Social learning model. Rectangles represent observed variables. Standardized path coefficients are reported with 95% confidence intervals in brackets. Black double headed arrows represent significant ($p < .05$) correlations. Single headed black arrows represent significant ($p < .05$) paths. Single headed grey errors represent non-significant paths ($p > .05$). There was insufficient data to include parent-reported and child-reported other-oriented perfectionism.

moderators. After controlling for covariates, meta-regression revealed the following (see Supplemental Material F). Sample type moderated the relationship between parental criticism and self-oriented perfectionism (Supplemental Figure F1), parental expectations and self-oriented perfectionism (Supplemental Figure F2), and perceived pressure and self-oriented perfectionism (Supplemental Figure F3) such that the strength of these relationships were smaller in non-clinical samples relative to clinical samples. Likewise, meta-regression revealed that age moderated the relationship between socially prescribed perfectionism and parental expectations (Supplemental Figure F4), suggesting the magnitude of this relationship decreased as mean sample age increases. Even so, following the FDR correction only the moderating effect of sample type on the parental criticism-self-oriented perfectionism link had a less than a 5% probability of being a false positive.

The Q_T for the relationship between parents' self-oriented perfectionism and children's self-oriented perfectionism and the Q_T for the relationship between parents' socially prescribed perfectionism and children's socially prescribed perfectionism were significant ($p < .05$). Values of I^2 ranged from 59.9% to 69.2%, suggesting moderate heterogeneity. Categorical moderation revealed that the relationship between fathers' self-oriented perfectionism and children's self-oriented

perfectionism was stronger for sons than daughters (Supplemental Material G).

3.3. Publication bias

Funnel plots (Supplemental Material H) and Egger's regression to the intercept (Table 2) provided mixed evidence for publication bias. Egger's regression to the intercept was non-significant for all relationships, whereas trim and fill estimates indicated the presence of publication bias. Even so, after imputing possible missing data via trim and fill, effects sizes decreased by no more than 0.03 and provided the same implications in terms of magnitude and direction.

3.4. Meta-analytic structural equation modeling

The pooled correlation matrix for parental criticism, parental expectations, and trait perfectionism dimensions displayed significant between-study variability ($Q_T = 1406.7$, $p < .001$), with values of I^2 ranging from 38.0 to 89.7 (see Table 3), suggesting small to moderate heterogeneity (Card, 2012). As with other statistical techniques that use random effects, such as multi-level modeling, there is value in testing

whether a model fits the average study (Cheung & Hong, 2017). Thus, consistent with Cheung and Cheung's (2016) recommendations, we proceeded to test the multivariate model depicted in Fig. 2. After controlling for parental criticism, parental expectations had moderate unique positive relationships with self-oriented, other-oriented, and socially prescribed perfectionism. In contrast, after controlling for parental expectations, parental criticism had a small unique positive relationship with socially prescribed perfectionism and non-significant trivial relationships with self-oriented and other-oriented perfectionism. Next, we tested whether the moderating effect of sample type on the magnitude of the parental criticism-self-oriented perfectionism link identified via meta-regression would hold when examined via MASEM. Consistent with our bivariate meta-analysis, sample type was a significant moderator of the path from parental criticism to self-oriented perfectionism ($B = 0.04, p < .001$).

The pooled correlation matrix for parents' self-oriented and socially prescribed perfectionism and children's self-oriented and socially prescribed perfectionism had significant between-study variability ($Q_T = 131.22, p < .001$), with values of I^2 ranging from 0.0 to 73.35 (see Table 3). After controlling for parents' socially prescribed perfectionism, parents' self-oriented perfectionism displayed a small unique positive relationship with children's self-oriented perfectionism and a trivial non-significant relationship with children's socially prescribed perfectionism. Similarly, after controlling for parents' self-oriented perfectionism, parents' socially prescribed perfectionism displayed a small unique positive relationship with children's socially prescribed perfectionism and a trivial non-significant relationship with children's self-oriented perfectionism.

4. Discussion

The social expectations model theorizes parental expectations and parental criticism are integral to the development of perfectionism. Alternatively, the social learning model maintains children become perfectionistic by observing and imitating parents' perfectionistic behaviors. However, underpowered studies and inconsistent findings have clouded understanding of these important models. We addressed this through the first meta-analytic test of the role of parental expectations, parental criticism, and parental perfectionism in offspring's perfectionism. Findings were derived for 46 studies and 64 samples involving 13,364 participants. Meta-analytic structural equation modeling revealed parental expectations had moderate unique positive

relationships with self-oriented, other-oriented, and socially prescribed perfectionism. In contrast, parental criticism had a small unique positive relationship with socially prescribed perfectionism and non-significant trivial relationships with other-oriented and self-oriented perfectionism. Furthermore, parents' self-oriented perfectionism had a small unique positive relationship with children's self-oriented perfectionism, and parents' socially prescribed perfectionism had a small unique positive relationship with children's socially prescribed perfectionism. Additionally, findings obtained via our traditional meta-analysis revealed parents' other-oriented perfectionism had small positive bivariate relationships with children's other-oriented and socially prescribed perfectionism.

4.1. An improved understanding of the social expectations model

As hypothesized, and congruent with Damian et al. (2013), parental expectations displayed a moderate positive relationship with self-oriented perfectionism independent of parental criticism. We speculate the boundary between parental expectations and self-imposed perfectionistic demands may be blurred for people higher in self-oriented perfectionism. Hewitt et al. (2017) theorized children with elevated perfectionism struggle to develop their own identity and often adopt the persona of their primary caregiver. However, contrary to Damian et al. (2013), and consistent with Enns et al. (2002), parental expectations had moderate unique positive relationships with socially prescribed perfectionism and other-oriented perfectionism. Hence, findings align with the social expectations model and suggest the tendency to see one's parents as holding unrealistically high expectations may be pertinent to the genesis of all trait perfectionism dimensions. We contend people higher in socially prescribed perfectionism perceive a seemingly insurmountable gap between how they are and how their parents would like them to be, which, in turn, gives rise to a profound sense that nothing they do will ever be good enough for their parents. However, it is challenging to explain why people higher in other-oriented perfectionism tend to report higher parental expectations without engaging in social learning. The simplest explanation could be that, as a consequence of modeling their parents' tendency to hold excessive expectations, other-oriented perfectionists learn that it is reasonable, perhaps even helpful, to expect perfection from other people.

Regardless, consistent with Enns et al. (2002), parental criticism was uniquely associated with socially prescribed perfectionism, but not self-oriented or other-oriented perfectionism, after controlling for parental

Table 3
Pooled correlation matrices (MASEM).

	<i>k</i>	<i>N</i>	Q_T	<i>df</i>	r_c^+	SE	95% CI	I^2
Social expectation model	40	10,029	1518.39***	273	–	–	–	–
Self-oriented perfectionism with other-oriented perfectionism					.45***	0.03	[.39; .52]	84.82
Self-oriented perfectionism with socially prescribed perfectionism					.54***	0.02	[.50; .58]	73.96
Self-oriented perfectionism with parental criticism					.24***	0.02	[.20; .28]	68.15
Self-oriented perfectionism with parental expectations					.37***	0.02	[.34; .41]	63.53
Other-oriented perfectionism with socially prescribed perfectionism					.41***	0.03	[.35; .47]	82.46
Other-oriented perfectionism with parental criticism					.20***	0.02	[.16; .24]	53.43
Other-oriented perfectionism with parental expectations					.29***	0.02	[.25; .32]	37.29
Socially prescribed perfectionism with parental criticism					.61***	0.02	[.57; .65]	81.81
Socially prescribed perfectionism with parental expectations					.67***	0.03	[.62; .72]	90.69
Parental expectations with parental criticism					.72***	0.03	[.66; .78]	86.44
Social learning model	23	3,014	131.22***	70				
Child self-oriented perfectionism with child socially prescribed perfectionism					.51***	0.04	[.44; .58]	0.00
Child self-oriented perfectionism with parent self-oriented perfectionism					.18***	0.04	[.10; .26]	73.35
Child self-oriented perfectionism with parent socially prescribed perfectionism					.08**	0.03	[.03; .13]	0.00
Child socially prescribed perfectionism with parent self-oriented perfectionism					.13***	0.02	[.08; .18]	0.00
Child socially prescribed perfectionism with parent socially prescribed perfectionism					.21***	0.03	[.15; .27]	48.24
Parent self-oriented perfectionism with parent socially prescribed perfectionism					.55***	0.05	[.45; .66]	0.00

Note. *k* = number of included samples; *N* = total number of participants in the *k* samples; Q_T = measure of the homogeneity of effect sizes; *df* = degrees of freedom for the *Q* statistic; r_c^+ = disattenuated weighted mean correlation; SE = standard error; CI = confidence interval; I^2 = percentage of heterogeneity.

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

expectations. This result suggests the small positive bivariate relationships between parental criticism and self-oriented perfectionism and parental criticism and other-oriented perfectionism (see Table 2) stems from the tendency for people who see their parents as overly critical to believe they also have excessive expectations. Yet, there is a caveat. Meta-regression and MASEM showed the relationship between self-oriented perfectionism and parental criticism hinged on the sample type and was more robust in clinical, relative to non-clinical, samples. Importantly, this finding held even after controlling for age and gender. Hence, though additional research is needed, this finding presumably stems from harsh parental criticism coupled with elevated self-oriented perfectionism representing a particularly toxic combination that increases the likelihood of requiring psychiatric care.

Nonetheless, we encourage readers to remain mindful that it is unclear what parental criticism means conceptually after controlling for parental expectations. On the one hand, Frost et al.'s (1990) parental criticism subscale contains item content suggestive of childhood abuse (e.g., "As a child I was punished for doing things less than perfectly"). Hence, the unique positive relationship between parental criticism and socially prescribed perfectionism accords with evidence that childhood experiences of emotional, sexual, or physical abuse predict socially prescribed perfectionism but not self-oriented perfectionism or other-oriented perfectionism (Chen et al., 2019a, 2019b). On the other hand, our results suggest parental criticism and parental expectations overlap substantially (see Fig. 2), and there are concerns that removing shared variance among highly correlated constructs alters their conceptual meaning (Hill, 2014; Lynam et al., 2006; Sleep et al., 2017). To this end, it behooves researchers to determine what, conceptually, parental criticism means after removing variance attributable to parental expectations. One disturbing possibility is that residualized parental criticism might capture the tendency for parents to criticize their child not to encourage better performance, but for more nefarious reasons, such as everyday sadism (Buckels et al., 2013).

4.2. An improved understanding of the social learning model

As hypothesized, and in line with the social learning model, parents self-oriented perfectionism explained a significant portion of the variance in children's self-oriented perfectionism, even after removing variance attributable to parent's socially prescribed perfectionism. Similarly, results suggest the tendency for parents' higher in socially prescribed perfectionism to have children higher in socially prescribed perfectionism is not attributable to parent's self-oriented perfectionism. This finding accords with the social learning model (Flett et al., 2002) and indirectly suggests children may learn self-oriented and socially prescribed perfectionism through direct observation and imitation of their parent's self-oriented and socially prescribed perfectionistic behaviors. Put differently, self-oriented perfectionists and socially prescribed perfectionists appear to become perfectionistic through observation and imitation of distinct, not shared, perfectionistic behaviors. This result adds to the wealth of evidence that trait perfectionism is multidimensional (Hewitt et al., 2003).

Furthermore, consistent with Appleton et al. (2010) and contrary to Vieth and Trull (1999), our traditional bivariate meta-analysis found parents' other-oriented perfectionism displayed a small positive relationship with children's other-oriented perfectionism. Though the extent to which this finding is attributable to parents' self-oriented and socially prescribed perfectionism is unclear, it preliminarily suggests that to some extent, the tendency to set exacting standards and harshly criticize other people's so-called imperfections is passed from parent to child through modeling and genetics. Yet, crucially, the magnitude of the relationships observed underscored that the intergenerational transmission of perfectionism appears modest. Namely, parents' self-oriented, other-oriented, and socially prescribed perfectionism explained 4.9% of the variance in children's self-oriented perfectionism, 10.8% of the variance in children's other-oriented perfectionism, and

8.9% of the variance in children's socially prescribed perfectionism. Although this finding aligns with the social learning model, it alludes to the presence of other, perhaps more crucial, developmental factors.

Likewise, evidence in support of the same-sex modeling hypothesis was mixed. Congruent with Vieth and Trull (1999), fathers' self-oriented perfectionism had a moderate positive relationship with sons' self-oriented perfectionism and a marginal non-significant relationship with daughters' self-oriented perfectionism. This complements social learning theories that children model same-sex behaviors and resist opposite sex behaviors (e.g., Bandura, 1969). Even so, we found no evidence supportive of the same-sex modeling hypothesis for socially prescribed perfectionism. On the contrary, consistent with the gender similarity hypothesis (Hyde, 2005), mothers' and fathers' socially prescribed perfectionism correlated with sons' and daughters' socially prescribed perfectionism to a similar degree. That said, the relatively small samples sizes involved in these tests preclude us from reaching a definitive conclusion regarding the same-sex modeling hypothesis.

Lastly, the small positive bivariate correlation between parents' other-oriented perfectionism and children's socially prescribed perfectionism aligned with the social expectations model. Indeed, although socially prescribed perfectionism is traditionally conceptualized as a social-cognitive trait, it may, to a small extent, be veridical. In other words, perceiving external pressures to be perfect may not be solely a "between the ears" phenomena. Instead, some children might have elevated socially prescribed perfectionism because they legitimately have a parent who expects perfection (i.e., an other-oriented perfectionist). However, our results also suggest the reverse sequence is possible. Namely, though based on only two studies, parents' socially prescribed perfectionism displayed a small positive correlation with children's other-oriented perfectionism. Though more research is needed, we speculate that the tendency for researchers assume one direction of influence (parents' perfectionism → children's perfectionism) might be misplaced.

4.3. Limitations of overall literature

In the present review, we provide novel insights into the state of the literature on the social expectations and social learning models and, by doing so, underscore limitations. One limitation is the lack of research on the role of socialization agents other than parents, such as friends, siblings, and romantic partners, in the development of perfectionism (cf. Smith et al., 2019). Additionally, there is an overreliance on cross-sectional designs that cannot disentangle issues of directionality and change. Over 75% of included studies had sample sizes below 250, suggesting our understanding of the social expectations and social learning models derives primarily from underpowered studies (Schönbrodt & Perugini, 2013). Moreover, the time has come to rigorously evaluate the assumptions underlying our field's use of the correspondence between parents' and children's trait perfectionism dimensions to evaluate the social learning model. One such assumption is that parents who score higher on trait perfectionism at assessment have engaged in more perfectionistic behavior around their child. The problem is, though trait perfectionism displays strong test-retest stability, the test-retest reliability of certain forms of perfectionism decline as time lag increases (Smith et al., 2021). Likewise, despite theory suggesting perfectionism emerges in early childhood (Hewitt et al., 2017), most included studies tested the social learning model using parent-adolescent dyads (e.g., Appleton et al., 2010; Curran et al., 2020) or parent-adult child dyads (Smith et al., 2017a, 2017b). Which begs the question, to what extent is it reasonable to assume the parents who scored higher on trait perfectionism displayed more perfectionistic behavior around their child over a decade earlier? This issue becomes even more complex when one considers that as people transition from childhood to adolescence, their social network expands, making it increasingly difficult to control for the potentially confounding influence of unmeasured socialization agents. Lastly, there is evidence that

self-oriented and socially prescribed perfectionism are to a moderate extent heritable (Iranzo-Tatay et al., 2015). Hence, it follows that a non-trivial proportion of the overlap observed between parents' and children's self-oriented and socially prescribed perfectionism may be due to genetics, not social learning.

4.4. Limitations of present study and future directions

Limitations in the literature translate into limitations in our analysis. Due to a lack of longitudinal studies, we could not test the extent to which parental criticism, parental expectations, and parental perfectionism predict change in trait perfectionism dimensions. Our test of the social expectation model also involved *perceived* parental expectations and *perceived* parental criticism, whereas our test of the social learning model involved parent-reported trait perfectionism dimensions. Additionally, none of the studies included in our test of the social learning model assessed parental criticism and parental expectations. Accordingly, we were unable to evaluate the social expectations and social learning models via a single model. Hence, a longitudinal study evaluating the extent to which parent-reported and child-reported parental expectations, parental criticism, and parental perfectionism predict change in children's trait perfectionism would make a substantial contribution to the literature. Future research would also benefit from evaluating other aspects of perfectionism by including perfectionistic self-presentation (Hewitt et al., 2003) and perfectionistic cognitions (Flett et al., 1998) alongside trait perfectionism. Furthermore, as a measure of other-oriented perfectionism intended for use in children was only recently developed (Hewitt et al., in press), other-oriented perfectionism is absent from most tests of the intergenerational transmission of perfectionism (e.g., Curran et al., 2020; Damian et al., 2013), which necessitated that we omit other-oriented perfectionism from our MASEM test of the social learning model (see Fig. 3). Consequently, the extent to which the relationships between parents' other-oriented perfectionism and children's socially prescribed perfectionism and vice versa is attributable to other perfectionism dimensions is unclear. Moreover, sample size limitations prevented us from reaching a firm conclusion regarding the same-sex modeling hypothesis. Finally, it is vital that future meta-analytic reviews evaluate the myriad of other developmental factors theorized to give rise to perfectionism, such as parenting styles, conditional parental regard, parental psychological control, caregiver-child asynchrony, and attachment (Curran et al., 2020; Hewitt et al., 2017).

4.5. Concluding remarks

The present study represents the most rigorous and comprehensive test of the social expectations and social learning models of perfectionism to date. In synthesizing extant findings, meta-analytic structural equation modeling revealed parental expectations showed unique positive relationships with self-oriented, other-oriented, and socially prescribed perfectionism. In contrast, parental criticism was uniquely related to socially prescribed perfectionism but not self-oriented or other-oriented perfectionism. Hence, parental expectations may be a developmental antecedent for all forms of trait perfectionism, whereas parental criticism may be uniquely relevant to the origins of socially prescribed perfectionism.

Accordingly, though more longitudinal and experimental research are needed, our findings imply that targeting perceived parental expectations could prove useful when treating perfectionistic patients. Likewise, our results suggest parenting programs that target perceived parental expectations and criticism could be helpful in the prevention of perfectionism. Relatedly, the present findings also have important implications for public health awareness campaigns directly focused on perfectionism. Such awareness campaigns (e.g., Hill, 2018) are vital given the destructiveness of perfectionism and the tendency for some parents to view holding towering standards for their child as an

admirable parenting practice. As well, findings concerning the social expectation model have important implications for the implementation of school-based prevention efforts that address children's metacognitive beliefs about their parent's expectations and that teach them the importance of not basing their value as a person on these expectations (Flett & Hewitt, 2014, 2022). Lastly, results supported the convergent and divergent validity of the social learning model. Yet, the overlap between parents' and children's trait perfectionism is modest. Consequently, exclusively viewing the development of perfectionism through the lens of the social learning model might lead to an incomplete understanding of this complex and pernicious trait.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

None.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jrp.2021.104180>.

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