Perfectly Alone (and Anxious): A Test of the Perfectionism Social Disconnection Model in

Adolescents

Emily Murphy, BA

Child and Youth Studies

Submitted in partial fulfillment for the degree of

Master of Arts

Faculty of Social Sciences, Brock University

St. Catharines, Ontario

Abstract

Perfectionism contributes to psychopathology in youth. Yet, little research has examined the pathways that may explicate why perfectionism is a risk factor for poorer outcomes, particularly among youth. Consequently, in this program of research I examined associations between trait dimensions of perfectionism (i.e., perfectionistic strivings and concerns) and anxiety within the framework of the Perfectionism Social Disconnection Model (PSDM). In Study 1, I tested whether perfectionistic strivings and concerns (as measured by the Almost Perfect Scale-Revised; Slaney et al., 2001) were related to adolescent-reported and mother-reported anxiety via social disconnection in a high-risk sample of adolescents. Social disconnection was assessed as a latent variable comprised of three indicators: relational victimization, school connectedness, and parental acceptance. Overall, results indicated that perfectionistic concerns were related to higher levels of adolescent-reported anxiety and that social disconnection emerged as an explanatory pathway linking higher levels of perfectionistic concerns to higher levels of adolescent-reported anxiety. In Study 2, I tested whether perfectionistic strivings and concerns (as measured by the Child and Adolescent Perfectionism Scale; Flett et al., 2001) were related to adolescent-reported anxiety in a community sample of adolescents via social disconnection. For Study 2, I used a more comprehensive latent variable for social disconnection that was comprised of four indicators: relational victimization, school connectedness, parental acceptance, and subjective loneliness. Replicating the findings from Study 1, social disconnection again emerged as an explanatory pathway linking higher levels of perfectionistic concerns to higher levels of adolescent-reported anxiety. These findings support the PSDM in youth, raise important questions about the link between perfectionism and social functioning, and have implications for prevention and intervention development.

Acknowledgements

I would first like to thank my thesis advisor, Dr. Danielle Molnar, who has been a constant source of support and encouragement, allowing me to grow as independent researcher while consistently pushing me in the right direction. I am extremely grateful to have such a compassionate and brilliant mentor, whose door is always open during difficult times, who nurtures my research ideas… and who is responsive to my often-frantic late night emails and unconventional work habits. Without Dr. Molnar's guidance, I would not be where I am today. I am entirely grateful.

Second, I would like to thank my thesis co-supervisor and committee members, Dr. Dawn Zinga, Dr. Ayda Tekok-Kilic, Dr. Michael Ashton and the late Dr. Zopito Marini for their support and expertise, offering invaluable insights into my program of research and ultimately helping me to grow as a researcher.

Third, I would like to thank all of the faculty, students and administrative staff in the Child and Youth Studies Department for creating such a wonderfully supportive and multidisciplinary department. It is a pleasure to do research when surrounded by great people.

Fourth, I would like to thank the lab members in the Developmental Processes in Health and Well-Being Lab for their ongoing support with this research project, particularly with the struggle that is recruiting adolescent research participants.

Finally, I would like to thank my friends and family for their support and encouragement throughout my academic career, and for putting up with the inevitable bouts of stress and irritability that come alongside a Master's thesis. I love you all dearly.

Table of Contents

List of Tables

List of Figures

Psychological distress among youth is increasing at an alarming rate. For example, the reported prevalence of psychological distress among Canadian students rose 10 percent in a mere two years, increasing from 24 percent in 2013 to 34 percent in 2015 (Boak, Hamilton, Adaf, & Mann, 2015). Of the distress experienced by young people, symptoms of anxiety are considered to be the most common (Pearson, Janz, & Ali, 2013). Given the shocking prevalence of anxiety symptoms amongst young people, it is clear that researchers need to direct increased attention towards elucidating the etiological processes that put some young people at particular risk for experiencing anxiety.

Perfectionism (i.e., the setting of and striving for unrealistically high standards) is a well-documented risk and maintenance factor for numerous forms of psychopathology, including anxiety (e.g., Burgess & DiBartolo, 2016; Klibert et al. 2005; Limburg, Watson, Hagger & Egab, 2017; Nepon, Flett, Hewitt, & Molnar, 2011; Newby et al., 2017). Although research investigating the role of perfectionism as a risk factor for anxiety has predominantly focused on adult and undergraduate student samples, a growing literature suggests that this link holds true for adolescents (e.g., Hewitt et al., 2002; O'Connor, Rasmussen, and Hawton, 2010). The literature examining perfectionism and anxiety in youth is still in its infancy; however, and relatively little empirical attention has been directed at understanding potential mechanisms. Despite this, theoretical models have been developed that propose etiological pathways from perfectionism to anxiety. One such model, which is generating empirical support in undergraduate student populations (e.g., Chang et al., 2008; Chen et al., 2012; Nepon et al., 2011; Sherry et al., 2008), is the Perfectionism Social Disconnection Model (PSDM; Hewitt et

al., 2006). The PSDM proposes social disconnection as a key explanatory pathway linking perfectionism to psychological distress, such as anxiety.

In light of evidence linking perfectionism to anxiety in both adult and youth samples, and the PSDM, which suggests that social disconnection acts a primary mechanism through which perfectionism is associated with psychological distress, the broad purpose of this research program will be to explore the interplay of perfectionism, social disconnection, and anxiety in adolescents. Specifically, using the PSDM as a conceptual lens, the purpose of this research will be to assess whether the underlying element of social disconnection from multiple sources (i.e., peers, family, school, subjective loneliness) acts as an explanatory pathway from perfectionism to anxiety. It is particularly important to elucidate these linkages in adolescents given the worrisome prevalence of distress in this age group. Indeed, only when the pathways from perfectionism to anxiety are identified and understood can efforts be effectively directed towards ameliorating distress in perfectionistic youth.

What is Perfectionism?

Perfectionism is often colloquially understood as a striving for unrealistically high standards, although there is notable variability with respect to how perfectionism is conceptualized and operationally defined in scientific research (Sirois & Molnar, 2016). Early theorists generally conceptualized perfectionism as a unitary and pathological construct, characterized by an inordinate need to attain perfection and a fear of failure (e.g., Ellis, 1962; Freud, 1926, 1959; Horney, 1950). It was not until Hamacheck (1978) differentiated between "normal" perfectionists (i.e., those who feel satisfied by setting high goals and accept individual limitations) and "neurotic" perfectionists (i.e., those whose goals are unrealistic and who do not experience satisfaction as a result of personal achievement) that the notion of perfectionism as a

multidimensional construct gained traction in scientific literature (Hill, McIntire, & Bacharach, 1997; Sirois & Molnar, 2016; Ulu & Tezer, 2010). Following Hamacheck's (1978) distinction of differing "types" of perfectionism, strong evidence emerged establishing the construct validity of multidimensional measures of perfectionism (e.g., Frost, Marten, Laharte, & Rosenblate, 1990; Hewitt & Flett, 1991b; Stoeber & Otto, 2006) leading to a general consensus among contemporary researchers that perfectionism is a multidimensional construct. Whereas most researchers agree that perfectionism is a multidimensional characteristic, there remains debate concerning the precise dimensions of perfectionism and how to best assess them (e.g., Frost et al.; Hewitt & Flett, 1991b). Moreover, although perfectionism is typically conceptualized and assessed as a fairly stable personality trait, perfectionism can also be conceptualized and measured at different levels of analysis with some measures of perfectionism tapping into the cognitive components of perfectionism (e.g., frequency and intensity of automatic perfectionistic thoughts; Perfectionistic Cognitions Inventory; see Flett, Hewitt, Blankstein & Gray, 1998) and others drawing upon behavioural elements of perfectionism (e.g., Perfectionistic Self-Presentation Scale; see Hewitt et al., 2003).

Trait Perfectionism

A number of scales to assess the multiple dimensions of perfectionism exist, although three measures, each based on slightly differing conceptualizations of perfectionism-related traits, are clearly most prevalent in the field of perfectionism research (i.e., Multidimensional Perfectionism Scale [MPS-F], Frost et al., 1990; Multidimensional Perfectionism Scale [MPS-H], Hewitt & Flett, 1991b; Almost Perfect Scale – Revised [APS-R], Slaney et al., 2001). Frost et al. (1990) conceptualize perfectionism as comprising high performance standards alongside a tendency to be self-critical. As such, Frost and colleagues (1990) developed the

Multidimensional Perfectionism Scale (MPS-F) to assess trait perfectionism along six dimensions: high standards, organization, concern over mistakes, doubts about actions, parental criticism, and high parental expectations. The MPS-F is a widely used measure of trait perfectionism in adults, although this measure is less commonly used when assessing perfectionism in adolescents given that factor analytic studies reveal that the six dimensions are not reflected in youth populations (e.g., Stoeber, 1998). Moreover, a major criticism of the MPS-F concerns the inclusion of subscales (i.e., parental expectations, parental criticism) that may tap into the antecedents of, rather than core components of, perfectionism (Flett & Hewitt, 2015; Rheaume, Ladouceur, & Freeston, 2000; Sirois & Molnar, 2016).

Whereas Frost and colleagues (1990) conceptualize trait perfectionism as a primarily self-directed construct, other conceptualizations position perfectionism as a construct comprised of both personal and social dimensions (see Hill, Zrull, & Turlington, 1997). Hewitt and Flett (1991b), for instance, posit that trait perfectionism consists of both int*ra*personal and int*er*personal aspects, and as such developed the Multidimensional Perfectionism Scale (MPS-HF) to assess trait perfectionism across three dimensions: self-oriented perfectionism, socially-prescribed perfectionism, and other-oriented perfectionism. Self-oriented perfectionism refers to the tendency to set exceptionally high personal standards accompanied by harsh self-criticism (Hewitt & Flett, 1991b). Socially-prescribed perfectionism refers to the tendency to believe that others are imposing standards of perfection upon the self and that acceptance by others is conditional on meeting these standards (Hewitt & Flett, 1991b). Finally, other-oriented perfectionism refers to the tendency to expect others to live up to unrealistically high standards and to judge others critically (Hewitt & Flett, 1991b).

Hewitt and Flett's (1991b) multidimensional framework is particularly useful in that it is the only measure to adequately encapsulate both the intra- and inter- personal aspects of trait perfectionism, which are differentially related to a host of maladaptive versus adaptive outcomes. There is mixed evidence as to whether self-oriented perfectionism is adaptive versus maladaptive, given research linking self-oriented perfectionism to indicators of good psychological adjustment such as positive affect and goal progress (e.g., Molnar et al., 2006; Powers, Koestner & Topicu, 2005) as well as markers of maladjustment such as anxiety and suicide potential (e.g., Blatt, 1995; Kilbert et al., 2005). In contrast, research suggests that socially-prescribed perfectionism is generally maladaptive given strong and consistent links with markers of maladjustment such as negative affect, anxiety, suicide ideation, and depression (e.g., Enns & Cox, 2002; Hewitt & Flett, 2004). Finally, although other-oriented perfectionism is posited to be maladaptive in light of robust associations with interpersonal problems, narcissism and anti-social personality traits (e.g., Stoeber, 2014), this dimension of perfectionism tends to not to be related to personal psychological distress (e.g., Hewitt & Flett, 1991a,b; Stoeber, 2014).

The Child and Adolescent Perfectionism Scale (CAPS; Flett et al., 2001), derived from Hewitt and Flett's (1991b) conceptual model, is the most widely used measure of perfectionism among youth, and demonstrates strong reliability and validity (see Flett et al., 2016). Both self-oriented perfectionism and socially-prescribed perfectionism can be assessed in child and adolescent populations using the CAPS (Flett et al., 2001), although this measure does not assess OOP given a lack of developmental information on this dimension of perfectionism (Flett et al., 2016). Hewitt and Flett's (1991b) conceptualization of trait perfectionism is not without criticism; however, as some researchers argue that the interpersonal aspects captured by the MPS-HF and CAPS are not consistent with historical definitions of perfectionism (e.g., Shafran,

Cooper, & Fairburn, 2002). Despite this, Hewitt and Flett's (1991b) conceptualization of perfectionism demonstrates strong psychometric properties (Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991) and theoretical underpinnings, in light of theories suggesting that trait perfectionism differs with respect to interpersonal source and direction, with some individuals self-generating perfectionistic standards and directing criticisms towards the self, and some individuals perceiving others as generating perfectionistic standards and criticisms (Hewitt & Flett, 1991b). Indeed, there is similarly strong empirical support for the intra- and inter-personal dimensions of trait perfectionism as reflected by Hewitt and Flett's (1991) multidimensional conceptualization of trait perfectionism. For example, research suggests that self-oriented and socially-prescribed perfectionism are differentially related to a host of different outcomes, including motivation and goal orientations, psychopathology, relationship functioning and health (e.g., Hewitt & Flett, 1991b; Hewitt, Flett, & Mikail, 1995; Molnar et al., 2006; Powers, Koester, & Topciu, 2005; Verner-Filion & Gaudreau, 2010).

Finally, the Almost Perfect Scale-Revised (APS-R) was developed by Slaney and colleagues (2001) as a clinically-oriented measurement tool designed to assess the adaptive and maladaptive aspects of intrapersonal perfectionism along three dimensions: standards, order, and discrepancy. The standards subscale assesses the degree to which one holds high performance expectations and personal standards, whereas the order subscale assesses one's preference for orderliness and organization (Sirois & Molnar, 2016). Conceptually, these subscales are intended to reflect "adaptive perfectionism," and there is some empirical support for this contention. For example, standards as measured by the APS-R, is positively correlated with self-esteem and academic performance (e.g., Ashby & Rice, 2002). The discrepancy subscale assesses the size of the perceived difference between one's standards and one's actual performance and is intended

to reflect "maladaptive perfectionism". Indeed, discrepancy as measured by the APS-R is associated with low-self esteem, depression, and anxiety (e.g., Ashby & Rice, 2002; Slaney et al., 2001). The APS-R has demonstrated adequate reliability and validity in adult, adolescent, and child populations (e.g., Ashby & Rice, 2002; Slaney et al., 2001; Sastre-Riba, Perez-Albeniz, & Fonseca-Pedrero, 2016). Although the APS-R is a commonly used measure of perfectionism, particularly in clinical research, it has received a fair amount of criticism. For example, Flett and Hewitt (2015) argue that the standards subscale may assess a form of excellence striving, rather than perfectionism, as the word "perfect" does not occur in any of the scale items. Moreover, Flett, Mara, Hewitt, Sirois, and Molnar (2016) suggest that the discrepancy subscale contains items which tap into negative affectivity rather than pure discrepancy, and found that once these items were removed two factors could be extrapolated from the discrepancy subscale (pure discrepancy and dissatisfaction) that yielded a better overall fit (Flett et al., 2016). Similarly, others have argued that the ordering preferences are not a central dimension of perfectionism, but rather reflect obsessive-compulsive tendencies (Stoeber & Otto, 2006).

Structure of trait perfectionism. A burgeoning literature suggests that two underlying factors are at the core of, and can be extrapolated from the various measures of, trait perfectionism: Perfectionistic Strivings and Perfectionistic Concerns (Bieling, Israeli, & Antony, 2004; Stoeber & Otto, 2006). Perfectionistic Strivings (PS) refers to the tendency to set unrealistically high standards and to demand perfection from oneself (Stoeber & Otto, 2006). Indicators of PS include: (a) the personal standards subscale of the MPS-F; (b) the self-oriented perfectionism subscale of the MPS-HF; and, (c) the standards subscale of the APS-R (Sirois & Molnar, 2016). In the existing literature, PS is sometimes referred to as "adaptive" or standards perfectionism (Burgess & DiBartolo, 2016). However, given that PS is associated with mixed

outcomes, there is debate as to whether PS should be construed as an adaptive or maladaptive factor of perfectionism. For example, research has linked PS with a greater risk of developing various psychopathologies, particularly eating disorders (Bardone-Cone et al., 2007), depression (Flett & Hewitt, 2002), stress (Hewitt & Flett, 1993), and is associated with poorer health including earlier mortality (Fry & DeBats, 1995). Conversely, other research has linked PS with positive outcomes such as greater subjective well-being (Stoeber & Otto, 2006) and academic achievement (Stoeber & Kersting, 2007). Consequently, the adaptive potential of PS remains in question. Some theorists suggest that PS should be maladaptive, in light of the ever-present stress and pressure that are proposed to accompany the compulsive and relentless striving for absolute perfection (e.g., Hewitt & Flett, 1991b; Horney, 1950; Pacht, 1984). Whereas some literature supports the maladaptive nature of PS, linking it with early mortality (Fry & Debats, 2009), depression (e.g., Cox, Enns, & Clara, 2002) and anxiety (e.g., Hewitt et al., 2002), other studies suggest adaptive outcomes such as higher perceived social support (e.g., Molnar et al., 2012), positive affect (e.g., Stoeber & Otto, 2006), and achievement motivation (e.g., Rice et al., 2006; Verner-Filion & Gaudreau, 2010). As such, some theorists suggest that while PS may appear at times adaptive, it is likely to become a vulnerability factor for negative outcomes and thus exhibit maladaptive characteristics during times of difficulty, such as in the presence of life stressors (e.g., Dunkley, Solomon-Krakus, & Moroz, 2016; Hewitt, Flett, & Mikail, 2017).

Perfectionistic Concerns (PC) includes the tendency to engage in harsh self-criticism, a preoccupation with others' evaluations and/or expectations, and an impaired ability to experience pleasure from successes (Sirois & Molnar, 2016; Stoeber & Otto, 2006). Indicators of PC include: (a) concern over mistakes, parental expectations, parental criticism, and doubt about actions from the MPS-F; (b) socially-prescribed perfectionism from the MPS-HF; and, (c)

discrepancy from the APS-R (Sirois & Molnar, 2016). PC has been associated with indicators of impaired psychological and physical health, such as depressive symptoms (Cox, Clara, & Enns, 2009), suicide (Roxborough et al., 2012), stress (Bieling, Israeli, & Antony, 2004), interpersonal problems (Habke & Flynn, 2002), and poorer physical health (Molnar et al., 2006; 2012). As such, PC is typically understood to be a maladaptive factor of perfectionism. Indeed, in the perfectionism literature PC is often referred to "maladaptive" or clinical perfectionism. Given the variation in conceptualizing and operationally defining perfectionism, it is important to refer to perfectionism according to the higher-order dimensions (i.e., PS or PC).

Perfectionism and Psychopathology

Classic theorists describe trait perfectionism as broadly characterized by rigid, all-or-nothing thinking (i.e., believing they must or should be perfect), particularly when it comes to self-evaluations, and suggest that this cognitive style leaves perfectionistic individuals vulnerable to emotional turmoil (e.g., Beck, 1967, Horney, 1950). Indeed, empirical research suggests that multiple forms of PC (e.g., socially prescribed perfectionism, discrepancy, concern over mistakes, doubts about actions) are associated with numerous forms of maladjustment across the lifespan such as depression (e.g., Hewitt & Flett, 1991a), obsessive-compulsive disorder (Frost & DiBartolo, 2002), eating disorders (Bardone-Cone et al., 2007), social anxiety (e.g., Antony, 1998; Nepon et al., 2011), panic disorder (e.g., Antony et al., 1998), and generalized anxiety disorder (e.g., Antony et al., 1998; Shirazi, 2016). Research linking PS to psychopathology is less clear, with some studies finding PS to be associated signs of poor mental health such as eating disorders (e.g., Bardone-Cone et al., 2007), depressive symptoms (e.g., Flett et al., 1995), and a tendency to experience psychological distress after performance failures (e.g., Besser, Flett, & Hewitt, 2004) whereas other studies have found PS to be associated with indicators of

positive mental health such as positive affect (Bieling et al., 2004), higher self-esteem (Rice et al., 2007) and greater life satisfaction (e.g., Bergman, Nyland, & Burns, 2007). Whereas research examining the relationship between dimensions of trait perfectionism, particularly PC, and depression has flourished (see Smith et al., 2016 for a review), comparatively little attention has been paid to anxiety, particularly in youth, despite strong conceptual evidence that dimensions of trait perfectionism and anxiety are intimately intertwined (Burgess & DiBartolo, 2016). Moreover, existing empirical evidence suggests that PC, and to a lesser extent PS, are predictive of both trait anxiety and anxiety symptoms, and as such, are particularly salient risk factors for anxiety-based psychopathologies (Burgess & DiBartolo, 2016).

Perfectionism and Anxiety

A burgeoning literature indicates that dimensions of perfectionism are related to numerous forms of anxiety. Evidence suggests that indicators of PC, in particular, are robustly associated with an array of anxiety symptoms (e.g., Antony et al., 1998; Egan, Wade, & Shafran, 2011) whereas the literature is mixed regarding the association between PS and anxiety symptomatology (e.g., Antony et al., 1998; Frost et al., 1993; Brown et al., 1999). Existing research examining trait dimensions of perfectionism and anxiety has predominantly utilized undergraduate and clinical adult samples, and as such this review encompasses primarily findings from the adult literature.

General state/ trait anxiety. PC appears to be associated with trait and state anxiety (see Burgess & DiBartolo, 2016). The feeling of being unable to meet unrealistic expectations (whether self- or other- imposed) characteristic of PC theoretically generates pervasive experiences of worry, fear, and discomfort - central features of anxiety (Hewitt & Flett, 1991a). Not surprisingly, indicators of PC, such as socially-prescribed perfectionism, show consistent

positive correlations with various measures of anxiety including the State-Trait Anxiety Inventory (STAI; Spielbergr, Gorsuch, & Lushene, 1970) and the Endler Multidimensional Anxiety Scales (EMA; Ender, Edwards, & Vitelli, 1991; Flett et al., 1994; Hankin et al., 1997). The relationship between PS and general trait or state anxiety is less clear, with some studies finding a positive correlation (e.g., Stoeber, 1998) and others finding no relationship (e.g., Flett et al., 1994). Conceptually, setting unrealistic standards for oneself generates a sense of pressure to meet these standards, although it is possible that it is really the perceived discrepancy between one's current and ideal self that may be more central to anxiety, as the existing literature appears to support this contention (Burgess & DiBartolo, 2016).

Moreover, research suggests that individuals with higher levels of PC may be more prone to heightened levels of anxiety than lower levels of PC. In a study of perfectionism and anxiety sensitivity, Flett, Greene, and Hewitt (2004) found that both socially prescribed perfectionism and all dimensions of perfectionistic self-presentation were associated with heightened anxiety sensitivity in a sample of undergraduate students. More specifically, the perfectionistic self-promotion and non-display of imperfection subscales of the PSPS (Hewitt et al., 2003) uniquely predicted fear of observable symptoms (e.g., "I worry about others noticing my anxiety"). In a study of the maladaptive and adaptive aspects of perfectionism in a sample of college students, Klibert et al. (2005) found that individuals with higher levels of PC (i.e., socially-prescribed perfectionism) and PS (i.e., self-oriented perfectionism) were more predisposed to feeling anxious than those with lower levels of PS and PC. The relationship between self-oriented perfectionism and anxiety was fairly weak, but the relationship between socially-prescribed perfectionism and anxiety was relatively strong. These results suggest that whereas both PS and

PC are associated with anxiety, the belief that others are expecting perfection may be relatively more harmful than imposing unrealistic standards upon the self (Klibert et al., 2005).

The findings of Klibert et al. (2005) were broadly replicated in a recent study by Gnilka et al. (2012), where undergraduate students were grouped into three categories: maladaptive perfectionists, adaptive perfectionists, and non-perfectionists. These categories were determined according to APS-R subscale scores, such that individuals with low scores on the standards subscale were grouped as non-perfectionists, whereas individuals with high scores on the standards subscale were grouped as adaptive perfectionists, unless they also had a high score on the discrepancy subscale, in which case they were categorized as maladaptive perfectionists (i.e., high standards, high discrepancy). Results indicated that maladaptive perfectionists had significantly greater trait anxiety than both non-perfectionists and adaptive perfectionists, with the latter having the lowest levels of trait anxiety (Gnilka et al., 2012). These findings suggest that whereas PC (i.e., maladaptive perfectionism) is clearly anxiety provoking, PS may be more tangential to the experience of anxiety, such that it is only related to trait anxiety when one perceives a high discrepancy between one's current and ideal self.

Anxiety symptoms. Research suggests that dimensions of trait perfectionism are robustly linked to anxiety symptomology and anxiety-related disorders (see Burgess & DiBartolo, 2016). Beck (1967) suggests that cognitive distortions, such as all-or-none thinking, perpetuate maladaptive outcomes such as anxiety; indeed, perfectionists tend to exhibit a cognitive style characterized by "all-or-none" thinking such that they believe they must be perfect, and anything less than perfection is abject failure (also referred to as "God/scum complex"; Pacht, 1984 as cited by Sirois & Molnar, 2016). It is not surprising then that dimensions of trait perfectionism, particularly PC, should be related not only to a general tendency to feel anxious, but also to more

maladaptive anxiety symptomatology. Similar to trait anxiety, research also suggests that PC is strongly associated with a tendency to experience clinical anxiety symptoms whereas the relationship between PS and anxiety symptoms is notably less clear (Burgess & DiBartolo, 2016; Egan, Wade, & Shafran, 2011).

An early study conducted by Antony et al. (1998) examined a sample of psychiatric patients with a variety of anxiety disorders (e.g., generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, social anxiety disorder) and found that patients with anxiety disorders have significantly higher levels of both PS (i.e., self-oriented perfectionism) and PC (i.e., socially-prescribed perfectionism) when compared to control samples. The authors suggest that due to the high prevalence of perfectionistic tendencies amongst anxiety disorder patients, the desire for control characteristic of trait perfectionism may, to some extent, be an underlying feature of anxiety (Antony et al., 1998). Indeed, existing literature links aspects of PC, in particular, with numerous specific anxiety disorders including generalized anxiety disorder (e.g., Antony et al., 1998; Shirazi, 2016), panic disorder (e.g., Antony et al., 1998), social anxiety disorder/ social phobia (e.g., Antony et al., 1998; Nepon et al., 2011), and obsessive-compulsive disorder (e.g., Frost & DiBartolo, 2002).

Dimensions of trait perfectionism are also linked with anxiety symptoms more broadly. For example, in a study of undergraduate students, Klibert et al. (2005) found that both self-oriented and socially-prescribed perfectionism were significantly associated with self-reported anxiety symptoms, but that the relationship between socially-prescribed perfectionism and anxiety was particularly strong. Indeed, Klibert and colleagues (2014) later replicated these findings, discovering once more that both PC (i.e., socially-prescribed perfectionism) and PS (i.e., self-oriented perfectionism) were associated with greater self-reported anxiety symptoms.

More specifically, PC exhibited a stronger relationship with anxiety whereas PS was only modesty associated with anxiety. In contrast, Chang et al. (2008) found that PC accounted for 7% of variance in anxiety symptoms as assessed by the Beck Anxiety Inventory (BAI; Beck et al., 1988) in a sample of undergraduates, but did not find a significant relationship between PS and anxiety symptoms. Taken together these findings suggest that indicators of PC, such as socially-prescribed perfectionism, show clear links with anxiety whereas indicators of PS, such as self-oriented perfectionism, are only modestly associated with anxiety symptoms.

Empirical research also suggests that perfectionism is linked with more specific anxiety symptoms. For example, PC is consistently associated with social anxiety symptoms in both individuals with social anxiety disorder/social phobia (e.g., Antony et al., 1998) and in community samples (DiBartolo et al., 2007; Nepon et al., 2011). Indeed, those with social phobia report the highest levels of PC (indicated by socially-prescribed perfectionism and evaluative concerns) compared to individuals with other anxiety disorders (Wheeler et al., 2011). In an investigation of undergraduate students, Nepon et al. (2011) found that both socially-prescribed perfectionism (an indicator of PC) and perfectionistic self-presentation were associated with a greater tendency to experience social anxiety symptoms. Correlations between indicators of PC and anxiety ranged from small to moderate with respect to effect size.

The findings of Nepon et al. (2011) were replicated in a study by Newby et al. (2017), where both PC (i.e., socially-prescribed) and PS (i.e., self-oriented perfectionism) were found to uniquely predict evaluative social anxiety symptoms. Moreover, the non-display and non-disclosure dimensions of perfectionistic self-presentation uniquely predicted social interaction anxiety whereas trait perfectionism did not (Newby et al., 2017). These results suggest that trait perfectionism and behavioural indices of perfectionism may differentially predict anxiety

symptoms. In summary, the results of the aforementioned studies suggest that whereas markers of PC, such as socially-prescribed perfectionism, and behavioural indices of trait perfectionism, such as perfectionistic self-presentation, are clearly associated with symptoms of social anxiety, the relationship between markers of PS, such as self-oriented perfectionism, and social anxiety remain unclear.

Perfectionism and Anxiety in Adolescents

Comparatively little empirical research has examined the link between the various dimensions of perfectionism and anxiety in adolescents, despite a particularly high prevalence of maladaptive perfectionistic tendencies in young people. Indeed, roughly 25 to 30% of adolescents show markedly high levels of characteristics of PC (Flett et al., 2016; Rice, Ashby, & Gilman, 2011). Moreover, it is particularly important to consider etiological pathways to maladjustment, such as trait perfectionism, during this developmental period given that roughly 70% of mental health problems, including anxiety, have their onset during adolescence (Government of Canada, 2006) and tend to persist into adulthood (e.g., Carbello et al., 2011; Pearson, Janz & Ali, 2013; Woodward & Fergusson, 2001). Indeed, the alarming presence of dysfunctional perfectionism alongside staggering rates of mental health problems amongst youth represent an urgent public health issue in need of attention (Flett & Hewitt, 2014).

Although the literature on perfectionism and anxiety during the critical developmental period of adolescence in still in its infancy, it broadly replicates the adult literature in that indicators of PC are clearly associated with anxiety, although the adolescent literature is unique in that it also supports a strong link between PS and anxiety. Theoretically, PS and PC should be maladaptive during adolescence, a developmental period characterized by identity formation in relation to social environments and goal achievements, heightened dependence on others'

evaluations, self-worth contingencies and markedly fragile self-esteem (e.g., Helsen, Vollebergh, & Meehus, 2000; Hewitt et al., 2006; Hewitt et al., 2017). Indeed, Hewitt and colleagues (2017) theorize that young people with PS may excessively focus on developing competencies in domains that bring about success and recognition from others, which in turn, become core components of identity; as such, any perceived setbacks related to this domain are perceived not only as failures but as assaults to one's identity. As such, youth with PS may be intolerant of any perceived failures and possess a fragile and achievement contingent form of self-worth. Moreover, Hewitt and colleagues (2017) suggest that youth with PC have an inordinate desire to be accepted by others yet believe that the means to secure acceptance is to appear flawless to others. Indeed, adolescents with PC are proposed to be highly reactive to interpersonal evaluations, displaying extreme sensitivity and hostility to even the slightest perception of criticism. Indeed, Hewitt and colleagues (2017) suggest that adolescents with PC are caught in a bind wherein, despite their best efforts to live up to the standards which they believe to be imposed upon them, they perceive themselves as constantly falling short. Taken together, theory suggests that adolescents higher in dimensions of trait perfectionism should be particularly vulnerable to psychological distress.

Indeed, Hewitt et al. (2002) provided preliminary evidence of the association between perfectionistic tendencies and anxiety in young people; in a sample of 114 children and adolescents, both PC (i.e., socially-prescribed as measured by the CAPS) and PS (i.e., self-oriented perfectionism as assessed by the CAPS; Flett et al., 2001) were positively correlated with anxiety symptoms as assessed by the Children's Manifest Anxiety Scale-Revised (RCMAS; Reynolds & Richmond, 1978). Essau et al. (2008) replicated these findings in an examination of perfectionism and anxiety in a large ($n > 1000$) sample of adolescents from Germany and Hong

Kong. Indeed, both PC (i.e., socially-prescribed perfectionism) and PS (i.e., self-oriented perfectionism) were positively correlated with scores on the Spence Child Anxiety Scale (SCAS; Spence, 1998); although the effect sizes were relatively small. More recently, Flett et al. (2011) found that both PC and PS were positively correlated with pathological worry in a sample of early adolescents. In sum, the results from these studies indicate that adolescents with heightened perfectionistic tendencies (both PS and PC) are more likely to experience symptoms of anxiety than their non-perfectionistic peers.

Whereas previous research is primarily cross-sectional and thus cannot establish temporal precedence, some preliminary research also suggests a longitudinal link between dimensions of trait perfectionism and anxiety in adolescents. O'Connor, Rasmussen, and Hawton (2010) assessed both trait perfectionism and anxiety symptoms in a sample of 515 Scottish adolescents. Anxiety symptoms were assessed using the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) and perfectionism was assessed using the CAPS (Flett et al., 2001). It is important to note that PS was defined as two distinct variables, self-oriented striving and self-oriented criticism, to differentiate between the standards (reflecting PS) and self-critical (reflecting PC) aspects of the construct. Results indicated that socially-prescribed perfectionism (i.e., PC) and self-oriented criticism assessed at Time 1 predicted greater anxiety symptoms six months later (O'Connor, Rasmussen, & Hawton, 2010). These findings suggest not only that youth who exhibit perfectionistic tendencies are more likely to experience symptoms of anxiety, but that this relationship holds over time. Results also support that both PS and PC predict higher levels of anxiety in youth over time, casting doubt on the adaptive potential of PS in youth. Although empirical evidence to date paints a fairly clear portrait of the relationship between trait perfectionism and anxiety in adolescents, little attention

has been paid to how expressive aspects of perfectionism (i.e., perfectionistic self-presentation) are related to anxiety in adolescents. Similarly, there is also a need for the investigation of potential explanatory pathways linking dimensions of perfectionism to anxiety symptoms in young people to aid prevention and intervention efforts.

The Perfectionism Social Disconnection Model

The Perfectionism Social Disconnection Model (PDSM; Hewitt et al., 2006; Hewitt et al., 2017) is a conceptual model based on Hewitt and Flett's (1991b) multidimensional framework of perfectionism, which posits that PS and PC are linked to psychopathology and distress primarily through social disconnection. This model suggests that individuals with perfectionistic tendencies, both PS and PC, exhibit an inordinate and often thwarted need to belong (Hewitt et al., 2006). The result of this yearning to belong is an intensification of perfectionistic behavior as a means to minimize rejection and maximize acceptance by others. Unfortunately; however, these behaviors serve to paradoxically generate social disconnection because perfectionistic behaviors are often perceived by others to be distancing or hostile (Hewitt et al., 2006), while the individual experiencing PC perceives others as rejecting (Hewitt, Flett & Mikail, 2017).

The PSDM postulates that individuals with perfectionistic tendencies, especially PC, exhibit heightened interpersonal sensitivity which leads to the perception of others as rejecting and gives rise to subjective social disconnection (i.e., experience of loneliness) alongside interpersonal hostility (i.e., suspiciousness and anger directed towards others) which generates objective social disconnection (i.e., impaired relationships; Hewitt et al., 2017). Moreover, the belief that others are rejecting is proposed to generate a sense of interpersonal hostility, which gives rise to objective social disconnection (i.e., impaired relationships; Hewitt et al., 2017). As such, the PSDM suggests that individuals experiencing high levels of PS and PC are at

heightened risk for the development of mental health problems, such as depression, anxiety and suicide, because they are alienated from others and experience pervasive feelings of loneliness (Hewitt et al., 2017). Indeed, social rejection and the experience of aloneness have been postulated as some of the most "painful" experiences endured by human beings (Eisenberger, 2012), contributing to emotional turmoil and to symptoms of psychopathology (e.g., anxiety, depression; Hewitt et al., 2017). Moreover, a burgeoning literature supports the role of social disconnection in linking perfectionistic tendencies, particularly PC, to psychological distress (e.g., Chen et al., 2012; Hewitt et al, 2006; Mackinnon et al., 2012; Molnar, Sadava, Flett, & Colautti, 2012; Sherry et al., 2013

As noted in the literature review, trait dimensions of perfectionism (particularly PC) are associated with a broad range of psychopathologies and indicators of distress. Moreover, the existing literature suggests that PC is associated with numerous interpersonal difficulties including lower perceived social support, daily interpersonal hassles, relationship dissolution, interpersonal hostility, and feeling deficient to others (e.g., Hewitt et al, 2006; Mackinnon et al., 2012; Molnar, Sadava, Flett, & Colautti, 2012; Sherry et al., 2013). Interestingly, the literature regarding the influence of PS on social functioning is mixed and indicates that PS holds both adaptive and potentially maladaptive potentials, with some studies linking PS to higher perceived social support (e.g., Molnar et al., 2012) and others linking PS to social stress (e.g., Hewitt et al., 2002) and aversive social orientations in which competition and victory over others are paramount (e.g., MacKinnon, Sherry, & Pratt, 2013; Sherry et al., 2007). Indeed, whereas perfectionistic tendencies, particularly PC, are associated with both indicators of social disconnection and psychological distress broadly, there is also emerging empirical evidence to support the contention that social disconnection acts as an explanatory pathway between trait

dimensions of perfectionism, particularly PC, and psychological distress (e.g., Chen et al., 2008; Sherry et al., 2008).

In a preliminary test of the PSDM, Sherry et al. (2008) found that perceived social support partially mediated the link between trait perfectionism and depressive symptoms in undergraduate students, such that those with high levels of PC (i.e., socially-prescribed perfectionism) perceived little social support to be available, which, in turn, was associated with higher levels of depressive symptoms. Moreover, Chang et al. (2008) found that loneliness moderated the relationship between PC (i.e., socially-prescribed perfectionism) and both depressive and anxious symptoms in college students, such that those higher in PC and loneliness experienced the highest levels of depression and anxiety. Indeed, they found that the PC by loneliness interaction accounted for 1-3% of additional variance in depressive symptoms and 1-2% variance in anxiety symptoms after accounting for PC and loneliness individually. These findings suggest that those with higher levels of PC who also feel higher levels of subjective loneliness are at a particularly high risk of experiencing symptoms of depression and anxiety.

In an indirect test of the PSDM, Nepon et al. (2011) found that the associations between PC (i.e., socially-prescribed perfectionism) and perfectionistic self-presentation and symptoms of anxiety and depression were partially mediated by negative social feedback. Indeed, perceived negative social feedback can be thought of as an indicator of social disconnection in that it captures feeling of rejection and feeling insignificant to others (Hewitt et al., 2017). Similarly, a study by Chen et al. (2012) revealed that perfectionistic self-presentation was uniquely associated with social disconnection over and above trait dimensions of perfectionism. Specifically, the authors suggest that by actively attempting to conceal imperfections,

perfectionistic individuals inhibit themselves from being able to form intimate relationships, which depend largely on self-disclosure (Chen et al., 2012). Interpersonal difficulties and feelings of loneliness are distinctive features of both PC and perfectionistic self-presentation, and to a lesser degree, PS (Alden et al., 2002; Hewitt et al., 2006). It is the experience of both objective and subjective social disconnection that is purported to leave individuals higher in PS and PC at heightened risk for psychopathology and emotional turmoil (Hewitt et al., 2006). Although in its infancy, the existing literature generally supports the contention that social forces, particularly perceived social disconnection, have a role to play in the relationship between perfectionism and psychological distress.

Applying the PSDM to Adolescents

Although there is preliminary evidence to support the applicability of the PSDM to adolescents (e.g., Chen et al., 2012), most studies have focused on undergraduate student populations. It is important to test the PSDM in adolescents for a number of conceptual and empirical reasons. First, the prevalence of perfectionistic tendencies is alarmingly high during adolescence, with roughly one in three young people exhibiting signs of maladaptive perfectionism (Sironic & Reeve, 2015). Second, young people aged 14 to 25 years (encompassing adolescence) are more likely than any other age group to experience mental illness, with anxiety disorders being the most prevalent (Pearson, Janz & Ali, 2013). Indeed, a wealth of research suggests that mental health problems that develop in youth are likely to persist across the lifespan – representing a substantial public health concern, given the high social and economic costs of the growing prevalence of mental health problems (e.g., Carbello et al., 2011; Pearson, Janz & Ali, 2013; Woodward & Fergusson, 2001).

Finally, research suggests that social relationships are particularly important during the tumultuous years of adolescence (Hewitt et al., 2006) as this developmental period is characterized by heightened emotionality, the development of coping skills, and identity formation – processes heavily influenced by social encounters with peers and family members (Helsen, Vollebergh, & Meehus, 2000). Adolescents are immersed in a range of unique social settings at school and at home, and as such research needs to be directed towards elucidating the differential impacts each of these social encounters may play in linking trait dimensions of perfectionism to psychological distress.

The Current Study

Given the relative lack of attention paid to youth in the existing perfectionism literature, along the alarming levels of distress that characterize this period, I am focusing my research on examining the interplay of perfectionism, social disconnection, and anxiety in adolescents. Existing research suggests that dimensions of trait perfectionism can be reliably and validly assessed in adolescents (Flett et al., 2000; Hewitt et al., 2011), and that these dimensions of perfectionism are associated with psychological distress, including anxiety (see Flett et al., 2016). Moreover, symptoms of anxiety account for a significant portion of the distress experienced by adolescents (Pearson, Janz, & Ali, 2013) and research suggests that perfectionism is both highly prevalent amongst young people and a salient risk factor for anxiety (e.g., Hewitt et al., 2002; O'Connor, Rasmussen, & Hawton, 2010;).

The PSDM acts as a theoretical framework within which to explore possible explanatory pathways to anxiety, suggesting that feelings of alienation and disconnection from others may act as the vehicle by which perfectionistic adolescents arrive at psychological distress (Hewitt et al., 2006). The PSDM model has received relatively little empirical attention when it comes to youth

populations, despite preliminary support in undergraduate student samples. In light of the heightened levels of both trait dimensions of perfectionism and anxiety in adolescents, there is a clear need to empirically test explanatory models of distress, such as the PSDM, in youth samples which will have both important theoretical and clinical implications. Moreover, studies which have examined the PSDM have typically utilized indicators of social disconnection (i.e., loneliness, quality of parental relationships, peer victimization) in isolation and, to my knowledge, have neglected to assess the degree to which youth feel connected to their school environments as an indicator of social (dis)connection. Although individuals are embedded in a range of social settings, each of which may contribute to uniquely to feelings of isolation, it is important to consider the common variance amongst numerous sources of alienation as it represents a broader, more pervasive form of social disconnection. As such, this program of research will examine the common variance across numerous indicators of social disconnection in the form of a latent variable tapping into numerous forms of social functioning (i.e., subjective loneliness, peer victimization, school connectedness, quality of parental relationships).

Study 1

The conceptual model for Study 1 is depicted in Figure 1. This model will inform a preliminary test of the PSDM, whereby social disconnection (assessed via perceived quality of parental relationship, relational victimization, & school connectedness) is proposed to mediate the relationship between trait dimensions of perfectionism (i.e., PS and PC) and both adolescent-reported and mother-reported anxiety symptoms. This study will extend existing research by applying the PSDM to early adolescents, and by examining the common variance amongst indicators of social disconnection at multiple levels (i.e., family, friends, & school) to not only capture the pervasive and all-encompassing form of social disconnection central to the PSDM,

but also to reduce measurement error associated with using isolated indicators of social disconnection.

Many theorists have noted the critical role that parenting experiences play in the development and maintenance of perfectionism (e.g., Frost et al., 1990; Hamachek, 1978; Pacht, 1984; Hewitt et al., 2017), suggesting that the relationships individuals with high levels of PS and PC share with their parental figures are characterized by parental criticism, psychological control, coldness (i.e., lack of warmth and affection) and contingent acceptance (Hewitt et al., 2017). Indeed, a wealth of research has examined the important role that parental relationships play in influencing perfectionism and distress suggesting that constructs such as parental expectations, parental criticism, and low levels of parental acceptance contribute in part to the deleterious outcomes associated with dimensions of trait perfectionism, such as psychological distress and suicide (e.g., Blatt, 1995; Rice, Ashby, & Preusser, 1996; Yoon & Lau, 2008). Interestingly, very little research has examined the broader social environment, in particular, school settings represent a key social environment to consider given that youth spend most of their days in school.

School connectedness, or the degree to which youth feel connected to their teachers, peers, and broader school community, is an essential form of social experience to consider when assessing social disconnection as it represents a potential mediator linking perfectionism to psychological distress. Indeed, school connection is a robust protective factor against the development of mental health problems; school connection facilities positive psychological functioning whereas lower school connectedness is associated with negative outcomes such as poorer mental health, substance use, and poorer academic performance (e.g., Bond et al., 2007; McNeely & Falci, 2009). Although no studies appear to have examined the links between

dimensions of trait perfectionism and school connection directly, some research suggests that PS and PC may differentially be related to functioning in the school environment. For example, whereas PS has been historically associated with higher academic performance and adjustment (e.g. Miquelon et al., 2005; Rice et al., 2006; Verner-Filion & Gaudreau, 2010), PC has been linked with poorer academic adjustment and lower academic motivation (e.g., Miquelon et al., 2005; Rice et al., 2006; Verner-Filion & Gaudreau, 2010).

Just as the school setting represents a key social environment for adolescents, so do broader peer settings and relationships. Indeed, adolescents in particular spend more time with peers than young children or adults (Bowes et al., 2015) and as such relationships with peers are crucial to consider when attempting to craft a nuanced understanding of youth's social lives. A particularly destructive form of social disconnection that is salient amongst youth is peer victimization (Hawker & Boulton, 2000), which has thus far received very little attention in perfectionism research, with the exception of two preliminary studies by Vallaincourt and colleagues (2007; 2017). Prevalence rates of peer victimization in adolescents are distressingly high with estimates ranging from 17 to 34%, a concerning figure given that victimization by peers is robustly associated with emotional maladjustment and psychological distress in both boys and girls (e.g., Schaefer, 2017; Zimmer-Gembeck et al., 2014). Indeed, peer victimization is a deleterious form of social experience that is prevalent in the lives of young people. Consequently, it is an important form of objective social disconnection to consider when applying the PSDM to adolescents.

In one of the only studies to date examining a link between perfectionism and peer victimization, Miller and Vaillancourt (2007) found that in a sample of female undergraduate students, retrospective accounts of peer victimization in youth were associated with current

levels of trait perfectionism. More specifically, recalled accounts of relational victimization (i.e., attempts by peers to damage one's social reputation through exclusion or gossiping) predicted current levels of PC (assessed as socially prescribed perfectionism), and to a lesser extent, PS (assessed as self-oriented perfectionism). No such link was found for overt victimization (i.e., physical or verbal attacks by peers (Miller & Vaillancourt, 2007). These preliminary findings suggest that there is a link between trait dimensions of perfectionism, particularly PC, and relational victimization. The authors suggest that perfectionistic tendencies may develop as a defense mechanism to cope with victimization by peers (Miller & Vaillancourt, 2007), such that the thought develops that if one appears flawless, peers will have no fuel for rumors and will therefore be liked.

While the notion of perfectionistic tendencies developing, in part, as a defense mechanism as suggested by Miller and Vaillancourt (2007) is conceptually possible, using a retrospective method conflates the temporal possibilities of the relationship between perfectionism and victimization. According to the theoretical framework of the PSDM, individuals higher in trait dimensions of perfectionism, particularly PC, are highly sensitive to rejection and concerned with how others perceive them (Hewitt et al., 2006). Indeed, this preoccupation with others is proposed to lead to interpersonally aversive behaviors that may leave some adolescents particularly vulnerable and/or sensitive to rejection by peers. Indeed, it is theoretically possible that there is reciprocal relationship between trait dimensions of perfectionism and relational victimization and as such it is important to consider relational victimization as a form of social disconnection when testing the PSDM in adolescents.

Moreover, this study will add to this existing literature by examining not only adolescent-reported anxiety but also mother-reported anxiety. In light of evidence supporting the maternal

depression-distortion hypothesis (i.e., that mothers who are depressed over-report symptoms of psychopathology in their children; Richters & Pellegrini, 1989), maternal depression will be included as a covariate in analyses. Given that approximately half of the participants of Study 1 (see Methods section) were taken from families in which one parent was diagnosed with alcohol use disorder (see Methods section), this study will test the conceptual model presented in Figure 1 in a high-risk versus matched control sample, further adding to the existing literature which has focused primarily utilized undergraduate samples.

Methods

Participants

Participants were taken from a larger sample of 227 families from New York state participating in an ongoing study of developmental outcomes associated with paternal alcohol use, classified into alcohol use disorder status based on father's alcohol problems (n=130) or a demographically-matched control group (n=97). Parents were predominantly White (94% mothers, 87% fathers) and 56% had some education beyond high school. Of the original sample which was recruited when the children were 1 year of age, 162 (71%) youth completed the 8th grade assessment and 141 provided data on trait perfectionism, with a final sample consisting of 69 boys and 72 girls in the 8th grade. In terms of ethnicity, 89.4% of participants were European-American, 3.8% were African-American, and 6.8% identified as mixed ethnicity.

Measures

Trait Perfectionism.

Almost Perfect Scale – Revised (APS-R; Slaney et al., 2001). Trait perfectionism was assessed using the APS-R (Slaney et al., 2001), a 23-item self-report measure designed to assess trait perfectionism along three dimensions: high standards (7 items), order (4 items) and

discrepancy (12) items. Given theoretical arguments that the order subscale assesses tendencies that are not central to trait perfectionism (see Flett & Hewitt, 2015 for a review), only the high standards and discrepancy subscales were used in this study. The high standards subscale assesses the tendency to strive for unrealistic standards (e.g., "I set very high standards for myself") whereas the discrepancy subscale assesses the tendency to engage in self-critical performance evaluations (e.g., "I am hardly ever satisfied with my performance"; Slaney et al., 2001). Responses are indicated on a 7-point Likert scale, anchored at 1 (*strongly disagree*) and 7 (*strongly agree*). The APS-R demonstrates good internal consistency, with reported alpha levels ranging from .82 to .87 from the standards subscale and .87 to .92 for the discrepancy subscale (e.g., Gilman, Rice, & Carboni, 2014; Sironic & Reeve, 2015; Slaney et al., 2001). Internal consistencies scores for this sample can be found in Table 2. Although developed for use in adults, the APS-R has been successfully used in adolescent samples in previous research (e.g., Gilman, Rice, & Carboni; Sironic & Reeve, 2015).

Social disconnection.

A latent variable for social disconnection was created to capture the common variance amongst the following indicators:

Child's Report of Parent Behavior Inventory (CRPBI; Schaefer, 1965b). Perceived quality of parental relationships was assessed using Schuldermann and Schuldermann's (1970) revision of the CRPBI (Schaefer, 1965b). This instrument contains two forms, 108-item form to assess quality of the maternal relationship (e.g., "[my mother] tells me how much she loves me") and a 23-item form to assess quality of paternal relationships (e.g., "[my father] is easy with me"). Participants rate how much each statement is characteristic of their parenting (*like, somewhat like, not like*). The CRPBI yields 18 scales including: acceptance, child-centeredness,

possessiveness, rejection, control, enforcement, positive involvement, intrusiveness, control through guilt, hostile control, inconsistent discipline, non-enforcement, acceptance of individuation, lax discipline, instilling persistent anxiety, hostile detachment, withdrawal of relations, and extreme autonomy (Shaefer, 1965b). Factor analytic studies have consistently revealed three higher order factors which can be extrapolated from the instrument: acceptance/rejection, psychological autonomy/control, and firm/lax discipline (e.g., Graybill & Gabel, 1978; Schaefer 1965a; Schludermann & Schludermann, 1970). Cronbach's alphas for the CRPBI are reported to range from .70 to .95 (e.g., Raskin et al., 1971; Schwarz et al., 1985), whereas convergent correlations have ranged from .30 to .42 (e.g., Schwarz et al., 1985). Internal consistencies scores for this sample can be found in Table 2. For the purpose of this study, a composite perceived parental acceptance variable was created using the mean score for the maternal acceptance scale and the paternal acceptance scales ($r = .54$).

Social Experience Questionnaire (SEQ; Crick & Grotpeter, 1996). Relational victimization was assessed using the relational victimization scale of the SEQ (Crick & Grotpeter, 1993). The 15-item SEQ is a widely used measure of peer victimization among adolescents and includes three subscales assessing overt victimization (e.g., "How often do you get pushed or shoved by another peer at school?"), relational victimization (e.g., "How often does another peer tell lies about you to make others not like you?") and receipt of prosocial acts (e.g., "How often do you get cheered up by another peer when you are sad or upset?"). Responses to items are indicated on a 5-point Likert scale, anchored at 1 (*never*) and 5 (*all the time*). The relational victimization scale of the SEQ is found be consistent across genders and has exhibited strong psychometric properties in large samples of adolescents, with Cronbach's alphas

reported to range from .72 to .82 (e.g., Desjardins et al., 2013; Storch et al., 2005). Internal consistencies scores for this sample can be found in Table 2.

  School involvement (Berndt & Keefe, 1995). School connectedness was assessed using Berndt & Keefe's (1995) 6-item self-report measure of school involvement, which assesses students' attitudes and behaviors in the classroom and outside of school (e.g., "how often do you take part in classroom discussions?"; Berndt & Keefe, 1995). Responses are indicated on a Likert-style scale, anchored at 1 (*never*) and 5 (*very often*). Internal consistencies scores for this sample can be found in Table 2.

  Anxiety symptoms.

  Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). Anxiety was assessed using the RCMAS (Reymonds & Richmond, 1978), a 49-item self-report measure of anxiety symptoms suitable for using in youths aged 6 to 19 (Seligman et al., 2004). The RCMAS (Reymonds & Richemond, 1978) assesses anxiety symptoms along several dimensions, including physiological anxiety, worry, social anxiety, and defensiveness; a sample item is "I worry about what is going to happen" (Reymonds & Richmond, 1985). The RCMAS items are dichotomous (i.e., yes/no) and are scored by summing the number of "yes" responses, with a higher number of "yes" responses indicating a greater number of anxiety symptoms. The RCMAS is one of the most widely used measures of anxiety in youth, and demonstrates high internal consistently with reported Cronbah's alphas ranging from .75 to .92 (e.g., Reynolds & Richmond, 2008; Seligman et al., 2004). Internal consistencies scores for this sample can be found in Table 2.

Covariates.

Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Maternal depression was included as a covariate and assessed using the 20-item CES-D (Radloff, 1977). The CES-D is a widely used self-report measure of depressive symptoms in adults, assessing symptoms along eight different subscales: dysphoria, anhedonia, appetite, sleep, concentration, worthlessness, fatigue, agitation and suicidal ideation. Respondents are asked to read a series of statements (e.g., "I was bothered by things that don't usually bother me") and indicate how often they experience the symptoms described in the statements during the past week. Responses are indicated on a 4-point Likert style scale, anchored at 1 (*rarely or none of the time, less than one day)* and 4 (*most or all of the time, 5-7 days*). The CES-D demonstrates strong internal consistency, with Cronbach's alpha scores typically ranging from .85 to .90 (Radloff, 1977; Vilagut et al., 2016). Internal consistencies scores for this sample can be found in Table 2.

Alcohol group status. Given that participants were taken from a larger sample of high-risk versus control families, alcohol group status was included as a covariate. Alcohol group status was determined by fathers' alcohol use problems as assessed by an adapted, self-report measure of the University of Michigan Composite International Diagnostic Interview (Anthony, Warner, & Kessler, 1994; Kessler et al., 1994). Questions that inquired about whether a problem occurred "very often" were rephrased to inquire specifically "how many times" a problem was experienced. Additionally, *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV; American Psychiatric Association, 2000) criteria for alcohol abuse and dependence diagnoses for current alcohol problems were applied to screening criteria responses to assign alcohol group status at the time of recruitment (Eiden et al., 2007).

Procedure

The names and addresses of potential participants were obtained from the New York State birth records for Erie Country (Eiden et al., 2007). Families who met diagnostic criteria for alcohol group status were matched with control families on race/ethnicity, maternal education, child gender, parity, and marital status. Family assessments were conducted in early childhood (12 to 48 months), at kindergarten age (5-6 years), in middle childhood (9-12 years), and in early adolescence (8th grade; 13-14 years). Mother-child visits were conducted first, followed by father-child visits during which family members responded to interview questions and completed questionnaires at the Research Institute on Addictions in Buffalo, New York (see Lessard et al., 2014). Data collected during the early adolescence period was used in analyses. Specifically, mothers and adolescents completed self-report measures via online questionnaires.

Statistical Analyses

Using Mplus verison 8.1 statistical analysis software (Muthén & Muthén, 1998-2017), structural equation modeling was used to test the conceptual model presented in Figure 1. Given that the assumption of normality was met for all model variables except for mother-reported anxiety (which was only slightly kurtotic (see Table 2) and because Maximum Likelihood (ML) estimation is robust to minor violations of normality, ML estimation was used to estimate all model parameters. The latent variable for social disconnection was scaled by fixing one of its indictor paths (i.e., relational victimization) to 1.0. Several indices of fit were used to assess model fit: Root Mean Square Error of Approximation (RMSEA) with 90% confidence intervals, the comparative fit index (CFI; Hu & Bentler, 1999) and the standardized root mean square residual (SRMR; Hu & Bentler, 1999). Acceptable fit of the conceptual model was operationally defined in this study as a RMSEA of less than .06, a CFI greater than .95 and

an SRMR of less than .08. Indirect effects were estimated and assessed using 10,000 bootstrap samples with replacement and 95% bias-corrected confidence intervals (CIs). CIs that did not cross over zero were used to determine significant indirect effects (Shrout & Bolger, 2002).

Results

Preliminary Analyses

Outliers. Prior to analyses, data was examined for univariate outliers identified by converting raw scores into standardized scores. Any scores which fell outside of +/- 3 SD from the mean were considered to be outliers. In accordance with recommendations by Tukey (1977), any outliers (i.e., ± 3SD) were Winsorized by replacing values over 3 SD above/below the mean with the value of 3 SD above/below the mean, maintaining rank order by .01 decimal places. For a detailed summary see Table 1.

Missing data. Overall, 85.8% of participants had complete data. Missing data ranged from one data point to five data points, though on average participants were missing less than one (.41) data points. Patterns of missing data were then analyzed using chi-square tests of independence for categorical variables (i.e., sex, alcohol group status) and independent sample t-tests for continuous variables (i.e., PS, PC, RV, SC, parental acceptance, anxiety, mother-reported anxiety, maternal depression). All chi-square tests and most of the t-tests were not statistically significant ($p > .05$)[1], and as such it can be concluded that there were no group differences between participants with complete versus incomplete data on any of the model variables.

Testing of Assumptions for Parametric Tests

---

[1] The t-test comparing those missing data versus not missing data on maternal depression was statistically significant, t(155) = 1.49, $p = .05$, $d = .39$. The effect size of this difference was small to medium and as such there were few overall differences between those missing data and those not.

Univariate normality. Histograms were created for each continuous variable in the model to assess univariate normality visually. In addition, skewness and kurtosis values were calculated and evaluated to further aid in assessing univariate normality using the values of +/- 2 to indicate normality (Field, 2009). Based on visual inspection of the histograms, all model variables appeared to be normally distributed with the exception of model variables related to psychopathology (i.e., mother-reported anxiety, maternal depression, adolescent-reported anxiety, and relational victimization). Specifically, mother-reported anxiety, maternal depression, adolescent-reported anxiety, and relational victimization appeared to be slightly positively skewed and slightly kurtotic. However, all skewness and kurtosis values were within normal range with the exception of mother-reported anxiety, which was only slightly kurtotic. See Table 2 for a detailed summary of descriptive information along with skewness and kurtosis values.

Multivariate normality. I assessed multivariate normality by conducting multiple regressions to generate residuals whose distributions could then be examined. First, I conducted a multiple regression in which mother-reported anxiety was regressed on PS, PC, relational victimization, school connectedness, parental acceptance, maternal depression, respondent sex and alcohol group status. Second, I conducted a multiple regression in which adolescent-reported anxiety was regressed on PS, PC, relational victimization, school connectedness, parental acceptance, maternal depression, respondent sex and alcohol group status. Histograms were created using the residuals generated from the regressions. Visual inspection of histograms confirmed that residuals were generally normally distributed. Using the recommended values of +/- 2, skewness and kurtosis were also examined as indicators of multivariate normality.

Skewness values ranged from .47 to 1.59 and thus fell within the normal range, whereas kurtosis values ranged from .33 to 2.07 and thus generally fell within the normal range.

Homoscedasticity. To test for homoscedasticity (i.e., that variances are equal at each point of the regression line), I conducted multiple regressions to generate residuals to be analyzed. First, I conducted a multiple regression in which mother-reported anxiety was regressed on PS, PC, relational victimization, school connectedness, parental acceptance, maternal depression, respondent sex and alcohol group status. Second, I conducted a multiple regression in which adolescent-reported anxiety was regressed on PS, PC, relational victimization, school connectedness, parental acceptance, maternal depression, respondent sex and alcohol group status. Scatterplots using the standardized residual score and the unstandardized predictor value for each set of variables in the proposed model were then assessed. Visual inspection of the data demonstrated no obvious pattern and data appeared to be evenly spread about the regression line. As such, the assumption of homoscedasticity was met.

Linearity. Scatterplots depicting the relationship between each pair of model variables were examined for linearity. There were no obvious instances of non-linear relationships in the scatterplots, and as such the assumption of linearity was met.

Independence of residuals. As a test for independence of residuals, Durbin-Watson values yielded from the regressions conducted for each pair of variables in the conceptual model were assessed. The Durbin-Watson tests yielded values ranging from 1.85 to 2.18. As these values fall within the ideal range of 1.5 and 2.5 (Hair, Anderson, Tathan, & Black, 1995), it can be inferred that the residuals were independent.

Multicollinearity. To test for multicollinearity, VIF statistics generated from the regressions conducted wherein each outcome variable was regressed on all model variables were

examined for each pair of variables in the conceptual model. VIF values were all below the

critical value of 2 (Field, 2009), ranging from 1.08 to 1.34, suggesting little to no

multicollinearity within the data.

Descriptive Information and Bivariate Correlations for all Model Variables

Pearson *r* correlations were performed to examine associations among variables relevant

to the conceptual model. Correlations between all study variables, along with means and

standard deviations, are presented in Table 3. Results indicated that PS and PC shared a negative

association. In other words, those who reported striving for high standards were less likely to

report a discrepancy between their ideal standards and actual selves. PS was positively correlated

with school-connectedness and paternal acceptance. This pattern of correlations suggests that

those who had a tendency to strive for perfection also tended to report feeling accepted by their

parents and connected to their school environments. PC was positively associated with relational

victimization and with adolescent-reported anxiety. Moreover, PC was negatively associated

with parental acceptance and school-connectedness. In other words, those who reported being

highly self-critical tended to also report being victimized by their peers, feeling unaccepted by

their parents and feeling disconnected from their schools. Moreover, those who reported higher

levels of self-criticism appeared to experience greater instances of worry and anxiety.

Relational victimization was negatively correlated with both school-connectedness and

parental acceptance. Moreover, relational victimization was positively correlated with

adolescent-reported anxiety and with mother-reported anxiety. This pattern of correlations

suggests that those who were victimized by their peers also tended to feel similarly unaccepted

by their parents and disconnected from their schools. Moreover, those who experienced greater

levels of peer victimization also tended to experience higher levels of anxiety, both adolescent-

and mother-reported. School-connectedness was positively correlated with parental acceptance, such that those who reported feeling more connected to their schools also reported feeling more accepted by their parents. Moreover, school-connectedness shared a negative correlation with adolescent-reported anxiety. In other words, adolescents who reported feeling more connected to their schools also reported lower levels of anxiety. Parental acceptance was negatively correlated with adolescent-reported anxiety such that those children who felt more accepted by their parents reported experiencing fewer anxiety symptoms. Adolescent-reported anxiety shared a moderate and positive association with mother-reported anxiety. In other words, anxiety symptoms in children were observable to their mothers, but only to a small degree. Finally, mother-reported anxiety was positively correlated with maternal depression scores such that mothers who experienced symptoms of depression reported that their child experienced greater symptoms of anxiety.

Primary Analyses

Structural equation modeling was conducted to test the conceptual model presented in Figure 1. Mother-reported and adolescent-reported anxiety were the primary endogenous variables of interest and a covariance was specified between these manifest variables. Social disconnection was a latent variable that had the following indicators: relational victimization, school connectedness, and parental acceptance. Social disconnection was scaled by fixing the path from social disconnection to relational victimization to 1.0. The social disconnection latent variable had adequate factor loadings for relational victimization, school connectedness, and parental acceptance (i.e., .60, -.66, and -.45, standardized loadings respectively). Mother-reported and adolescent-reported anxiety were each regressed onto the latent variable for social disconnection and on the exogenous variables (i.e., PS, PC**,** respondent sex, alcohol group status,

and maternal depression**).** Social disconnection was regressed on the exogenous variables (i.e.,

PS, PC, respondent sex, alcohol group status, and maternal depression). Covariances were

estimated between all exogenous variables (i.e., PS, PC, respondent sex, alcohol group status,

and maternal depression). Overall, results indicated that the conceptual model adequately fit the

data, ($\chi^2(14) = 23.31$, $p = .055$; CFI = .96; RMSEA = .069 95%CI [.00, .12]; SRMR = .043).

Model parameters are presented in Table 4. With respect to the covariates, respondent sex

was negatively associated with adolescent-reported anxiety, such that girls reported higher levels

of anxiety symptoms than boys. Alcohol group status was positively associated with adolescent-

reported anxiety, such that those adolescents from high alcohol use families reported higher

levels of anxiety symptoms than those from control families where neither parent was

experiencing an alcohol use disorder. Finally, maternal depression was positively associated with

mother-reported anxiety, such that mothers with higher levels of depression reported higher

levels of anxiety symptoms in their children.

Results indicated that there were statistically significant direct effects such that higher

levels of PS were associated with lower levels of social disconnection, whereas higher levels of

PC were associated with higher levels of social disconnection. Moreover, both PS and PC were

positively and directly associated with adolescent-reported anxiety after accounting for all other

variables in the model. Similarly, higher levels of social disconnection were associated with

greater adolescent-report anxiety. Finally, results revealed significant indirect effects to

adolescent-report anxiety from PS ($\beta = -.11$, 95% CI [-.41, -.02]) and PC ($\beta = .16$, 95% CI [.05,

.47]) through social disconnection. There were no significant indirect effects from PS and PC to

mother-report anxiety via social disconnection.

In line with recommendations by Simmons, Nelson and Simonsohn (2011) for ethical research practices, analyses were conducted both with and without covariates. It is worth noting that without covariates included in the analyses, there was a significant indirect effect from PS to mother-reported anxiety (β = -.03, 95% CI [-.13, -.004]) and from PC to mother-reported anxiety (β = .04, 95% CI [.00, .13]). Once covariates were entered into the analyses, these effects became nonsignificant although the direct effect of PS on mother-reported anxiety approached significance (p = .07).

Discussion

Overall these findings suggest that PC in particular act as a specific vulnerability factor for anxiety in adolescents, and consistent with existing literature, suggests that girls are more prone to the experience of internalizing symptoms than boys (e.g. Leadbeater et al., 1999; McLean et al., 2006) given that girls were more likely to report symptoms of anxiety than boys. In terms of direct effects, both PS and PC were linked with adolescent-reported anxiety such that those reporting higher levels of PS and PC similarly reported experiencing greater anxiety symptomatology. These findings mirror extant literature demonstrating the clear maladaptive nature of PC, showing robust links between PC and anxiety in both adult and youth samples (e.g., Flett et al., 2004; Klibert et al., 2005; Klibert et al., 2014; Nepon et al., 2011; Newby et al., 2017). Interestingly, whereas the literature regarding the relationship between PS and anxiety in adults is mixed, with some studies finding positive associations (e.g., Klibert et al., 2005; Klibert et al., 2014; Newby et al., 2017) and others finding no link (e.g., Flett et al., 1994), this study reveals a residual path between PS and anxiety such that higher levels of PS were associated with greater anxiety symptoms. This finding suggests that there may be some maladaptive influence of PS on adolescents' experience of anxiety apart from the protective social function.

With respect to potential mechanisms linking dimensions of trait perfectionism to anxiety, it appears that PC is associated with greater anxiety symptoms through social disconnection. This finding is consistent with the PSDM, which posits that perfectionistic concerns may lead to impaired social relationships and, subsequently, leave one vulnerable to psychological distress such as anxiety (Hewitt et al., 2006). Interestingly, the bivariate associations between PC and various indicators of social disconnection (i.e., relational victimization, school connectedness, parental acceptance) were all similar in strength and as such it appears to be an underlying and pervasive form of social disconnection that accounts for the link between PC and anxiety. The direct and indirect effects found with respect to PC are in line with theoretical and historical models of trait perfectionism that paint perfectionism as a vulnerability factor for poorer mental health given its impossibly high standards that often result in failure and endless self-criticism. Indeed, a growing literature suggests that perfectionistic tendencies, particularly PC, are destructive in youth given strong links between dimensions of perfectionism and mental health problems such as depression, suicide ideation, and anxiety in young people (e.g., Chen et al., 2012; Hewitt et al., 2002; Roxborough et al., 2012). More concerning, the sheer prevalence of maladaptive dimensions of perfectionism amongst youth is remarkably high with approximately 25 to 30% of young people demonstrating characteristics of maladaptive perfectionism (e.g., Hawkins, Watt, & Sinclair, 2006; Hewitt & Flett, 2014; Rice, Ashby, & Gilman, 2011; Sironic & Reeve, 2015).

In contrast, whereas PS shared an indirect relationship with adolescent-reported anxiety such that higher levels of PS were associated with *fewer* anxiety symptoms through lower levels of social disconnection. Whereas PC reflects a clearly maladaptive form of trait perfectionism, PS represents a dimension that is less clearly maladaptive or adaptive; despite a maladaptive

direct effect on anxiety, PS appears to simultaneously have a protective social function. The results of this study suggest that PS may potentially acts as a protective factor against social disconnection given that PS was associated with positive indicators of social functioning (i.e., less social disconnection, less relational victimization, greater school connectedness and paternal acceptance), which in turn was associated with fewer anxiety symptoms. Yet, despite this protective function of PS, the significant direct effect with anxiety suggests that PS may still be a vulnerability factor for poorer mental health among youth, though perhaps through an alternate mechanism.

Indeed, there are several potential mechanisms that may account for the link between PS and anxiety that were not accounted for in this study (e.g., stress, discrepancy). For example, previous research suggests that PS is associated with educational stress (Flett et al., 2016), obsessive thoughts reflecting a compulsive need to be perfect (Flett et al., 2012) and perceiving the current self as discrepant from one's ideal self (Sironic & Reeve, 2015), all of which may act as explanatory pathways to anxiety. Moreover, theorists suggest that while PS may appear adaptive in some contexts (e.g., social functioning, school achievement), holding oneself to perfectionistic standards may become maladaptive when impediments, such as life stressors, arise which may impede one's ability to meet such standards (e.g., Dunkley et al., 2016). As such, future research into potential mechanisms linking PS to anxiety is needed to understand how and in which contexts PS is adaptive versus maladaptive. Finally, there were no significant relationships with mother-reported anxiety once covariates were included in the analyses and as such, it is likely that the initial link between PS and mother-reported anxiety was accounted for by maternal depression. This finding supports the depression-distortion hypothesis (Richters & Pellegrini, 1989) which suggests that mothers experiencing symptoms of depression tend to

report higher levels of psychopathology in their children (see pages 69-70 for detailed discussion).

Study 2

The goal of Study 2 is to replicate and extend the findings from Study 1. The conceptual model for Study 2 is presented in Figure 2. This model will inform a more nuanced test of the PSDM in adolescents, whereby social disconnection (i.e., social dissatisfaction, parental warmth, relational victimization, school connectedness) is hypothesized to mediate the relationships between trait dimensions of perfectionism (i.e., PS and PC) and anxiety symptoms in adolescents. This study will serve to replicate and extend the findings of Study 1 in several important ways. First, Study 2 utilizes a different measure of perfectionism; whereas Study 1 utilized the APS-R (Slaney et al., 2001), Study 2 utilizes the CAPS (Flett et al., 2001), a measure specifically designed for use in youth populations and more finely attuned to the intra- and inter-personal dimensions of trait perfectionism. Indeed, the PSDM (Hewitt et al., 2006) suggests that the interpersonal dimensions of perfectionism (i.e., PC as assessed by the socially-prescribed perfectionism subscale) should be more highly related to social disconnection than would the intrapersonal dimensions of perfectionism (i.e., PS as assessed by the self-oriented perfectionism subscale). Including the CAPS will thus allow a more direct and nuanced test of the PSDM in youth.

Second, Study 2 includes the addition of an indicator of subjective social disconnection (i.e., loneliness and social dissatisfaction), which is particularly important given that subjective social disconnection (i.e., loneliness) and objective social disconnection (i.e., impaired relationships) are differentiated in the PSDM conceptual framework (Hewitt et al., 2006). A strong theoretical basis suggests that individuals with perfectionistic tendencies, particularly PC,

feel consistently alone and alienated (e.g., Hewitt et al., 2006; Hewitt et al., 2017), and preliminary research supports this contention with studies finding PC to be positively associated with loneliness (e.g., Flett, Hewitt, & DeRosa, 1996). Indeed, research suggests that subjective social disconnection is a particularly salient predictor of psychological distress (Chang et al., 2008; Wang, Yuen, & Slaney, 2009). For example, loneliness was found to moderate the link between PC and psychological distress, with individuals displaying characteristics of PC and reporting greater loneliness experiencing the highest levels of distress (Chang et al., 2008).

Third, whereas Study 1 utilized an American sample of high-risk adolescents and healthy controls with a restricted age range (13-14 years old), Study 2 utilizes a community sample of Canadian adolescents with a much larger age range (13 to 19 years old) in an attempt to improve the generalizability of findings. Finally, the effects of the higher-order personality trait emotional stability (low neuroticism) will be accounted for in the analyses for Study 2, in light of extensive research demonstrating the overlap between the higher-order personality trait of neuroticism (i.e., low emotional stability) with dimensions of trait perfectionism, particularly PC (Enns, Cox & Clara, 2005), and anxiety (Zinbarg et al., 2016). Likewise, the effects of conscientiousness (i.e., the tendency to be task-oriented, vigilant, and organized) will also be accounted for in the analyses for Study 2 given that conscientiousness is a well-documented correlate of trait perfectionism dimensions, particularly PS (e.g., Stoeber et al., 2009). Through the inclusion of higher-order personality factors as covariates, the unique effects of perfectionism dimensions on anxiety can be disentangled from overlapping, broader personality traits.

Method

Participants

The participants for Study 2 consisted of 109 Canadian adolescents (40% male, 68% female, 1% "other") from the Greater Niagara Region ranging in age from 13 to 19 years (*M* =16.10 years, *SD* = 1.85). Participants were predominately White / Caucasian (89%). Of the rest of the sample, 9% of participants identified as Asian Canadian, 2% identified as Indigenous Peoples in Canada, 1% identified as Latin Canadian and 7% identified as "other."

Measures

Perfectionism.

Child and Adolescents Perfectionism Scale (CAPS; Flett et al., 2001). Trait perfectionism will be assessed using the CAPS (Flett et al., 2001), a 22-item self-report measure designed to assess perfectionism in young people aged 8 to 17 (Flett et al., 2016). The CAPS is derived from Hewitt & Flett's (1991b) Multidimensional Perfectionism Scale and assesses trait perfectionism along two dimensions: self-oriented perfectionism (SOP) and socially-prescribed perfectionism (SPP). The 12-item SOP subscale assesses the tendency to expect perfection from oneself (e.g., "I try to be perfect in everything I do") whereas the 10-item SPP subscale assesses the tendency to believe that others are expecting perfection (e.g., "there are people in my life who expect me to be perfect"). Responses to each statement are indicated on a 5-point Likert scale, where 1 indicates a low level of agreement and 5 indicates a high level of agreement though three items require reversing (items 3, 9, and 18; Flett et al., 2001). The CAPS is the most widely used measure of trait perfectionism in youth samples, and has been used in over 50 studies (Flett et al., 2016). Indeed, the CAPS has strong psychometric support; the initial validation study with a sample of 247 Canadian students reported high levels of internal consistency for both the SOP (α = .85) and SPP (α = .81) subscales (Flett et al., 2001) while

reported alpha levels tend to be over .80 (see Flett et al., 2016; Sironic & Reeve, 2015). Internal consistency scores for this sample can be found in Table 6.

Social disconnection.

A latent social disconnection variable was created using the common variance of the following indicators of social functioning:

Parental Acceptance and Rejection Questionnaire (Rohner, 2005). Quality of parental relationships was assessed using the short form of the self-report PARQ (Rohner, 2005), a tool designed to assess individual perceptions of parental acceptance versus rejection. The PARQ consists of two forms (i.e., mother form and father form), each containing 24 items which primarily describe a series of parental behaviors, along with some parental attitudes, and respondents are asked to indicate how "true" each statement is of their parent (*almost always true, sometimes true, rarely true, almost never true*). The PARQ consists of four subscales: parental warmth/affection (e.g., "[my parent] said nice things about me"), hostility/ aggression (e.g., "[my parent] hit me, even when I did not deserve it"), indifference/neglect (e.g., "[my parent] paid no attention to me") and undifferentiated rejection (e.g., "[my parent] saw me as a big nuisance"). The PARQ exhibits strong psychometric properties in diverse samples, with reported Cronbach's alphas ranging from .71 to .96 (see Rohner, 2005). Internal consistency scores for this sample can be found in Table 6.

Social Experience Questionnaire (SEQ; Crick & Grotpeter, 1996). Relational victimization was assessed using the relational victimization scale of the SEQ (Crick & Grotpeter, 1993) as in Study 1. Internal consistency scores for this sample can be found in Table 6.

School Connectedness Survey (SCS; Edens, 2006). School involvement was assessed using the 25-item SCS, a tool designed to measure students' perceptions of their school environment. Items assess how connected students feel to their peers, teachers and school community (e.g., "I feel supported at school"). Participants rate agreement with each statement using a Likert scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Cronbach's alphas for this survey have typically been reported above .80 (e.g., Adekunle, 2014; Ngozi, Ada, & Christy, 2010). Internal consistency scores for this sample can be found in Table 6.

Loneliness and Social Dissatisfaction Questionnaire (LSDQ; Asher, Hymel, & Renshaw, 1984). Subjective social disconnection was assessed using the 24-item self-report LSDQ (Asher, Hymel, & Renshaw, 1984), an instrument designed to assess feelings of loneliness and dissatisfaction with existing social relationships. Of the 24 items, nine are considered to be filler questions and as such only 16 items assess loneliness (e.g., "I feel alone") and social dissatisfaction (e.g., "it is hard for me to make friends"). Responses are indicated on a Likert-type scale, ranging from one (*not at all true*) to five (*always true*). Higher scores indicate a higher level of perceived social disconnection. The LSDQ has strong psychometric support and has been validated in diverse youth populations (e.g., Asher, Hymel, & Renshaw, 1984; Bagner, Storch, & Roberti, 2004). Moreover, the LSDQ demonstrates high internal consistency with reported alpha levels well above .80 (e.g., Asher, Hymel, & Renshaw; 1984; Asher & Wheeler, 1985; Schinka et al., 2013). Internal consistency scores for this sample can be found in Table 6.

Anxiety symptoms.

Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). As in Study 1, anxiety symptoms will be assessed using the 49-item self-report RMCAS

(Reynolds & Richmond, 1978). Internal consistency scores for this sample can be found in Table 6.

Covariates.

Age. Adolescent age was included as a covariate in analyses given the fairly large age range of participants (i.e., 13 to 19 years of age). Participants were asked to indicate age using a drop-down menu, with selection options ranging from 13 to 19. Participants also had the option of selecting "prefer not to say."

Participant sex. Participant sex was included as a covariate in analyses, as the sample was too small to conduct gender-based analyses. Participants were asked "what is your gender?" and were able to select a response from a drop down menu. The options provided were "male," "female," or "other." Participants also had the option of selecting "prefer not to say." Given that only one participant selected the "other" option, this response was changed to missing data as there were not enough responses in this category for meaningful analyses to be conducted.

Ten-Item Personality Inventory (TIPI; Gosling et al., 2003). Emotional stability and conscientiousness were assessed using the TIPI. The TIPI is brief, validated measure of Big Five personality factors widely used by researchers. The emotional stability (ES) subscale consists of two items that assess one's tendency to be emotionally balanced and calm versus anxious and easily upset. The conscientiousness (C) subscale consists of two items which assess one's tendency to be disciplined and organized versus undisciplined and careless. Responses to statements are indicated on a 7-point Likert scale, ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). Internal consistency scores for this sample can be found in Table 6.

Procedure

Participants were recruited from the community through advertisements posted on social media websites, on local classified websites, and in local businesses frequented by adolescents (e.g., coffee shops, trampoline parks, local libraries). Participants were also recruited through local sports teams and competitions (e.g., dance competitions, contacting local sports coaches). The study was completed entirely online through Qualtrics software, and as such participants completed the surveys from their personal computers and/or tablets at their convenience. Prospective participants were provided with study information sheets and were asked to contact the lab via email to receive a link and unique access code for the survey. Participants under 18 were required to have parental consent to participate, which was provided from parents via email; once parental consent was received, a link to the survey was sent to the participants while a unique access code was emailed to the parents. As such, participants under 18 could not access the survey without the code provided by their parents. For those participants over 18, a link and unique access code was emailed directly. All participants were required to provide informed consent or assent at the start of the survey before moving forward. All participants were compensated with a $15 Amazon gift card upon completion of the study.

Statistical Analyses

Using Mplus verison 8.1 statistical analysis software (Muthén & Muthén, 1998-2017), structural equation modeling was used to test the conceptual model presented in Figure 2. Maximum Likelihood (ML) estimation was used to estimate all model parameters as the assumption of normality was met. The latent variable for social disconnection was scaled by fixing one of its indictor paths to 1.0. Several indices of fit were used to assess model fit: Root Mean Square Error of Approximation (RMSEA) with 90% confidence intervals, the comparative fit index (CFI; Hu & Bentler, 1999) and the standardized root mean square residual (SRMR; Hu

& Bentler, 1999). Acceptable fit of the conceptual model was operationally defined in this study as a RMSEA of less than .06, a CFI greater than .95, and an SMR of less than .08. Indirect effects were estimated and assessed using 10,000 bootstrap samples with replacement and 95% bias-corrected confidence intervals (CIs). CIs that did not cross over zero were used to determine significant indirect effects (Shrout & Bolger, 2002).

Results

Preliminary Analyses

Outliers. Prior to analyses, data was examined for univariate outliers. Outliers were identified by converting raw scores into standardized scores, and any score falling outside of +/-3 SD from the mean were considered to be outliers. In accordance with recommendations by Tukey (1977), any outliers (i.e., ± 3SD) were Winsorized by replacing values over 3 SD above/below the mean with the value of 3 SD above/below the mean, maintaining rank order by .01 decimal places. For a detailed summary see Table 5.

Missing data. Overall, 74.3% of participants had complete data. Missing data ranged from one to data point to eight data points, with participants missing less than one (.50) data points on average. Patterns of missing data were then analyzed using chi-square tests of independence for categorical variables (i.e., sex, ethnicity, age) and independent samples t-tests for continuous variables (i.e., PS, PC, RV, SC, social disconnection, parental warmth, anxiety, emotional stability and conscientiousness). The chi-square tests were not statistically significant ($p > .05$) and as such it can be concluded that there were no group differences between participants with complete versus incomplete data on categorical variables. All of the individual samples t-tests were insignificant ($p > .05$) apart from parental warmth ($p = .04$). Given that participants who were not in regular contact with their parents were allowed the option to skip

the PARQ in the questionnaire, this group difference between participants on the paternal

warmth variable is acceptable for the purpose of this study as it can be assumed that those

participants with missing data were not in regular contact with their parent(s).

Testing of Assumptions for Parametric Tests

   Univariate normality. Histograms were created for each continuous variable in the

model to assess univariate normality. In addition, skewness and kurtosis values were calculated

and evaluated to further aid in assessing univariate normality using the values of +/- 2 to indicate

normality (Field, 2009). Based on visual inspection of the histograms, the data appeared to be

normally distributed. All skewness and kurtosis values fell within a normal range when using

anchors of +/- 2 SD about the mean, with skewness values ranging from -.44 to .55 and kurtosis

values ranging from -.69 to .27. As such, the data was considered to be normally distributed. See

Table 6 for a detailed summary of descriptive information along with skewness and kurtosis

values.

   Multivariate normality. I assessed multivariate normality by conducting a multiple

regression in which adolescent-reported anxiety was regressed on PS, PC, relational

victimization, school connectedness, parental warmth, social dissatisfaction, emotional stability,

conscientiousness, age and respondent sex to generate residuals which were analyzed to assess

multivariate normality. Histograms were created using the residuals generated from the

regression. Visual inspection of histograms confirmed that residuals were generally normally

distributed. Using the recommended values of +/- 2, skewness and kurtosis were also examined

as indicators of normality. Skewness values ranged from -.35 to .20 and thus fall within the

normal range, while kurtosis values ranged from -.85 to .46 and thus generally fall within the

normal range.

Homoscedasticity. To test for homoscedasticity (i.e., that variances are equal at each point of the regression line), I conducted a multiple regression in which adolescent-reported anxiety was regressed on PS, PC, relational victimization, school connectedness, parental warmth, social dissatisfaction, emotional stability, conscientiousness, age and respondent sex to generate residuals. Scatterplots were then created using the standardized residual score and the unstandardized predictor value for each set of model variables. Visual inspection of the data demonstrated no obvious pattern and data appeared to be evenly spread about the regression line so I concluded that this assumption was met.

Linearity. Scatterplots depicting the relationship between each pair of model variables were examined for linearity revealing no obvious non-linear relationships.

Independence of residuals. As a test for independence of residuals, Durbin-Watson values yielded from the regressions conducted for each pair of variables in the conceptual model were assessed. The Durbin-Watson values ranged from 1.62 to 2.24. As these values fall within the ideal range of 1.5 and 2.5 (Hair, Anderson, Tathan, & Black, 1995), it can be inferred that the residuals are independent.

Multicollinearity. To test for multicollinearity, VIF statistics generated from the regressions conducted wherein the outcome variable was regressed on all model variables were examined for each pair of variables in the conceptual model. VIF values were all below the critical value of 2 (Field, 2009); VIF values for all variables = 1.00, suggesting little to no multicollinearity within the data.

Descriptive Information and Bivariate Correlations for all Model Variables

Pearson's *r* correlations were examined between all variables in the conceptual model. Correlations, along with means and standard deviations, are presented in Table 7. Results of

correlational analyses revealed that PS and PC shared a modest positive correlation, such that those with higher levels of PS also tended to report higher levels of PC. Moreover, PS shared positive correlations with relational victimization and social dissatisfaction, and a weak negative correlation with parental warmth. In other words, those reporting higher levels of PS were more likely to report being victimized by peers and feeling dissatisfied with current social relationships. Moreover, those who reported higher levels of PS tended to perceive less warmth and affection in their parental relationships. PS was also positively correlated with anxiety symptoms such that those who reported higher levels of PS were likely to report experiencing a range of anxiety symptoms. In terms of covariates, PS shared a moderate negative relationship with ES. Put differently, those who reported higher levels of PS were less likely to report being emotionally stable.

Perfectionistic concerns shared positive correlations with relational victimization and social dissatisfaction, along with negative correlations with school connectedness and parental warmth. Taken together, this pattern of correlations suggest that those reporting higher levels of PC were likely to report being victimized by peers and feeling disconnected from their peers and school community; they also tended to perceive their parental relationships as cold and less supportive. Moreover, PC was positively correlated with anxiety symptomology, such that those with greater levels of PC also reported more frequent and intense anxiety symptoms. Finally, PC shared negative correlations with the covariates of emotional stability and conscientiousness suggesting that those with higher levels of PC were less emotionally stable and less careful and vigilant.

With respect to proposed pathway variables, relational victimization shared a negative correlation with school connectedness and parental warmth, and a positive correlation with social

dissatisfaction. In other words, those who reported greater victimization by peers also tended to report feeling disconnected from their school and peers, and tended to report feeling less warmth and support in their parental relationships. Moreover, relational victimization was positively correlated with anxiety, such that those who reported victimization by peers also tended to report experiencing higher levels of anxiety. Relational victimization shared a negative correlation with ES and C. Social dissatisfaction was negatively correlated with parental warmth and positively correlated with anxiety. In other words, those who reported experiencing loneliness also perceived their parental relationships as colder and less supportive, and tended to report greater anxiety symptoms. In terms of covariates, social dissatisfaction was negatively correlated with ES and C, such that those who reported higher levels of loneliness were less likely to report being focused, vigilant, and emotionally stable. In contrast, school connectedness was negatively related to social dissatisfaction and anxiety, such that those who felt connected to their school environments were less likely to report feeling lonely and seemed to experience fewer anxiety symptoms. Moreover, school connectedness was positively correlated with parental warmth, such that those who felt connected to their schools also reported warmer parental relationships. School connectedness was also positively correlated with ES and C such that those who reported being more emotionally stable and focused also tended to report higher levels of school connectedness. Paternal warmth was negatively correlated with anxiety, such that those who reported more warmth and supportive parental relationships were less likely to report experiencing anxiety. Parental warmth was also positively correlated to both ES and C; in other words, those who had supportive parental relationships tended to report being more emotionally balanced and conscientious. Finally, anxiety was negatively correlated with ES and C, such that those who were unemotionally unbalanced and less conscientious tended to report experiencing

more anxiety symptoms. ES and C shared a positive correlation, meaning that those who reported feeling more emotionally balanced tended to also report higher levels of conscientiousness.

Primary Analyses

Structural equation modeling was conducted to test the conceptual model presented in Figure 2. Adolescent-reported anxiety was the primary outcome of interest. Social disconnection was a latent variable that had the following indicators: social dissatisfaction, relational victimization, school connectedness, and parental acceptance. Social disconnection was scaled by fixing the path from social disconnection to social dissatisfaction to 1.0. Social disconnection factor loadings for social dissatisfaction, school connectedness, relational victimization and parental warmth were high (i.e., .91, -.78, .64 and -.68, respectively). Adolescent-reported anxiety was regressed onto the latent variable social disconnection and onto the exogenous variables (i.e., PS, PC, respondent sex, age, emotional stability, and conscientiousness). Social disconnection was regressed on the following exogenous variables (i.e., PS, PC, respondent sex, age, emotional stability, and conscientiousness). Covariances were estimated among all exogenous variables. Overall, results indicated that the conceptual model adequately fit the data, $(\chi^2(23) = 43.34, p = .006; \text{CFI} = .94; \text{RMSEA} = ,09 \text{ } 90\% \text{ CI } [.05, .13]; \text{SRMR} = .045)$.

Model parameters are presented in Table 8. With respect to the covariates, conscientiousness and emotional stability had significant direct effects on social disconnection such that higher levels of conscientiousness and greater emotional stability were associated with lower levels of social disconnection. Emotional stability also had a significant direct effect on anxiety, such that greater emotional stability was associated with fewer anxiety symptoms. Finally, consistent with existing literature, respondent sex had a significant direct effect on

anxiety such that girls reported greater anxiety symptoms than boys. With respect to model

variables, PC had a significant direct effect on social disconnection such that higher levels of PC

were associated with greater social disconnection. Moreover, social disconnection had a direct

effect on anxiety such that greater levels of social disconnection were associated with more

anxiety symptoms. Finally, results revealed a significant indirect effect from PC to anxiety

through social disconnection ($\beta = .14$, 95% CI [.03, .34]) although no significant indirect effects

were found from PS to anxiety through social disconnection ($\beta = -.01$, 95% CI [-.18, .13]).

In line with recommendations by Simmons, Nelson and Simonsohn (2011) for ethical

research practices, analyses were conducted both with and without covariates. There were no

major discrepancies between analyses conducted with and without covariates, although a direct

effect from PS to anxiety emerged once covariates were removed ($B = .19$, $p = .02$). Although

statistically nonsignificant with covariates included in the analyses, the direct effect of PS on

anxiety approached significance ($p = .07$) suggesting that higher levels of PS may be somewhat

associated with greater anxiety symptoms although this relationship appears to be accounted for

primarily through shared variance with emotional stability.

Discussion

Overall, these findings are consistent with Study 1 and with existing literature suggesting

that girls are more prone to the experience of internalizing symptoms than boys (e.g., Leadbeater

et al., 1999; McLean et al., 2006). More central to this program of study, the findings offer

support for the PSDM (Hewitt et al., 2006) as a significant indirect effect emerged linking PC to

adolescent-reported anxiety via social disconnection. Moreover, the direct effect between social

disconnection and anxiety serves to highlight the importance of social relationships in

influencing psychological distress. Put differently, it appears that a preoccupation with others'

evaluations of oneself does not directly lead to psychological distress, but rather to distorted perceptions of one's social standing alongside feelings of alienation from friends, family and community, which, in turn, contributes to heightened anxiety. Whereas numerous studies link PC to anxiety (e.g., Antony et al., 1998; DiBartolo et al., 2007; Egan, Wade, & Shafran, 2011; Nepon et al., 2011), the findings of this study suggest that this relationship is near entirely accounted for by impaired social functioning given that no direct effect between PC and anxiety was found after social disconnection was accounted for in the analyses.

Interestingly, the social disconnection generated by PC appears to cut across numerous domains of social functioning, suggesting that an underlying and pervasive form of social impairment. Indeed, at the bivariate level, correlations between PC and each indicator of social disconnection (i.e., social dissatisfaction, relational victimization, school connectedness, parental warmth) were similar in strength, suggesting that individuals with PC experience both objective social disconnection (i.e., impaired relationships) and subjective social disconnection (i.e., loneliness), which, in turn, leaves them vulnerable to experiencing anxiety.

Intriguingly, whereas a residual direct effect was indicated between PS and anxiety without covariates after accounting for social disconnection and PC, once covariates were entered into the analysis, this effect became nonsignificant. Theoretically, it is likely that the inclusion of emotional stability or conscientiousness as covariates contributed to the change in significance as opposed to the covariates of age and sex. For example, conscientiousness refers to a tendency to be organized and vigilant, and implies a desire to perform tasks well, which conceptually aligns with the drive to meet high standards characteristic of PS. There is a well-documented empirical link between PS and conscientiousness, with several studies finding them to be strongly and positively correlated (e.g., Rice, Ashby, & Slaney, 2007; Stoeber, Otto, &

Dalbert, 2006). Moreover, some studies indicate that conscientiousness may serve a protective function in numerous aspects of psychological and physical health (e.g., Kern & Freidman, 2011). While it is possible that the inclusion of conscientiousness obscured the relationship between PS and anxiety and despite a moderately and negative relationship between conscientiousness and anxiety, PS and conscientiousness were unrelated in this sample. As such, it is likely neuroticism that might account for the change in significance after including covariates.

Indeed, classical theorists such as Karen Horney describe "perfectionists" as inherently neurotic, characterized by a compulsion to achieve impossible standards and plagued by feelings of fear, frustration, anger and guilt (Hewitt, Flett & Mikail, 2017; Horney, 1950). Indeed, PS shares a moderate empirical link with neuroticism, with some studies finding a negative relationship between PS and emotional stability (e.g., Fry & Debats, 2009; Smith et al., 2016). Unsurprising, existing literature suggests that low emotional stability is a robust predictor of anxiety symptoms and disorders (e.g., Paulhus et al., 2016; Zinbarg et al., 2016). In this study, neuroticism (i.e., low emotional stability) was moderately associated with PS and strongly correlated with anxiety. As such, it is possible that the relationship between PS and anxiety found prior to the inclusion of covariates could be contaminated by shared variance with neuroticism.

In the extant literature, the link between PS and psychological distress is unclear, with studies often finding discrepant relationships (e.g., Antony et al., 1998; Frost et al., 1993; Brown et al., 1999). It is possible that the mixed findings with respect to PS could be, in part, due to differences in which covariates are included in analyses (see page 67-68 for a full discussion). Thus, this research is consonant with literature indicating that neuroticism and conscientiousness

should be accounted for in analyses when examining links between trait dimensions of perfectionism and psychopathology (Smith et al., 2016).

General Discussion

Summary of Main Findings

The purpose of this program of research was to examine the interplay between trait perfectionism, social disconnection, and anxiety in adolescents using the PSDM (Hewitt et al., 2006) as a theoretical framework. The present study is unique in that numerous indicators of social disconnection (i.e., loneliness, relational victimization, school connectedness, and quality of parental relationships) were utilized to form a latent variable, capturing the underlying commonalities across multiple measures of social disconnection that capture a broad array of salient social contexts and accounting for measurement error.

Several important findings have emerged from this program of study. First, this research offers support for the contention that both PS and PC act as vulnerability factors for anxiety. In Study 1, both PC and PS were directly associated with anxiety such that higher levels PC and PS were associated with more anxiety symptoms. In Study 2, both PC and PS were associated with greater anxiety symptoms at the bivariate level. Taken together, these findings suggest that perfectionistic tendencies may be broadly related to poorer mental health outcomes such as the experience of anxiety. Moreover, in both Studies 1 and 2 an indirect effect emerged linking PC to anxiety through social disconnection, consistent with the conceptual models presented in Figures 1 and 2. In Study 1, PC (i.e., the perceived difference between one's actual and ideal performance, APS-R; Slaney et al., 2001) was associated with greater adolescent-reported anxiety via social disconnection, which was comprised of indicators of relational victimization, school connectedness, and paternal acceptance in a high-risk sample of adolescents who were all

in the eighth grade at the time of data collection. In Study 2, PC (i.e., the belief that other's expect one to be perfect, MPS-HF; Hewitt & Flett, 1991b) was associated with greater adolescent reported-anxiety through a latent variable of social disconnection, comprised of indicators of subjective loneliness, relational victimization, school connectedness, and paternal warmth in a diverse community sample of adolescents who ranged in age from 13 to 19 years.

The finding that the indirect pathway linking PC to anxiety via social disconnection was replicated across two very different samples using two different indicators of PC, and different indicators of social disconnection, is strong evidence in support of the PSDM in adolescence. This indirect pathway suggests that individuals who experience higher levels of PC (i.e., perceived discrepancy between one's actual self and one's high standards, preoccupation with other's evaluations, beliefs that others expect one to be perfect, inability to experience joy from successes) are linked to negative perceptions of their social standing and feelings of alienation at multiple levels, which; in turn, leaves them vulnerable to experiencing symptoms of anxiety. As such, PC appears to be wholly maladaptive in that it impairs vital social relationships. Interestingly, the present research suggests that the well-documented link between PC and anxiety (see Burgess & DiBartolo, 2016) is almost entirely accounted for by social disconnection, given that the direct effects between PC and anxiety dissipated once the latent social disconnection variable was included in the analyses, offering strong support for the PSDM (Hewitt et al., 2006) as an etiological model linking trait perfectionism to psychological distress.

With respect to PS, the findings between Study 1 and Study 2 are somewhat inconsistent. Whereas PS was positively associated with adolescent-reported anxiety at the bivariate level in Study 2, the residual direct link that emerged linking PS to adolescent-reported anxiety in Study 1, was not replicated in Study 2. Interestingly, when covariates (i.e., ES, C) were removed from

analyses in Study 2, the residual direct effect emerged linking PS to anxiety. There are two

potential explanations for this discrepancy, the first of which could be the use of different

indicators of PS between Study 1 and in Study 2. In Study 1, PS was assessed using the high

standards subscale of APS-R (Slaney et al., 2001) whereas in Study 2 PS was assessed using the

self-oriented perfectionism subscale of the CAPS (Flett et al., 2001). Despite similarities, there

are conceptual differences between PS as assessed by the APS-R and MPS-HF, namely that the

word "perfect" does not appear in any of the APS-R items. Indeed, Hewitt and Flett (2014)

suggest that the high standards subscale of the APS-R may assess a form of self-directed

excellence striving rather than the extreme and relentless striving for perfection characterized by

self-oriented perfectionism as assessed by the MPS-HF. Indeed, the high standards subscale of

the APS-R is more positively associated with self-esteem than is self-oriented perfectionism

(Slaney et al., 2001). Despite slight conceptual differences, both indicators of PS are highly

correlated with one another (r = .68; Rice et al., 2007).

Interestingly, despite APS-R high standards appearing to be conceptually more adaptive

than MPS-HF self-oriented perfectionism, it was the APS-R high standards subscale which

shared a residual direct association with anxiety symptoms in this study after the effects of PC

and social disconnection were accounted for in the analyses, which leads to the second and more

likely explanation for the differential associations between PS and anxiety in Study 1 and Study

2 – namely, the inclusion of higher-order personality covariates. More specifically, there is a

theoretical link between PS and the personality traits of conscientiousness and neuroticism, such

that individuals who compulsively strive to achieve perfection are characterized by a strong

desire to perform well (conceptually related to conscientiousness) and by heightened sensitivity,

fear, worry and frustrations (conceptually related to neuroticism; e.g., Hewitt et al., 2017;

Horney, 1950). Indeed, there are similar empirical links between PS and neuroticism, and neuroticism and anxiety (e.g., Enns, Cox & Clara, 2005; Smith et al., 2016) and between PS and conscientiousness, and conscientiousness and protective health factors (e.g., Kern & Friedman, 2011). Whereas the link between PS and anxiety is unclear in the extant literature, with some studies finding a positive relationship (e.g., Stoeber, 1998) and others finding no relationship (e.g., Flett et al. 1994), it seems possible that the overlap between PS and the higher order personality traits of neuroticism and conscientiousness could account for some of the discrepancies in existing literature regarding association between PS and adaptive versus maladaptive outcomes as differences in the inclusion of covariates could lead to false positive findings. The findings of this program of research in particular suggest that it could be shared variance between PS and neuroticism which account for the inconsistent significant findings regarding PS and anxiety, such that supposed links between PS and anxiety may be accounted for by overlap with higher-order neuroticism. Indeed, in a study by Enns, Cox and Clara (2008) PS was found to provide no incremental validity over higher-order neuroticism when predicting psychological distress in university students, further suggesting that it is likely an overlap with neuroticism, and whether neuroticism is included as a covariate in analyses, that accounts for the often discrepant findings relating PS to psychological distress. Broadly, the discrepancies between results with and without covariates in Study 2 highlight the importance of including higher-order personality traits into analyses when considering lower-order personality vulnerabilities. More specifically, future studies examining the relationship between PS and indicators of psychological distress such as anxiety should include emotional stability and conscientiousness as covariate to avoid the possibility of false positive findings and to elucidate

whether it is indeed shared variance with emotional stability which may account for the links between PS and anxiety.

Similarly, there were notable differences in the relationships between PS and indicators of social functioning between Study 1 and Study 2. In Study 1, PS appeared to exhibit protective functions, such that it was positively related to school connection and parental acceptance and negatively related to relational victimization. In contrast, PS appeared maladaptive in Study 2 such that it was associated with greater relational victimization and social disconnection, and less school connection and parental warmth. As discussed above, it is possible that these discrepancies are due to differences in the measurement of PS between Study 1 and Study 2. As such, it is possible that PS as assessed by the APS-R (Slaney et al., 2001) reflects a form of excellence striving that may be more adaptive, whereas PS as assessed by the MPS-HF (Hewitt & Flett, 1991b) may reflect a form of self-directed perfectionism wherein the relative adaptiveness is less clear (Enns, Cox, & Clara, 2005; Miller & Vaillancourt, 2007). Gnilka et al., (2012) suggest that whereas PC is clearly maladaptive, PS may be more tangential to the experience of distress, such that it is only distress under particular circumstances such when perceives a high discrepancy between one's current and ideal self. As such, it is also possible that PC may even moderate the relationship between PS and outcomes related to psychological distress.

Implications

Perfectionism Social Disconnection Model (Hewitt et al., 2006). The current study has significant theoretical implications, namely in that it offers support for the PSDM (Hewitt et al., 2006). It is well documented that human beings have a deep need for close social relationships and when those relationships are thwarted, there are deleterious effects on mental health and

well-being (Baumeister & Leary, 1995). In particular, the importance of social connection

burgeons during adolescence as relationships with parents, peers, and school communities

become the most determining developmental factors (e.g., Helsen, Vollebergh, & Meehus,

2000). Moreover, most psychological disorders emerge during adolescence, with anxiety being

the most common (Pearson, Janz, & Ali, 2013). Although a wealth of research demonstrates that

trait perfectionism is associated with both poor social relationships and numerous forms of

psychopathology (e.g., Sherry, MacKinnon, & Gautreau, 2015) in adults, there exists only a

small body of literature on this relationship in youth. The PSDM (Hewitt et al., 2006) suggests

that PC is the primary dimension of trait perfectionism that generates interpersonal difficulties,

and subsequently psychological distress. The present study offers support for the PSDM in

adolescents through results indicating that social disconnection acts as an explanatory pathway

linking PC to anxiety symptoms in adolescents in two disparate samples. Indeed, previous

literature suggests that those higher in PC create social disconnection through interpersonal

hostility in response to perceived criticism and through neediness or overdependence on others

(Habke & Flynn, 2002; Sherry, MacKinnon, & Gautreau, 2015). Through these maladaptive

social behaviors and subsequently impaired social relationships, adolescents high in PC are more

vulnerable to experiencing anxiety than those without these concerns.

The PSDM differentiates subjective social disconnection (i.e., loneliness) from objective

social disconnection (i.e., impaired relationships), but suggests that both contribute to

psychological distress. The findings of the present study found that social disconnection,

comprised of both subjective indicators (i.e., loneliness and social dissatisfaction, perception of

parental support) and objective indicators (i.e., relational victimization, school connectedness)

acts as an explanatory pathway linking PC to anxiety in adolescents. Whereas previous studies

have primarily supported this pathway with depression, the present study highlights that the PSDM (Hewitt et al., 2006) holds true with anxiety as well, suggesting that social disconnection may mediate the relationship between PC and psychopathology more broadly given the high comorbidity between depression and anxiety that is robustly documented in existing research (e.g., Seligman & Ollendick, 1998).

Moreover, revisions to the PSDM (e.g., Sherry, MacKinnon, & Gautreau, 2015) suggest that PS also generates social disconnection through a tendency to privilege goal achievement over social relationships. The present study finds mixed results relating to PS, suggesting striving to meet certain standards may differentially impact social relationships depending on if one is striving for "excellence" wherein PS appears linked with social connection (i.e., APS-R; Slaney et al., 2001) versus "perfection" where PS facilitates social disconnection (MPS-HF; Hewitt & Flett, 1991a,b). Indeed, in Study 1 PS appeared to have a protective function such that it was related to fewer anxiety symptoms via less social disconnection. Moreover, whereas the general pattern of Study 1 and Study 2 suggest that PS may be weakly associated with anxiety in adolescents, the lack of significant relationships between PS and anxiety once covariates such as emotional stability were included in analyses suggest that findings linking PS to anxiety may be confounded by shared variance with neuroticism, which itself is a well-documented higher-order vulnerability factor for anxiety symptomology and disorders (e.g., Paulhus et al., 2016; Zinbarg et al., 2016). Overall, the findings of the current study offer support for the original conceptualization of the PSDM (Hewitt et al., 2006) as a personality-dependent etiological pathway, linking PC to anxiety through social disconnection in adolescents.

False positives. The current study highlights the importance of conducting analyses with and without covariates in two ways. First, in Study 1 there appeared to be a significant effect of

PS on mother-reported anxiety until maternal depression was included in analyses. Second, in Study 2 there appeared to be a significant effect of PS on adolescent-reported anxiety until emotional stability was included in analyses. As suggested by Simmons, Nelson, and Simonsohn (2011) the inclusion of covariates, alongside reporting the results of analyses both with and without covariates, reduces the potential for false positives findings and allows researchers to gain a clearer understanding of significant effects. As illustrated by the subtle differences in analyses with and without covariates in Study 1 and Study 1, presenting any discrepancies between analyses allows for a clearer understanding of true effects versus through may be emerging through common variance shared with third variables. Moreover, presenting any discrepancies between analyses with and without covariates allow for transparency and ethical research practice (Simmons, Nelson, & Simonshon, 2011).

Depression-distortion hypothesis. The findings of Study 1, whereby the link between trait perfectionism and mother-reported anxiety appear to be accounted for by maternal depression, offers support for the depression-distortion hypothesis (Ritchers & Pelligrini, 1989). This hypothesis suggests that perceptual distortions associated with depression activate a bias in mothers' perceptions of their children's thoughts and behaviours, which leads to an over-reporting of symptoms of psychopathology (e.g., Treulter & Epkins, 2003). A substantial body of research suggests discrepancies across informant ratings of youth psychopathology, particularly when comparing maternal ratings to those of other informants (see De Los, Reyes & Kazdin, 2005 for a review). Notably, in a multi-informant study of child adjustment problems, Gartstein et al. (2014) found that maternal depression was associated with distortions in reporting child adjustment problems, particularly internalizing problems. This finding was recently replicated by Kelley et al. (2018), where mothers' ratings of their children's internalizing symptoms were

largely accounted for maternal psychopathology; interestingly, fathers' levels of psychopathology were less related to their reports of child psychopathology. In light of the present findings and existing research, it is possible that maternal report of internalizing symptoms may be a less helpful indicator of adolescent anxiety than is self-report, particularly in adolescents with depressed mothers.

Clinical applications. Given that social disconnection emerged as an explanatory pathway linking PC to anxiety in both Study 1 and Study 2, there are significant clinical implications for the treatment of perfectionism and anxiety. Namely, the link between PC and anxiety appears to be primarily explained through impaired social functioning. As such, interventions aimed at ameliorating psychological distress, particularly anxiety, amongst adolescents experiencing high levels of PC should include social factors. Although there have been strides in treating perfectionism (see Flett & Hewitt, 2014), it should also be noted that trait perfectionism is often a temperamental disposition which can be resistant to treatment (Stoeber, 2004) and more concerning, individuals with higher levels of PC are unlikely to seek treatment due to fears of being perceived as a failure (Flett & Hewitt, 2014; Flett et al., 2016).

Given that individuals with higher levels of PC are disproportionately focused on their limitations and perceived flaws, some researchers have suggested that interventions should utilize a positive psychology framework and focus on developing useful competencies in youth with higher levels of PC rather than attempting explicitly to reduce perfectionistic tendencies or maladaptive cognitions (Flett & Hewitt, 2014; Guerra & Bradshaw, 2008). Indeed, facilitating social competencies would be beneficial to youth experiencing high levels of PC through limiting the self-focused attention characteristic of trait perfectionism and instead placing a focus on facilitating social connection, in line with a positive youth development approach (Guerra &

Bradshaw, 2008). Moreover, given that perfectionistic youth appear to feel alienated it would be beneficial for interventions to provide information about the prevalence of perfectionism amongst youth so that individuals struggling with PC can recognize that they are not alone. Finally, Flett and Hewitt (2014) suggest that moderated online discussion could be a beneficial way for perfectionistic youth to seek help anonymously and without judgment, while also developing social connections; individuals with high levels of PC are preoccupied with others' evaluations and often perceive asking for help as a sign of failure, as such an anonymous platform may serve as a less threatening means to not only express a need for help, but also to develop social connections with other young people experiencing similar concerns.

Despite a trend towards focusing on positive youth development, recent reviews of loneliness interventions by Mann et al. (2017) and Masi et al., (2013) found that interventions aimed at reducing maladaptive social cognitions were most successful in reducing loneliness and facilitating healthy social connection in adults, whereas interventions aimed at developing social skills demonstrated moderate success. It is possible that developing positive social skills may be more difficult late in adulthood when social behaviors have already developed, and as such interventions targeted towards youth may still benefit from attempting to facilitate social skills and competences. Future intervention research may consider combining a positive youth development framework aimed at building social skills alongside more traditional cognitive behavioural strategies aimed at reducing maladaptive social cognitions.

Strengths and Limitations

Limitations. This program of research is not without limitations, the foremost of which is the cross-sectional design. Given that the proposed predictor, mediator, and outcome variables were all assessed at one time point it is difficult to establish temporal precedence. As such, this

program of research relies on a theoretical temporal order proposed in the PSDM (Hewitt et al., 2006) alongside findings of previous longitudinal research (e.g., Chen, Hewitt, & Flett, 2015; Roxborough et al., 2012; Sherry et al., 2013) to establish the direction of effect stemming from trait perfectionism to anxiety through social disconnection. The need for longitudinal research to establish temporal precedence is crucial, particularly in light of theory and research suggesting a social reaction model of perfectionism (e.g., Flett et al., 2012). In this model, PC is hypothesized to develop in response to aversive social experiences, such as peer victimization, and psychological distress as individuals respond by becoming perfectionistic and overly concerned with others' evaluations (Flett et al., 2012; Vaillancourt & Haltigan, 2017). Put differently, perfectionistic tendencies may develop as a means to reduce future victimization and associated psychological distress. There is some empirical support for the social reaction model of perfectionism; Vaillancourt and Haltigan (2017) found evidence for a developmental trajectory in which depressive symptoms predicted increases in PC during adolescence. Moreover, they found that self-reported childhood peer victimization and anxiety distinguished adolescents in an increasing depression-increasing PC trajectory from those in a low depression-low PC developmental trajectory (Vaillanourt & Haltigan, 2017). As such, it is important to examine the PSDM longitudinally to elucidate the temporal ordering and to uncover whether reciprocal relationships between model variables may be occurring.

A further limitation of this program of research is that data was primarily self-report, with the exception of mother-reported anxiety in Study 1. A limitation of self-report data is that participants may engage in image management, acquiescent responding, or may simply lack the introspective ability to provide accurate responses (e.g., Paulhus & Vazire, 2007). Although given that this study focused primarily on personality and perceived relationships, the data is less

likely to be subject to image management than those which contain conceptually sensitive questions (e.g., drug or alcohol use, sexual behaviors; Paulhus & Vazire, 2007). Moreover, most measures included in this program of research include a range of regular and reverse scored items to reduce the potential for acquiescent responding. Finally, the lack of significant effects for mother-reported anxiety in Study 1, alongside evidence suggesting that other-ratings of internalizing symptoms can be somewhat unreliable (e.g., Gartstein et al., 2014; Kelley et al., 2018) together suggest that the use of self-report may not be a major drawback in this program of research. Despite the use of two different samples, both samples were fairly small which not only limits statistical power to detect significant effects, but could also reduce the likelihood that the significant effects detected reflect authentic real-world effects (Button et al., 2013). Similarly, due to a small sample sizes, gender-based analyses were not conducted given that there was insufficient statistical power to detect group-based differences. As such, it is unclear whether the conceptual model functions differently for girls and boys. Finally, both samples were fairly homogeneous, as most participants were Caucasian, and as such discretion should be used when attempting to generalize the findings of these studies to more ethnically diverse samples in light of research suggesting that the use of predominantly Caucasian participants can distort results and mask important cultural differences, even when race, culture and/or ethnicity are not a central research focus (e.g., Sugden & Molson, 2015).

Strengths. Despite these limitations, a significant strength of this program of research is that the conceptual models presented in Figures 1 and 2 were replicated across two different samples, using different indicators of perfectionism and social disconnection. Indeed, this program of research utilized two very different samples, the first of which was a high-risk sample of American youth and the second of which was a community sample of Canadian youth.

Moreover, this effect replicated across studies despite the use of different indicators of PC between Study 1 and Study 2, and different indicators of social disconnection. The replication of the indirect path linking PC to anxiety via social disconnection across Study 1 and Study 2 offers robust evidence in support of the PSDM among adolescents. Finally, by including a latent variable for social disconnection rather than using a single indicator of social impairment and/or considering social relationship measures in isolation as in previous studies, this program of research captures the aspects of social disconnection that are common across social variables and reduces the potential for significant pathways to emerge as a product of measurement bias. Moreover, using a latent variable uniquely accounts for measurement error and as such reflects only the common, reliable variance between indicators of social disconnection.

Future Research

Though the present study adds to the literature in that it supports the PSDM (Hewitt et al., 2006) in adolescents, there are several areas for future research to build upon. First and foremost, is that longitudinal research is needed to establish the temporal order of the PSDM, and to determine whether the relationships between trait perfectionism, social disconnection, and anxiety replicate over time. Moreover, given that this program of research utilized primarily self-report measures, future research may benefit from the inclusion of other-report measures, particularly on social disconnection variables. As previously discussed, other-report may not be necessary for outcome variables if researchers are interested in internalizing symptoms, but would be of great benefit when assessing objective social disconnection. Although relational victimization and school connectedness conceptually represent objective forms of social connection, the self-report nature of the measures still heavily relies on subjective perceptions. Collecting peer-reports of popularity or relational victimization would allow researchers to

elucidate whether subjective perceptions of social disconnection align with objective reports, and these are differentially related to perfectionism and anxiety. Moreover, future studies should seek to include behavioral indices of perfectionism, such as perfectionistic self-presentation, in light of research demonstrating that trait and behvioural indices of perfectionism are unique constructs (e.g., Hewitt et al., 2003) and previous research suggesting that perfectionistic self-presentation is uniquely associated with social disconnection over and above trait dimensions of perfectionism (e.g., Chen et al., 2012). Given that behavioural expressions of perfectionism are more observable to others, it is likely that perfectionistic self-presentation would be particularly relevant when examining the impact of perfectionism dimensions on social relationships, and would allow for a more nuanced test of the PSDM.

Given the mixed findings regarding the relationship between PS and anxiety, future studies may consider alternate explanatory pathways linking PS to anxiety. Some studies have found that stress may act as a mediator linking PS to poor psychological and physical health in both generate and reactive forms (e.g., Flett et al., 1995; Molnar et al., 2011). According to Diathesis-Stress Models of Perfectionism (Dunkley, Solomon-Krakus, & Moroz, 2016; Hewitt & Flett, 2002) individuals with higher levels of PS may generate stress through feelings of pressure to achieve perfection and may react more negatively to stressful life events which are perceived as impeding one's ability to meet these high standards. Indeed, previous research supports this contention as several students have uncovered stress as a mediator between PS and numerous maladaptive outcomes. For example, Chang and colleagues (2006) found that perceived stress mediated the relationship between PS and poor psychological well-being in female college students. Similarly, Shahar and Priel (2003) found that negative life events mediated the relationships between PS and distress longitudinally in a sample of Israli adolescents. As such,

stress generation and reactivity may act as a more fitting explanatory pathway linking intra-personal PS to anxiety than social disconnection, which appears to be more relevant to the inter-personal dimension of PC. Moreover, future research may consider in which instances PS may serve adaptive functions, and whether these adaptive functions differ based on whether one is striving for "excellence" versus "perfection."

In a similar vein, future research should include personality-independent moderators when examining the PSDM (Hewitt et al., 2006) to elucidate when and in which circumstances individuals with high levels of PC may be particularly vulnerable to psychological distress (Sherry et al., 2015). While individuals with PC theoretically generate interpersonal problems, they are, like anyone, susceptible to arbitrary social problems that arise outside of their control (e.g., a close friend moving away) and independent of trait perfectionism. Indeed, such types of personality-independent life stressors have been proposed to moderate the relationships between trait perfectionism, social disconnection and psychological distress (Sherry et al., 2015) as individuals high in PC may react more negatively to social stressors in light of their already strained social relationships, thus heightening vulnerability to psychopathology. Inclusion of personality-independent mediators such as life stressors would allow for the integration of the PSDM (Hewitt et al., 2006) with the diathesis-stress model of psychological distress to provide a more nuanced understanding of how some perfectionists arrive at impaired psychological health (Sherry et al., 2015). Indeed, utilizing methodologies such as daily-diary studies, which could capture fluctuations in daily stress and exposure to stressors, would be beneficial to understand how current life circumstances may interact with personality and psychological distress.

Finally, given that both dimensions of trait perfectionism appear to be maladaptive in youth, future research should be directed towards elucidating potential explanations for the

developmental and/or generational differences in trait perfectionism. A recent meta-analysis by Curran and Hill (2017) suggests that both PS and PC have seen linear increases amongst young people over the last 30 years, and as such one potential explanation for the discrepancies between adult and youth perfectionism literature, particularly regarding the relative adaptiveness of PS, could be due to generational differences in the prevalence of perfectionistic tendencies and the cultural milieu in which young people are presently embedded. It is clear that further research is needed to elucidate how and why dimensions of trait perfectionism, particularly PS, appear to be more consistently maladaptive in adolescents. In particular, attention should be paid not only to developmental differences between youth and adults, but also to how cultural and/or environmental influences may exacerbate the maladaptive dimensions of perfectionism amongst young people.

Conclusions

The current study suggests that PC acts as a vulnerability factor for anxiety in adolescents, given that PC was related to anxiety symptomology in both Study 1 and Study 2. Moreover, this program of research offers robust support for the PSDM (Hewitt et al., 2006) in adolescents. Specifically, despite the use of two vastly different samples, different measures of perfectionism and different indicators of social disconnection an indirect pathway from PC to anxiety via social disconnection replicated across studies. Indeed, the link between PC and anxiety appears to be almost entirely accounted for by a pervasive form of social disconnection, apparent across numerous domains of subjective (i.e., loneliness) and objective social functioning (i.e., relational victimization, school connectedness, quality of parental relationships). Interventions aimed at ameliorating distress amongst perfectionistic youth should aim to reduce maladaptive social cognitions and facilitate healthy social relationships given the

important role that social disconnection at both the subjective and objective level appears to play in leaving perfectionistic youth vulnerable to psychological distress. Interestingly, the link between PS and anxiety remains somewhat unclear given that social disconnection did not emerge as an explanatory pathway in the expected direction, but rather linked PS to less anxiety via less social disconnection in Study 1 (Slaney et al., 2001). Moreover, alternative explanatory pathways linking PS to anxiety, such as stress generation and reactivity, should be explored by future research given the residual effect between higher PS and greater anxiety in Study 1. Indeed, attention should be given to the potentially dual roles PS may play in contributing to anxiety. Finally, this program of research reveals that perfectionistic tendencies, particularly amongst youth, are largely destructive. Given the alarming prevalence of maladaptive aspects of trait perfectionism amongst young people and in light of research suggesting that perfectionism is on the rise in youth (Curran & Hill, 2017), urgent and targeted efforts are needed to better understand how perfectionism develops and how to best treat it.

References

Alden, L. E., Ryder, A. G., & Mellings, T. (2002). Perfectionism in the context of social fears: Toward a two-component model. In Flett, Gordon L. & Hewitt, Paul L. (Eds). *Perfectionism: Theory, research, and treatment*. Washington, DC, US: American Psychological Association

Anthony, J. C., Warner, L. A., & Kessler, R. C. (1994). Comparative epidemiology of dependence on tobacco, alcohol, controlled substances, and inhalants: basic findings from the National Comorbidity Survey. *Experimental and clinical psychopharmacology*, *2*(3), 244-268.

Ashby, J. S., & Rice, K. G. (2002). Perfectionism, Dysfunctional Attitudes, and Self-Esteem: A Structural Equations Analysis. *Journal Of Counseling & Development*, *80*(2), 197-203.

Asher, S., Hymel, S., & Renshaw, P. D. (1984). Loneliness in children. *Child Development*, *55*, 1456-1464.

Asher, S. R., & Wheeler, V. A. (1985). Children's loneliness: A comparison of rejected and neglected peer status. *Journal of Consulting and Clinical Psychology, 53*(4), 500-505.

Bagner, D. M., Storch, E. A., & Roberti, J. W. (2004). A factor analytic study of the Loneliness and Social Dissatisfaction Scale in sample of African-American and Hispanic-American children. *Child Psychiatry and Human Development, 34*, 237–250.

Bardone-Cone, A. M., Wonderlich, S. A., Frost, R. O., Bulik, C. M., Mitchell, J. E., Uppala, S., & Simonich, H. (2007). Perfectionism and eating disorders: Current status and future directions. *Clinical Psychology Review, 27,* 384-405. doi:10.1016/j.cpr.2006.12.005

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York : International

Universities Press

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: psychometric properties. *Journal of consulting and clinical psychology*, *56*(6), 893.

Bergman, A. J., Nyland, J. E., & Burns, L. R. (2007). Correlates with perfectionism and the utility of a dual process model. *Personality and Individual Differences*, *43*(2), 389-399.

Berndt, T. J., & Keefe, K. (1995). Friends' influence on adolescents' adjustment to school. *Child Development*, *66*(5), 1312-1329. doi: 10.1111/j.1467-8624.1995.tb00937.x

Besser, A., Flett, G. L., & Hewitt, P. L. (2004). Perfectionism, cognition, and affect in response to performance failure vs. success. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *22*(4), 297-324.

Bieling, P. J., Israeli, A. L., & Anthony, M. M. (2004). Is perfectionism good, bad, or both? Examining models of the perfectionism construct. *Personality and Individual Differences, 36, 1*373-1385. doi: 10.1016/S0191-8869(03)00235-6

Blatt, S. J. (1995). The destructiveness of perfectionism: implications for the treatment of depression. *The American Psychologist*, *50*(12), 1003-1020. doi:10.1037/0003-066X.50.12.1003

Boak, A., Hamilton, H. A., Adlaf, E. M., & Mann, R. E., (2015). Drug use among Ontario students, 1977-2015: Detailed OSDUHS findings (CAMH Research Document Series No. 41). Toronto, ON: Centre for Addiction and Mental Health.

Bond, L., Butler, H., Thomas, L., Carlin, J., Glover, S., Bowes, G., & Patton, G. (2007). Social and school connectedness in early secondary school as predictors of late teenage substance use, mental health, and academic outcomes. *Journal of Adolescent Health*, *40*(4), 357-372.

Brown, E. J., Heimberg, R. G., Frost, R. O., Makris, G. S., Juster, H. R., & Leung, A. W. (1999). Relationship of perfectionism to affect, expectations, attributions and performance in the classroom. *Journal of Social and Clinical Psychology*, *18*(1), 98-120. doi: 10.1521/jscp.1999.18.1.98

Burgess, A., & DiBartolo, P. M. (2016). Anxiety and perfectionism: Relationships, mechanisms, and conditions. In F. M. Sirois & D. S. Molnar (Eds.), *Perfectionism, health, and well-being*. New York, NY: Springer Publishing

Button, K. S., Ioannidis, J. P., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S., & Munafò, M. R. (2013). Power failure: why small sample size undermines the reliability of neuroscience. *Nature Reviews Neuroscience*, *14*(5), 365-376.

Carballo, J. J., Muñoz-Lorenzo, L., Blasco-Fontecilla, H., Lopez-Castroman, J., García-Nieto, R., Dervic, K., ... & Baca-García, E. (2011). Continuity of depressive disorders from childhood and adolescence to adulthood: a naturalistic study in community mental health centers. *The Primary Care Companion to CNS Disorders*, *13*(5).

Casale, S., Fioravanti, G., Flett, G. L., & Hewitt, P. L. (2014). From socially prescribed perfectionism to problematic use of internet communicative services: The mediating roles of perceived social support and the fear of negative evaluation. *Addictive Behaviors*, *39*(12), 1816-1822. doi: 10.1016/j.addbeh.2014.06.006

Chang, E. C., Sanna, L. J., Chang, R., & Bodem, M. R. (2008). A preliminary look at loneliness as a moderator of the link between perfectionism and depressive and anxious symptoms in college students: Does being lonely make perfectionistic strivings more distressing?. *Behaviour Research and Therapy*, *46*(7), 877-886. doi: 10.1016/j.brat.2008.03.012

Chen, C., Hewitt, P.L., & Flett, G.L. (2015). Preoccupied attachment, need to belong, shame, and interpersonal perfectionism: An investigation of the Perfectionism Social Disconnection Model. *Personality and Individual Differences*, *76*, 177-182.

Chen, C., Hewitt, P. L., Flett, G. L., Cassels, T. G., Birch, S., & Blasberg, J. S. (2012). Insecure attachment, perfectionistic self-presentation, and social disconnection in adolescents. *Personality And Individual Differences*, *52*(8), 936-941. doi:10.1016/j.paid.2012.02.009

Cox, B. J., Clara, I. P., & Enns, M. W. (2009). Self-criticism, maladaptive perfectionism, and depression symptoms in a community sample: A longitudinal test of the mediating effects of person-dependent stressful life events. *Journal of Cognitive Psychotherapy, 23*, 336-349. doi:10.1891/0889 8391.23.4.330

Crick, N. R., & Grotpeter, J. K. (1996). Children's treatment by peers: Victims of relational and overt aggression. *Development and Psychopathology*, *8*, 367–380.

Curran, T., & Hill, A. P. (2017). Perfectionism Is Increasing Over Time: A Meta-Analysis of Birth Cohort Differences From 1989 to 2016. *Psychological Bulletin,* advance online publication.

De Los Reyes, A., & Kazdin A. E. (2005) Informant discrepancies in the assessment of

childhood psychopathology: A critical review, theoretical framework, and

recommendations for further study. *Psychological Bulletin, 20*(131), 483–509. doi:

10.1037/0033-

Desjardins, T., Thompson, R. S. Y., Sukhawathanakul, P., Leadbeater, S., & MacDonald, W. S.

(2013). Factor structure of the Social Experience Questionnaire across time, sex, gender

and grade among early elementary school children. *Psychological Assessment, 25*(4),

1058-1068. doi: 10.1037/a0033006

Dunkley, D. M., Solomon-Krakus, S., & Moroz, M. (2016). Personal standards and self-critical

perfectionism and distress: Stress, coping, and perceived social support as mediators and

moderators. In *Perfectionism, health, and well-being* (pp. 157-176). Springer, Cham.

Edens, S. L. (2006). The impact of school Connectedness on high school

students' academic achievement. Portland State University,

Counselor Education, School Counseling Specialization, School Counseling in Action,

Intern Projects, 2006. Website: http//www.ed.pdx.edu/coun/sca.htm.

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

clinical review. *Clinical Psychology Review*, *31*(2), 203-212. doi: 10.1016/S0272-

7358(00)00072-6

Eiden, R. D., Edwards, E. P., & Leonard, K. E. (2007). A conceptual model for the development

of externalizing behavior problems among kindergarten children of alcoholic families:

role of parenting and children's self-regulation. *Developmental psychology*, *43*(5), 1187-

1201.

Eisenberger, N. I. (2012). The pain of social disconnection: examining the shared neural underpinnings of physical and social pain. *Nature Reviews Neuroscience*, *13*(6), 421-434.

Ellis, A. (2002). The role of irrational beliefs in perfectionism. In In G. L. Flett, & P. L. Hewitt (Eds.), *Perfectionism: theory, research, and treatment* (pp. 217- 229). Washington, DC: American Psychological Association.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, *12*(4), 1143-1168. doi: 10.1111/j.1083-6101.2007.00367.x

Endler, N. S., Edwards, J. M., & Vitelli, R. (1991). *Endler multidimensional anxiety scales (EMAS)*. Los Angeles, CA: Western Psychological Services.

Enns, M. W., & Cox, B. J. (2002). The nature and assessment of perfectionism: A critical analysis. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism* (pp. 33-62). Washington, DC: American Psychological Association.

Field, A. P. (2009). *Discovering statistics using SPSS: (and sex and drugs and rock 'n' roll)*. (OKS Print.) Los Angeles, CA: SAGE Publications

Flett, G. L., Coulter, L. M., & Hewitt, P. L. (2012). The Perfectionistic Self-Presentation Scale–Junior Form: Psychometric properties and association with social anxiety in early adolescents. *Canadian Journal of School Psychology*, *27*(2), 136-149.

Flett, G. L., Coulter, L. M., Hewitt, P. L., & Nepon, T. (2011). Perfectionism, rumination, worry, and depressive symptoms in early adolescents. *Canadian Journal of School Psychology*, *26*(3), 159-176.

Flett, G. L., Endler, N. S., Tassone, C., & Hewitt, P. L. (1994). Perfectionism and components of state and trait anxiety. *Current Psychology*, *13*(4), 326-350.

Flett, G. L., Greene, A., & Hewitt, P. L. (2004). Dimensions of perfectionism and anxiety sensitivity. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *22*(1), 39-57. doi: 10.1023/B:JORE.0000011576.18538.8e

Flett, G. L., & Hewitt, P. L. (2014). A proposed framework for preventing perfectionism and promoting resilience and mental health among vulnerable children and adolescents. *Psychology in the Schools*, *51*(9), 899-912.

Flett, G. & Hewitt, P. (2015). Measures of perfectionism. In G. Boyle, D. H. Saklofske, & G. Matthews (Eds.), *Meausres of personality and social psychological constructs* (pp. 595-618). Cambridge, MA: Academic Press.

Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology*, *75*, 1363–1381.

Flett, G. L., Hewitt, P. L., Besser, A., Su, C., Vaillancourt, T., Boucher, D., ... & Gale, O. (2016). The Child–Adolescent Perfectionism Scale: Development, psychometric properties, and associations with stress, distress, and psychiatric symptoms. *Journal of Psychoeducational Assessment*, *34*(7), 1-19.

Flett, G. L., Hewitt, P. L., Boucher, D., Davidson, L., & Munro, Y. (2001). The Child-Adolescent Perfectionism Scale: Development, validation, and association with adjustment. Unpublished manuscript.

Flett, G. L., Hewitt, P. L., & Heisel, M. J. (2014). The destructiveness of perfectionism revisited: Implications for the assessment of suicide risk and the prevention of suicide. *Review of General Psychology*, *18*(3), 156-172.

Flett, G. L., Mara, C. A. M., Hewitt, P. L., Sirois, F., Molnar, D. S. (2016). How should

    discrepancy be assessed in perfectionism research? A psychometric analysis and

    proposed refinement of the Almost-Perfect Scale-Revised. *Journal of*

    Psychoeducational Assessment, 37(7), 718-732. doi: 10.1177/0734282916651382

Freud, S. (1959). Inhibitions, symptoms, and anxiety. In J. Strachey (Ed. And Trans.), *The*

    standard edition of the complete psychological works of Sigmund Freud (Vol. 20, pp. 77-

    172). London: Hogarth Press. (Original work published 1926).

Frost, R.O. & DiBartolo, P. (2002). Perfectionism, anxiety and obsessive compulsive disorder. In

    G. Flett and P. Hewitt (Eds.). *Perfectionism: Theory, Research, and Treatment.* American

    Psychological Association Press.

Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison

    of two measures of perfectionism. *Personality and individual differences*, *14*(1), 119-126.

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

    perfectionism. *Cognitive Therapy and Research*, *14*(5), 449-468. doi:

    10.1007/BF01172967

Fry, P. S., & Debats, D. L. (2009). Perfectionism and the five-factor personality traits as

    predictors of mortality in older adults. *Journal of Health Psychology*, *14*(4), 513-524.

Gartstein M. A., Bridgett, D. J., Dishion, T. J., & Kaufman, N., K. (2009). Depressed mood and

    maternal report of child behavior problems: Another look at the depression–distortion

    hypothesis. *Journal of Applied Developmental Psychology*, *30,* 149–160. doi:

    10.1016/j.appdev.2008.12.001

Gilman, R., Rice, K. G., & Carboni, I. (2014). Perfectionism, perspective taking, and social
connection in adolescents. *Psychology in the Schools*, *51*(9), 947-959. doi:
10.1002/pits.21793

Gnilka, P. B., Ashby, J. S., & Noble, C. M. (2012). Multidimensional perfectionism and anxiety:
Differences among individuals with perfectionism and tests of a coping-mediation
model. *Journal of Counseling & Development*, *90*(4), 427-436. doi: 10.1002/j.1556-
6676.2012.00054.x

Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A Very Brief Measure of the Big
Five Personality Domains. *Journal of Research in Personality, 37, 504-528.*

Government of Canada (2006). *The human face of mental health and mental illness in Canada*.
Ottawa: Minister of Public Works and Government Services Canada.

Graybill, D., & Gabel, H. (1978). Factor analysis of the children's reports of parental behavior
inventory: A replication for preadolescents. *Psychological Reports*, *42*(3), 953-954.

Habke, A. M., & Flynn, C. A. (2002). Interpersonal aspects of trait perfectionism. In G. L. Flett
& P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 151-180).
Washington, DC: American Psychological Association. doi:10.1037/10458-006

Hair, J. F. Jr., Anderson, R. E., Tatham, R. L. & Black, W. C. (1995). *Multivariate data analysis*
(3rd ed.). New York, NY: Macmillan.

Hamachek, D. E. (1978). *Encounters with the self*. New York : Holt, Rinehart and Winston

Hawker, D. S. J., & Boulton, M. J. (2000). Twenty years' research on peer victimization and
psychosocial maladjustment: A meta-analytic review of cross-sectional studies. *Journal
of Child Psychology and Psychiatry and Allied Disciplines, 41*(4), 441-455.

Helsen, M., Vollebergh, W., & Meeus, W. (2000). Social support from parents and friends and emotional problems in adolescence. *Journal of Youth and Adolescence*, *29*(3), 319-335. doi: 10.1023/A:1005147708827

Hewitt, P. L., Blasberg, J. S., Flett, G. L., Besser, A., Sherry, S. B., Caelian, C., ... & Birch, S. (2011). Perfectionistic self-presentation in children and adolescents: Development and validation of the Perfectionistic Self-Presentation Scale—Junior Form. *Psychological Assessment*, *23*(1), 125-142. doi: 10.1037/a0021147.

Hewitt, P. L., Caelian, C. F., Flett, G. L., Sherry, S. B., Collins, L., & Flynn, C. A. (2002). Perfectionism in children: Associations with depression, anxiety, and anger. *Personality and Individual Differences, 32*, 1049-1061

Hewitt, P. L., & Flett, G. L. (1991a). Dimensions of perfectionism in unipolar depression. *Journal of Abnormal Psychology*, *100*(1), 98-101. doi:10.1037/0021-843x.100.1.98

Hewitt, P. L., & Flett, G. L. (1991b). Perfectionism in the self and social contexts: conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60*(3), 456-470. doi:10.1037/0022-3514.60.3.456

Hewitt, P. L., & Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: A test of the specific vulnerability hypothesis. *Journal of abnormal psychology*, *102*(1), 58.

Hewitt, P. L., & Flett, G. L. (2004). *Multidimensional Perfectionism Scale (MPS): Technical manual*. Toronto, Canada: Multi-Health Systems.

Hewitt, P. L., Flett, G. L., Sherry, S. B., & Caelian, C. (2006). Trait Perfectionism Dimensions and Suicidal Behavior. In T. E. Ellis (Ed.) , *Cognition and suicide: Theory, research, and*

therapy (pp. 215-235). Washington, DC, US: American Psychological Association. doi:10.1037/11377-010

Hewitt, P. L., Flett, G. L., & Mikail, S. F. (1995). Perfectionism and relationship adjustment in pain patients and their spouses. *Journal of Family Psychology*, *9*(3), 335.

Hewitt, P. L., Flett, G. L., Sherry, S. B., Habke, M., Parkin, M., Lam, R. W., & ... Stein, M. B. (2003). The Interpersonal Expression of Perfection: Perfectionistic Self-Presentation and Psychological Distress. *Journal Of Personality & Social Psychology*,*84*, 1303-1315. doi:10.1037/0022-3514.84.6.1303

Hewitt, P. L., Flett, G. L., Turnbull-Donovan, W., & Mikail, S. F. (1991). The Multidimensional Perfectionism Scale: Reliability, validity, and psychometric properties in psychiatric samples. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, *3*(3), 464. doi: 10.1037/1040-3590.3.3.464

Hill, R. W., McIntire, K., & Bacharach, V. R. (1997). Perfectionism and the Big Five Factors. *Journal Of Social Behavior and Personality*,*12*(1), 257-270. doi: 10.1207/s15327752jpa6901_5

Horney, K. (1950). *Neurosis and human growth: the struggle toward self-realization.* New York, NY: Norton Publishing.

Hu, L. & Bentler, P.M. (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives, *Structural Equation Modeling: A Multidisciplinary Journal, 6* (1), 1-55.

Kelley, M. L., Bravo, A. J., Hamrick, H. C., Braitman, A. L., White, T. D., & Jenkins, J. (2017). Parents' reports of children's internalizing symptoms: Associations with parents' mental

health symptoms and substance use disorder. *Journal of Child and Family Studies, 26(6),*
1646-1654.

Kessler R C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., ... &
Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric
disorders in the United States: results from the National Comorbidity Survey. *Archives of*
General Psychiatry, *51*(1), 8-19.

Klibert, J. J., Langhinrichsen-Rohling, J., & Saito, M. (2005). Adaptive and maladaptive aspects
of self-oriented versus socially prescribed perfectionism. *Journal of College Student*
Development, *46*(2), 141-156. doi: 10.1353/csd.2005.0017

Lessard, J., Henrie, J., Livingston, J. A., Leonard, K. E., Colder, C. R., & Eiden, R. D. (2014).
Correlates of ever having used electronic cigarettes among older adolescent children of
alcoholic fathers. *Nicotine & Tobacco research*, *16*(12), 1656-1660.

Limburg, K. , Watson, H. J., Hagger, M. S. and Egan, S. J. (2017). The relationship between
perfectionism and psychopathology: A meta‐analysis. *Clinical Psychology, 73*, 1301-
1326.

Mackinnon, S. P., Sherry, S. B., & Pratt, M. W. (2013). The relationship between perfectionism,
agency, and communion: A longitudinal mixed methods analysis. *Journal of Research in*
Personality, *47*(4), 263-271.

Mackinnon, S. P., Sherry, S. B., Antony, M. M., Stewart, S. H., Sherry, D. L., & Hartling, N.
(2012). Caught in a bad romance: Perfectionism, conflict, and depression in romantic
relationships. *Journal of Family Psychology*, *26*(2), 215-225.

Mann, F., Bone, J. K., Lloyd-Evans, B., Frerichs, J., Pinfold, V., Ma, R., ... & Johnson, S.
(2017). A life less lonely: the state of the art in interventions to reduce loneliness in

people with mental health problems. *Social Psychiatry and Psychiatric Epidemiology*, *52*(6), 627-638.

Masi, C. M., Chen, H. Y., Hawkley, L. C., & Cacioppo, J. T. (2011). A meta-analysis of interventions to reduce loneliness. *Personality and Social Psychology Review*, *15*(3), 219-266.

McNeely, C., & Falci, C. (2004). School connectedness and the transition into and out of health-risk behavior among adolescents: A comparison of social belonging and teacher support. *Journal of School Health*, *74*(7), 284-292.

Miller, J. L., & Vaillancourt, T. (2007). Relation between childhood peer victimization and adult perfectionism: Are victims of indirect aggression more perfectionistic? *Aggressive Behavior, 33*(3), 230-241. doi: 10.1002/ab.20183

Miquelon, P., Vallerand, R. J., Grouzet, F. M., & Cardinal, G. (2005). Perfectionism, academic motivation, and psychological adjustment: An integrative model. *Personality and Social Psychology Bulletin*, *31*(7), 913-924.

Molnar, D. S., Reker, D. L., Culp, N. A., Sadava, S. W., & DeCourville, N. H. (2006). A mediated model of perfectionism, affect, and physical health. *Journal of Research in Personality, 40*, 482-500.

Molnar, D. S., Sadava, S. W., Flett, G. L., & Colautti, J. (2012). Perfectionism and health: A mediational analysis of the roles of stress, social support and health-related behaviours. *Psychology and Health, 27,* 846-864. doi:10.1080/08870446.2011.630466

Muthén, L. K., & Muthén, B. O. (1998–2017). Mplus user's guide (8th ed.). Los Angeles, CA: Muthén & Muthén.

Nepon, T., Flett, G. L., Hewitt, P. L., & Molnar, D. S. (2011). Perfectionism, negative social feedback, and interpersonal rumination in depression and social anxiety. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, *43*(4), 297. doi: 10.1037/a0025032

Newby, J., Pitura, V. A., Penney, A. M., Klein, R. G., Flett, G. L., & Hewitt, P. L. (2017). Neuroticism and perfectionism as predictors of social anxiety. *Personality and Individual Differences*, *106*, 263-267. doi: 10.1016/j.paid.2016.10.057

O'Connor, R. C., Rasmussen, S., & Hawton, K. (2010). Predicting depression, anxiety and self-harm in adolescents: The role of perfectionism and acute life stress. *Behaviour Research and Therapy*, *48*(1), 52-59. doi: 10.1016/j.brat.2009.09.008

Pacht, A. R. (1984). Reflections on perfection. *American Psychologist*, *39*(4), 386-390.

Paulhus, D. L., & Vazire, S. (2007). The self-report method. In R. W. Robins, R. C. Fraley, & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology* (pp. 224-239). New York, NY, US: Guilford Press.

Paulus, D. J., Vanwoerden, S., Norton, P. J., & Sharp, C. (2016). From neuroticism to anxiety: Examining unique contributions of three transdiagnostic vulnerability factors. *Personality and Individual Differences*, *94*, 38-43.

Pearson, C., Janz, T., & Ali, J. (2013). Health at a glance: Mental and substance use disorders in Canada. Statistics Canada Catalogue no.82-624-X.

Powers, T. A., Koestner, R., & Topciu, R. A. (2005). Implementation intentions, perfectionism, and goal progress: Perhaps the road to hell *is* paved with good intentions. *Personality and Social Psychology Bulletin, 31*, 902-912.

Radloff, L. S. (1977). The CES-D scale: A self report depression scale for research in the general

population. Applied Psychological Measurements, *1*, 385-401.

Raskin, A., Boothe, H. H., Reatig, N. A., Schulterbrandt, J. G., & Odle, D. (1971). Factor

analyses of normal and depressed patients' memories of parental behavior. *Psychological*

Reports, *29*(3), 871-879

Rhéaume, J., Ladouceur, R., & Freeston, M. H. (2000). The prediction of obsessive–compulsive

tendencies: does perfectionism play a significant role?. *Personality And Individual*

Differences, *28,* 583-592. doi:10.1016/S0191-8869(99)00121-X

Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of

children's manifest anxiety. *Journal of Abnormal Child Psychology*, *6*(2), 271-280. doi:

10.1007/BF00919131

Rice, K. G., Ashby, J. S., & Gilman, R. (2011). Classifying adolescent

Perfectionists. *Psychological Assessment*, *23*(3), 563-577. doi: 10.1037/a0022482

Rice, K. G., Ashby, J. S., & Preusser, K. J. (1996). Perfectionism, relationships with parents, and

self-esteem. *Individual Psychology, 52*(3), 246-260.

Rice, K. G., Ashby, J. S., & Slaney, R. B. (2007). Perfectionism and the five-factor model of

personality. *Assessment*, *14*(4), 385-398.

Rice, K. G., Leever, B. A., Christopher, J., & Porter, J. D. (2006). Perfectionism, stress, and

social (dis) connection: A short-term study of hopelessness, depression, and academic

adjustment among honors students. *Journal of Counseling Psychology*, *53*(4), 524-534.

Richters J., & Pellegrini, D. (1989) Depressed mothers' judgment about their children: An

examination of depression–distortion hypothesis. *Child Development*, *50,* 1068–1075.

Rohner, R. P. (2005). Parental Acceptance-Rejection Questionnaire (PARQ): Test manual. In R.

P. Rohner, & A. Khaleque (Eds.), *Handbook for the study of parental acceptance and*

rejection (4th ed., pp. 43–106). Storrs, CT: Rohner Research Publications

Roxborough, H. M., Hewitt, P. L., Kaldas, J., Flett, G. L., Caelian, C. M., Sherry, S., & Sherry,

D. L. (2012). Perfectionistic self-presentation, socially prescribed perfectionism, and

suicide in youth: A test of the Perfectionism Social Disconnection Model. *Suicide and*

Life-Threatening Behavior, 42, 217-233. doi:10.1111/j.1943-278X.2012.00084.x

Sastre-Riba, S., Pérez-Albéniz, A., & Fonseca-Pedrero, E. (2016). Assessing perfectionism in

children and adolescents: Psychometric properties of the Almost Perfect Scale

Revised. *Learning and Individual Differences*, *49*, 386-392. doi:

0.1016/j.lindif.2016.06.022

Schaefer, E. S. (1965a). A configurational analysis of children's reports of parent

behavior. *Journal of Consulting Psychology*, *29*(6), 552-557.

Schaefer, E. S. (1965b). Children's reports of parental behavior: An inventory. *Child*

Development, 413-424. doi: 10.2307/1126465

Schwarz, J. C., Barton-Henry, M. L., & Pruzinsky, T. (1985). Assessing child-rearing behaviors:

A comparison of ratings made by mother, father, child, and sibling on the CRPBI. *Child*

Development, 462-479. doi: 10.2307/1129734

Selig, J. P., & Preacher, K. J. (2009). Mediation models for longitudinal data in developmental

research. *Research in Human Development*, *6*(2-3), 144-164. doi:

10.1080/15427600902911247

Seligman, L. D., & Ollendick, T. H. (1998). Comorbidity of anxiety and depression in children

    and adolescents: An integrative review. *Clinical Child and Family Psychology*

    Review, *1*(2), 125-144.

Seligman, L. D., Ollendick, T. H., Langley, A. K., & Baldacci, H. B. (2004). The utility of

    measures of child and adolescent anxiety: a meta-analytic review of the Revised

    Children's Manifest Anxiety Scale, the State–Trait Anxiety Inventory for Children, and

    the Child Behavior Checklist. *Journal of Clinical Child and Adolescent*

    Psychology, *33*(3), 557-565.

Sherry, S., Mackinnon, S. P., & Gautreau, C. M. (2016). Perfectionists do not play nicely with

    others: Expanding the social disconnection model. In F. M. Sirois & D. S. Molnar (Eds.),

    Perfectionism, health, and well-being. New York, NY: Springer Publishing

Sherry, S. B., MacKinnon, A. L., Fossum, K., Antony, M. M., Stewart, S. H., Sherry, D. L., & ...

    Mushquash, A. R. (2013). Perfectionism, discrepancies, and depression: Testing the

    perfectionism social disconnection model in a short-term, four-wave longitudinal study.

    Personality and Individual Differences, 54, 692-697. doi:10.1016/j.paid.2012.11.017

Shirazi, N. (2016). *Perfectionism and generalized anxiety disorder: Investigating the mediating*

    effect of emotion dysregulation (Doctoral dissertation, University of Toronto).

Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies:

    New procedures and recommendations. *Psychological Methods, 7* (4), 422–445.

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: Undisclosed

    flexibility in data collection and analysis allows presenting anything as

    significant. *Psychological science*, *22*(11), 1359-1366.

Sirios, F., & Molnar, D. S. (2016). Conceptualuzations of perfectionism, health, and well-being: An introductory overview. In F. M. Sirois & D. S. Molnar (Eds.), *Perfectionism, health, and well-being*. New York, NY: Springer Publishing

Sironic, A., & Reeve, R. A. (2015). A combined analysis of the Frost Multidimensional Perfectionism Scale (FMPS), Child and Adolescent Perfectionism Scale (CAPS), and Almost Perfect Scale—Revised (APS-R): Different perfectionist profiles in adolescent high school students. *Psychological assessment*, *27*(4), 1471. doi: 10.1037/pas0000137

Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. (2001). The revised almost perfect scale. *Measurement and Evaluation in Counseling and Development, 34,* 130–145.

Smith, M. M., Sherry, S. B., Rnic, K., Saklofske, D. H., Enns, M., and Gralnick, T. (2016) Are Perfectionism Dimensions Vulnerability Factors for Depressive Symptoms After Controlling for Neuroticism? A Meta-analysis of 10 Longitudinal Studies. *European Journal of Personality, 30*, 201–212. doi: 10.1002/per.2053.

Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research and Therapy*, *36*(5), 545-566.

Spielberger, C. D., Gorsuch, R.L., & Lushene. R.E. (1970). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press

Stober, J. (1998). The Frost Multidimensional Perfectionism Scale revisited: More perfect with four (instead of six) dimensions.*Personality And Individual Differences*, *24*, 481-491.

Stoeber, J. (2014). How other-oriented perfectionism differs from self-oriented and socially prescribed perfectionism. *Journal Of Psychopathology and Behavioral Assessment*, *36*(2), 329-338. doi: 10.1007/s10862-013-9397-7

Stoeber, J., & Kersting, M. (2007). Perfectionism and aptitude test performance: Testees who strive for perfection achieve better test results. *Personality and Individual Differences*, *42*(6), 1093-1103. doi:10.1016/j.paid.2006.09.012

Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review,10*(4), 295-319. doi: 10.1207/s15327957pspr1004_2

Stoeber, J., Otto, K., & Dalbert, C. (2009). Perfectionism and the Big Five: Conscientiousness predicts longitudinal increases in self-oriented perfectionism. *Personality And Individual Differences,47*363-368. doi:10.1016/j.paid.2009.04.004

Stoeber, J., & Roche, D. L. (2014). Affect intensity contributes to perfectionistic self-presentation in adolescents beyond perfectionism. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *32*(2), 164-180. doi: 10.1007/s10942-013-0176-x

Storch, E. A., Crisp, H., Roberti, J. W., Bagner, D. M., & Masia-Warner, C. (2005). Psychometric evaluation of the Social Experience Questionnaire in adolescents: Descriptive data, reliability, and factorial validity. *Child Psychiatry and Human Development, 36*(2), 167-176. doi: 10.1007/s10578-005-3495-z

Sugden, N. A., & Moulson, M. C. (2015). Recruitment strategies should not be randomly selected: empirically improving recruitment success and diversity in developmental psychology research. *Frontiers in Psychology*, *6*, 523-532.

Treutler C. M., & Epkins, C. C. (2003) Are discrepancies among child, mother, and father reports on children's behavior related to parents' psychological symptoms and aspects of parent–child relationships? *Journal of Abnormal Child Psychology, 31*, 13–27. doi: 10.1023/A:1021765114434.

Tukey, J. W. (1977). Exploratory Data Analysis. Reading, Massachusetts: Addison-Wesley.

Ulu, I. P., & Tezer, E. (2010). Adaptive and maladaptive perfectionism, adult attachment, and big five personality traits. *Journal of Psychology*, *144*(4), 327-340. doi: 10.1080/00223981003784032

Verner-Filion, J., & Gaudreau, P. (2010). From perfectionism to academic adjustment: The mediating role of achievement goals. *Personality and Individual Differences*, *49*(3), 181-186.

Wachtel, P. L. (1994). Cyclical processes in personality and psychopathology. *Journal of Abnormal Psychology*, *103*, 51–54.

Wang, K. T., Yuen, M., & Slaney, R. B. (2009). Perfectionism, depression, loneliness, and life satisfaction: A study of high school students in Hong Kong. *The Counseling Psychologist*, *37*(2), 249-274.

Wheeler, H. A., Blankstein, K. R., Antony, M. M., McCabe, R. E., & Bieling, P. J. (2011). Perfectionism in anxiety and depression: Comparisons across disorders, relations with symptom severity, and role of comorbidity. *International Journal of Cognitive Therapy*, *4*(1), 66-91.

Woodward, L. J., & Fergusson, D. M. (2001). Life course outcomes of young people with anxiety disorders in adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*(9), 1086-1093.

Yoon, J., & Lau, A. S. (2008). Maladaptive perfectionism and depressive symptoms among Asian American college students: Contributions of interdependence and parental relations. *Cultural Diversity and Ethnic Minority Psychology, 14*(2), 92-101.

Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta*
Psychiatrica Scandinavica, *67*(6), 361–370.

Zimmer-Gembeck, M. J., Trevaskis, S., Nesdale D., & Downey, G. A. (2014). Relational
victimization, loneliness and depressive symptoms: Indirect associations via self and peer
reports of rejection sensitivity. *Journal of Youth and Adolescence, 43*(3), 568-582. doi:
10.1007/s10964-013-9993-6

Table 1

Summary of outliers on Study 1 model variables

Variable	Participant ID	Standardized Score (z)	Winsorized Score
PS			
	154	3.45	19.10
PC			
	96	3.38	64.20
	89	3.36	64.10
SC			
	49	3.07	15.10
	132	3.07	15.10
RV			
	219	4.83	15.30
	70	3.06	15.20
	35	3.06	15.10
ANX			
	219	3.20	22.10
MANX			
	199	4.35	22.40
	183	3.93	22.30
	192	3.50	22.20
	219	3.08	22.10
	168	3.08	22.10
MDEP			
	144	4.04	30.30
	8	3.53	30.20
	22	3.27	30.10

Note. PS = perfectionistic striving; PC = perfectionistic concerns; SC = school connectedness; RV = relational victimization; ANX = adolescent-reported anxiety; MANX = mother-reported anxiety; MDEP = maternal depression.

Table 2

Descriptive statistics for Study 1 model variables

Variable	*M*	*SD*	α	*n*	*Skew*.	*Kurt*.
PS	38.32	7.04	0.83	146	-.41	-.31
PC	34.57	11.90	0.90	145	.45	-.46
RV	7.28	2.65	0.83	161	1.33	1.03
SC	24.60	3.70	0.83	159	-.51	-.17
PACC	1.60	.34	0.97	162	-1.15	.69
ANX	6.02	5.58	0.89	162	1.14	.78
MANX	15.68	2.22	.82	157	1.79	2.90
MDEP	7.16	7.49	.84	157	1.54	1.89

Note. PS = perfectionistic strivings; PC = perfectionistic concerns; RV = relational victimization; SC = school connectedness; PACC = parental acceptance; ANX = child report of anxiety; MANX = mothers' report of anxiety; MDEP = mothers' report of depression.

Table 3

Summary of intercorrelations among Study 1 model variables

Measure	1	2	3	4	5	6	7	8	9	10
1. PS	-									
2. PC	-.27**	-								
3. RV	-.09	.36**	-							
4. SC	.34**	-.40**	-.39**	-						
5. PACC	.26**	-.30**	-.23**	.40**	-					
6. ANX	-.09	.57**	.49**	-.39**	-.27**	-				
7. MANX	.10	.16	.33**	-.10	.01	.32**	-			
8. MDEP	.08	.04	.11	-.08	-.10	.13	.37**	-		
9. SEX	-.18	-.01	-.01	-.10	-.03	-.24**	-.07	-.09	-	
10. ALC	-.00	-.06	-.04	-.03	-.03	.15	.11	.03	.06	-

Note. PS = perfectionistic strivings; PC = perfectionistic concerns; RV = relational victimization; SC = school connectedness; PACC = parental accpetance; ANX = adolescent-reported anxiety; MANX = mothers' report of fadolescent anxiety; MDEP = maternal depression; ALC = alcohol group. Sex was dummy coded such that 0 = female and 1 = male.

** $p < .01$, * $p < .05$

Table 4

Direct and total effects of model variables on social disconnection, adolescent-reported and mother-reported anxiety

Variable	Social Disconnection			Adolescent-Report Anxiety $R^2 = .58$					Mother-Report Anxiety $R^2 = .28$				
	B	S.E	β	B	S.E	β	95% CI	Total Effects	B	S.E	β	95% CI	Total Effects
PS	-.05*	.02	-.23*	.14*	.07	.17*	[.01, .39]	.03	.05	.03	.15	[-.02, .13]	.03
PC	.08**	.02	.56**	.12*	.06	.26*	[-.15, .24]	.28	.003	.02	.02	[-.14, .05]	.03
SEX	.24	.31	.07	-3.13**	.80	-.27**			-.09	.35	-.02		.
ALC	.15	.30	.04	1.59*	.79	.14*			.31	.35	.07		
MDEP	.03	.02	.12	-.04	.06	-.05			.13**	.03	.40**		
SOCD				2.10**	.58	.58**			.38	.22	.27		

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

Table 5

Summary of outliers on Study 2 model variables

Variable	Participant ID	Standardized Score (z)	Winsorized Score
PS			
	1120	-3.66	27.90

Note. PS = perfectionistic striving.

Table 6

Descriptive statistics for Study 2 model variables

Variable	*M*	*SD*	α	*n*	*Skew*.	*Kurt*.
PS	40.41	6.26	.73	109	.03	-.59
PC	30.22	7.78	.85	109	-.15	-.39
RV	10.16	4.58	.89	108	.58	-.69
SC	92.88	16.42	.94	109	-.32	-.34
SD	37.49	12.59	.94	109	.50	-.43
PWARM	53.84	9.89	.93	106	-.93	.15
ANX	17.26	10.35	.95	109	.11	-.94
ES	4.12	1.50	(*r*).48	108	-.10	-.75
C	5.01	1.31	(*r*).25	108	-.44	-.59

Note. PS = perfectionistic strivings; PC = perfectionistic concerns; RV = relational victimization; SC = school connectedness; SD = social dissatisfaction; PWARM = parental warmth; ANX = child report of anxiety; ES = emotional stability; C = conscientiousness.

Table 7

Summary of intercorrelations among Study 2 model variables

Measure	1	2	3	4	5	6	7	8	9	10	11
1. PS	-										
2. PC	.53**	-									
3. RV	.27**	.42**	-								
4. SC	-.15	-.29**	-.49**	-							
5. SD	.33**	.45**	.60**	-.71**	-						
6. PWARM	-.11	-.32**	-.43**	.50**	-.61**	-					
7. ANX	.40**	.43**	.40**	-.63**	.62**	-.43**	-				
8. ES	-.38**	-.34**	-.33**	.53**	-.64**	.37**	-.70**	-			
9. C	.00	-.21*	-.39**	.41**	-.41**	.43**	-.35**	.40**	-		
10. SEX	.05	.11	.17	.07	.02	-.14	-.17	.19*	-.19*	-	
11. AGE	.19*	.28**	.09	-.16	.21*	-.23**	.12	-.15	-.09	-.09	-

Note. PS = perfectionistic strivings; PC = perfectionistic concerns; RV = relational victimization; SC = school connectedness; SD = social dissatisfaction; PWARM = parental warmth; ANX = adolescent report of anxiety; ES = emotional stability; C = conscientiousness.
** $p < .01$, * $p < .05$

Table 8

Direct and total effects of model variables to social disconnection and adolescent-report anxiety

Variable	Social Disconnection $R^2 = .58$			Adolescent-Report Anxiety $R^2 = .63$				
	B	S.E	β	*B*	S.E	β	95% CI	Total Effects
PS	-.03	.17	-.02	.23	.13	.14	[-.02, .47]	.23
PC	.35**	.13	.24**	.10	.11	.07	[-.16, .32]	.24
AGE	.30	.48	.05	-.49	.37	-.09		
SEX	1.85	1.88	.08	-3.61*	1.45	-.17*		
C	-1.98**	.75	-.23**	-.38	.62	-.05		
ES	-3.98**	.73	-.52**	-2.08**	.68	-.30**		
SOCD				.39**	.11	.43**		

Note. PS = perfectionistic strivings; PC = perfectionistic concerns; C = conscientiousness; ES = emotional stability; SOCD = social disconnection.
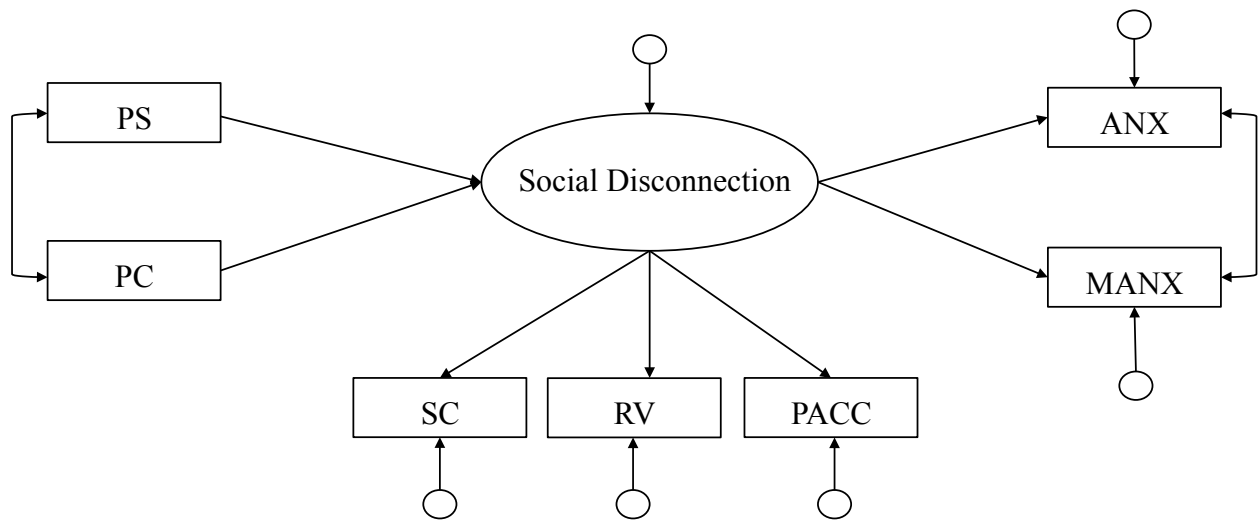
** $p < .01$, * $p < .05$

Figure 1. Conceptual model linking dimensions of trait perfectionism to adolescent-reported and mother-reported anxiety via social disconnection.
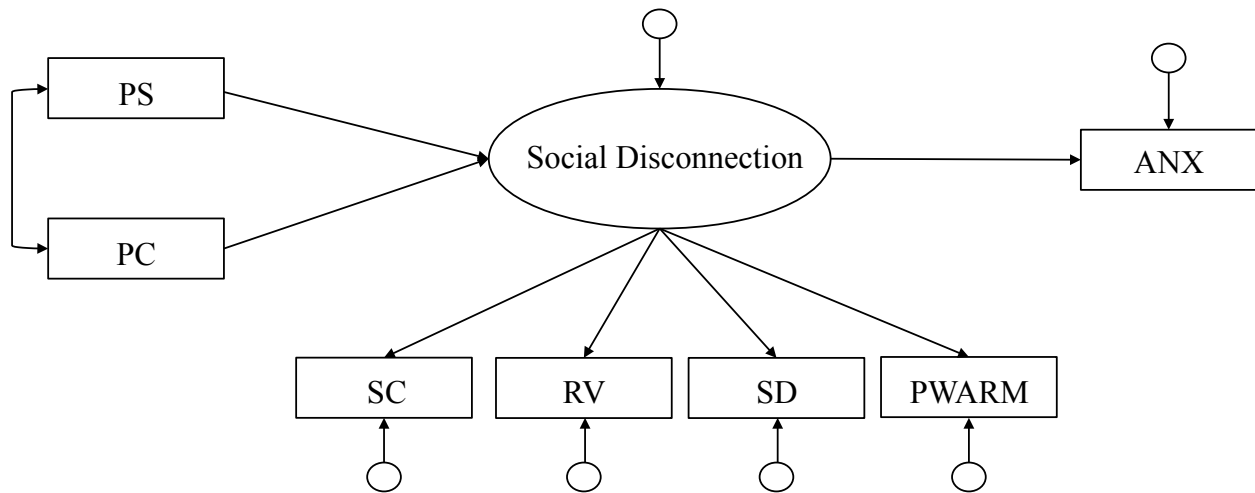
Figure 2. Conceptual model linking dimensions of trait perfectionism to adolescent-reported anxiety via social disconnection.