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Perfectionism is increasing over time: A meta-analysis of birth cohort differences from 1989 to 2016

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Abstract

From the 1980's onwards, neoliberal governance in the US, Canada, and the UK has emphasized competitive individualism and people have seemingly responded, in kind, by agitating to perfect themselves and their lifestyles. In this study, we examine whether cultural changes have coincided with an increase in multidimensional perfectionism in college students over the last 27 years. Our analyses are based on 164 samples and 41,641 American, Canadian, and British college students, who completed the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991) between 1989 and 2016 (70.92% female, Mage = 20.66). Cross-temporal meta-analysis revealed that levels of self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism have linearly increased. These trends remained when controlling for gender and between-country differences in perfectionism scores. Overall, in order of magnitude of the observed increase, our findings indicate that recent generations of young people perceive that others are more demanding of them, are more demanding of others, and are more demanding of themselves.

Public significance statement

Three decades of neoliberal governance has compelled young people to compete against each other within increasingly demanding social and economic parameters. Perhaps to cope, this study shows that more recent generations of young people are reporting higher levels of perfectionism – a personality trait encapsulating unrealistic standards and harsh self-criticism. As a vulnerability to psychopathology, we advance the idea that one consequence of rising perfectionism may be recent epidemics of serious mental illness.

Across the industrialized world young people now face far tougher social and economic conditions than their parents (Ipsos MORI, 2014). From the late 1970s onwards, the US, Canada, and the UK have seen interventionist governance committed to the goals of full employment and social equity replaced by laissez-faire governance committed to the advancement of market-based competition and reward (Piketty, 2014). In addition to changing the behavior of social and civic institutions, the continuation of these policies has placed a heavier burden on recent generations of young people to strive against one another under the auspices of meritocracy and under the watchful eye of increasingly demanding parents (Twenge, 2014; Collishaw, Gardner, Maughan, Scott, & Pickles, 2012; Verhaeghe, 2014). In this study, we are interested in the possibility that these cultural changes have coincided with changes in the personalities of young people. Specifically, we examine whether levels of perfectionism – an achievement and relational personality trait – have increased over the past three decades among American, Canadian, and British college students.

Multidimensional perfectionism

Perfectionism is broadly defined as a combination of excessively high personal standards and overly critical self-evaluations (Frost, Marten, Lahart, & Rosenblate, 1990). Perfectionism is multidimensional and has been examined using different models. Researchers have used both individual models and their constituent subdimensions (e.g., Frost et al., 1990; Hewitt & Flett, 1991; Slaney, Rice, Mobley, Trippi, & Ashby, 2001), as well as combinations of multiple models to study perfectionism (e.g., Frost, Heimberg, Holt, Mattia, & Neubaur, 1993; Mackinnon & Sherry, 2012; Rice, Ashby, & Slaney, 1998). Studies adopting these approaches have illustrated the benefits of a multidimensional perspective. For example, we now have a better understanding

of the many guises perfectionism can take and the varied outcomes associated with the different perfectionism dimensions (Stoeber & Otto, 2006).

One well-studied model of multidimensional perfectionism is that proposed by Hewitt and Flett (1991). In their model, perfectionism is understood in terms of the direction of perfectionistic beliefs and behaviors. When directed towards the self, individuals attach irrational importance to being perfect, hold unrealistic expectations of themselves, and are punitive in their self-evaluations (self-oriented perfectionism). When perceived to come from others, individuals believe their social context is excessively demanding, that others judge them harshly, and that they must display perfection to secure approval (socially prescribed perfectionism). When perfectionistic expectations are directed toward others, individuals impose unrealistic standards on those around them and evaluate others critically (other-oriented perfectionism). This model was developed at a time when approaches to perfectionism were unidimensional and focused on only intrapersonal conceptualizations of perfectionism (i.e., self-oriented perfectionism). In this regard, the model offered, and continues to offer, an important advancement in that both intrapersonal and interpersonal expressions of perfectionism can be studied (i.e., socially prescribed and other-oriented perfectionism).

To measure self-oriented, socially prescribed, and other-oriented perfectionism, Hewitt and Flett (1991) developed the Multidimensional Perfectionism Scale. The validity and reliability of this instrument have been established across several decades. The psychometric properties, including normative data for community and clinical populations, are provided by Hewitt and Flett (1991, 2004) along with detailed case studies. The Multidimensional Perfectionism Scale has been used in a wide range of settings in both clinical and nonclinical samples. It has also been used extensively in research in college students. Perhaps the main

strength of the instrument has been the manner by which the nomological network of the individual dimensions has been established through extensive empirical work (see Hewitt, Flett, & Mikail, 2017 for a recent review). This work has provided insight into the unique correlates, consequences, and processes associated with each dimension of perfectionism.

Studies show self-oriented perfectionism to be the most complex of the three dimensions of perfectionism. As self-oriented perfectionism has a salient motivational component (striving to attain perfection and avoid failure), it is often associated with seemingly adaptive achievement-related behaviors (Hewitt & Flett, 1991). However, this achievement behavior belies vulnerability to motivational and psychological difficulties that come from, among other things, tying one's self-worth to achievement and being unable to derive a lasting sense of satisfaction from one's accomplishments. Research among college students and young people, for example, has found self-oriented perfectionism to be positively associated with clinical depression, anorexia nervosa, and early death (e.g., Enns & Cox, 2005; Fry & Debats, 2009; Hewitt & Flett, 1991, 1993). It is also associated with greater physiological reactivity (e.g., elevated blood pressure) and ill-being (e.g., negative affect) to life stress and failure (e.g., Besser, Flett, & Hewitt, 2004; Besser, Flett, Hewitt, & Guez, 2008; Hill, Hall, Duda, & Appleton, 2011). The ill-effects of self-oriented perfectionism are substantiated in recent comprehensive reviews, which found that this dimension of perfectionism positively correlates with suicide ideation and predicts increases in depression over time – an effect typically lost in cross-sectional studies (Smith, et al., 2016, in press).

Socially prescribed perfectionism is the most debilitating of the three dimensions of perfectionism. This is because the perceived expectations of others are experienced as excessive, uncontrollable, and unfair, making failure experiences and negative emotional states common

(Hewitt & Flett, 1991). The debilitating nature of socially prescribed perfectionism is evident in research on college students, which has found this dimension of perfectionism to be positively associated with major psychopathology (e.g., anxiety, depressive symptoms, and suicide ideation; Martin, Flett, Hewitt, Krames, & Szanto, 1996; Hewitt, Flett, & Weber, 1994; Sherry, Hewitt, Flett, & Harvey, 2003). These relationships have been replicated in longitudinal and experimental studies (e.g., Flett, Endler, Tassone, & Hewitt, 1994; Hewitt, Flett, & Ediger, 1996; O'Connor, O'Connor, O'Connor, Smallwood, & Miles, 2004). Like self-oriented perfectionism, the reviews of Smith et al. (2016, in press) showed that socially prescribed perfectionism predicted increases in depressive symptoms and suicide ideation over time, but to a much greater degree.

In comparison to self-oriented perfectionism and socially prescribed perfectionism, other-oriented perfectionism has received less attention from researchers. Other-oriented perfectionism is a distinct dimension of perfectionism because it manifests in interpersonal behaviors. As others fall short of the other-oriented perfectionist's expectations, they are blamed and criticized and generally treated with hostility and disdain (Hewitt et al., 2017). Early studies among college students linked other-oriented perfectionism with socially antagonistic characteristics such as higher vindictiveness, hostility, and the tendency blame others, in addition to lower altruism, compliance, and trust (e.g., Hewitt & Flett, 1991; Hill, McIntire, & Bacharach, 1997; Hill, Zrull, & Turlington, 1997). In intimate relationships, too, other-oriented perfectionism is problematic because it is linked with outcomes such as greater conflict and lower sexual satisfaction (Habke, Hewitt, & Flett, 1999; Haring, Hewitt, & Flett, 2003). Recent studies substantiate these early findings and, in addition, show that other-oriented perfectionism is strongly related to a

narcissistic desire for others' admiration (e.g., Nealis, Sherry, Sherry, Stewart, & Macneil, 2015; Nealis, Sherry, Lee-Baggley, Stewart, & Macneil, 2016; Stoeber, 2014).

Cultural change and perfectionism development

As is evident from our brief review, the correlates and consequences of perfectionism have been well studied. The development of perfectionism, by contrast, has received less empirical attention. Moreover, the research that does exist has focused largely on how the immediate family environment, and parental practices in particular, shape the development of perfectionism at an individual level (see Flett, Hewitt, Oliver, & Macdonald, 2002; Hewitt et al., 2017). To our knowledge, no studies have examined whether wider cultural changes also influence levels of perfectionism at the birth cohort level. The current study is the first to do so.

The theoretical basis for the possibility that cultural changes have influenced levels of perfectionism is provided by Markus and Kitayama's (2010) mutual constitution model. According to Markus and Kitayama, dominant cultural values of society at any one point in time are reflected in the norms of its social and civic institutions (i.e., familial, academic, religious, economic, and political) and these institutions shape individual attitudes, values, beliefs, and personalities. Hence, just as culture produces individual differences between countries, the culture of different time periods can produce generational differences in personality. We are also influenced in our thinking on this matter by the important work of Twenge and colleagues who have provided cross-temporal research showing that various personality characteristics have changed over time among young people (e.g., neuroticism, narcissism, and extraversion; see Twenge, 2014). We take a similar approach here, focusing on cultural change and large-scale data that we consider potentially important and revealing in the development of perfectionism at

a cohort level. Ultimately, we consider perfectionism "amounts to a cultural phenomenon" (Burns, 1980, p. 34) and can, therefore, be studied as such.

Theory on the development of perfectionism is also at the forefront of our minds. Hewitt et al. (2017) have recently proposed a model of perfectionism development emphasizing the relational context and the social connections that shape the formative experiences of children and adolescents. With the classic writing on the origins of perfectionism in mind (e.g., Hollender, 1965; Hamachek, 1978; Pacht, 1984), they view the development of perfectionism to be underpinned by asynchrony, or mismatch, between attachment needs – of belonging and self-esteem – and responses to those needs. Hewett et al primarily describe this process in the context of the child-parent relationship but also stress the importance of relations more widely such as siblings, peers, and romantic partners. In their view, the results of asynchrony are distorted perceptions of significant others as judgmental and critical, a fragile and fragmented sense of self, and relational and self-schemas characterized by feelings of unworthiness and shame. In this model, the need to be perfect, or appear perfect, is a strategy that is adopted to compensate for, repair, and protect a damaged sense of self-worth through obtaining the approval of others. In its broadest sense, then, perfectionism can be understood to develop through the messages that young people internalize from their immediate social environments, the resulting view of themselves, especially how they construe self-worth and how it is established, and their sense of self in relation to others.

In tandem with the immediate social environment, we believe that perfectionism development is influenced by broader cultural norms at the societal level. Hence, with the work of the Hewitt et al. in mind, here we consider what cultural factors may account for possible changes in perfectionism. To this end, we identify three interrelated cultural changes that have

been influential in explaining recent shifts in young people's sense of self and identity, and which closely match processes important to perfectionism development. These changes are; (i) the emergence of neoliberalism and competitive individualism, (ii) the rise of the doctrine of meritocracy, and (iii) increasingly anxious and controlling parental practices. In what follows, we describe each of these cultural changes and outline how they relate to perfectionism.

Emergence of neoliberalism and perfectionism

Cultural values in the US, Canada, and the UK have undergone a remarkable change in recent decades. From the late 1970s onwards, several events have brought about significant social and economic transformation. The post-war New Deal (US & Canada), Consensus (UK), and the emergence of neoliberalism in the industrialized world has reshaped the cultural, political, and economic landscape (Blyth, 2002). Neoliberalism is a model of social studies and economics borne of revived (neo) 19th-century capitalist (liberal) principles. It elevates the market, and market-based systems of interpersonal evaluation, to the level of state-endorsed norms (Davies, 2014). Accordingly, market distortions fashioned by state interventionism (e.g., collective bargaining and public ownership) are minimized under neoliberal governance, replaced instead by efforts to foster unconstrained competition between self-interested individuals (e.g., deregulation and privatization).

As young people internalize the cultural frames of neoliberalism, changes in how they construe a sense of self and identity are evident in various ways. Perhaps most notably, neoliberalism has seen the dominance of collectivism progressively give way to a wave of competitive individualism. For example, more recent generations of college students in the US report higher levels of narcissism, extraversion, and self-confidence than previous generations (e.g., Twenge, 2001a; Twenge, Campbell, & Gentile, 2012; Twenge, Konrath, Foster, Campbell,

& Bushman, 2008). At the same time, communal traits have waned. This is evident in that more recent generations of college students show less empathy toward others and are more likely to blame victims when things go wrong (e.g., Konrath, O'Brien, & Hsing, 2011; Malahy, Rubinlicht, & Kaiser, 2009; Twenge et al., 2012). Young people also appear now to be more self-interested and spend less time doing group activities for fun and more time doing individual activities for instrumental value or sense of personal achievement (see Twenge, 2014).

In the same fashion, behaviors associated with competition and the attainment of social standing have risen (Kasser, Ryan, Couchman, & Sheldon, 2004). In recent years, data suggests that individuals across the industrialized world have become preoccupied with upward social comparison, experience considerable status anxiety, and adopt materialism as a means of perfecting their lives in relation to others (e.g., De Botton, 2004; Marmot, 2004; Scott, Martin, & Schouten, 2014). The increase in materialism is particularly evident in the shifting values and behaviors of young people. Eighty-one percent of Americans born in the 1980s report that getting materially rich is among their most important life goals, a figure that is almost 20 percent higher than those born in the 1960s and 1970s (Pew Research Center, 2007). More recent generations of young people also borrow more heavily than did older generations at the same period of lifespan and spend, on average, a far greater proportion of their income on status possessions and image goods than did their parents (e.g., luxury vehicles and designer labels; Bricker, Ramcharan, & Krimmel, 2014; Jiang & Dunn, 2013; Parment, 2013).

Not only more dissatisfied with what they have, young people are also seemingly more dissatisfied with who they are. Platforms such as Facebook, Instagram, and Snapchat have become ubiquitous, occupying 2 out of every 5 minutes spent online (GlobalWebIndex, 2016). The popularity of these platforms can, in part, be explained by how they allow users to curate a

perfect public image (Mendelson & Papacharissi, 2011). Yet rather than alleviate presentational and interpersonal anxieties, studies indicate that exposure to others' perfect self-representations within social media can intensify one's own body image concerns and sense of social alienation (Grabe, Ward, & Hyde, 2008; Paik & Sanchagrin, 2013). Other data suggests that young people are struggling to cope with a visual culture which emphases unrealistic body ideals. The most recent cohort data from the US and the UK show that incidence of body dysmorphia and eating disorders has risen by approximately 30 percent among late adolescent girls since the advent of social media (e.g., PwC, 2015; Smink, van Hoeken, & Hoek, 2012; Thompson & Durrani, 2007). In the same countries, increasing numbers of young people are turning to plastic surgery and its promise of bodily perfection (e.g., British Association of Aesthetic Plastic Surgeons, 2015; American Society for Plastic Surgeons, 2016; Thomas, 2015).

With general social malaise as a backdrop, neoliberalism has succeeded in shifting cultural values so to now emphasize competitiveness, individualism, and irrational ideals of the perfectible self (Verhaeghe, 2014). These ideals are systemic within contemporary language patterns, the media, and social and civic institutions, and are evident in the rise of competitive and individualistic traits, materialistic behavior, and presentational anxieties among recent generations of young people. Revisiting Hewitt et al.'s (2017) model, it is interesting to consider how young people are coming to construct a sense of self and identity in this kind of culture. The notion of a 'flawed' and 'disordered' self appears especially relevant (Banai, Mikulincer, & Shaver, 2005). That is, a sense of self overwhelmed by pathological worry and a fear of negative social evaluation, characterized by a focus on deficiencies, and sensitive to criticism and failure. This sense of self is a close match to the sense of self constructed by perfectionists and is reflected in many of the recent changes to self, identity, and behavior observed in young people.

Young people appear to have internalized irrational social ideals of the perfectible self that, while unrealistic, are to them eminently desirable and obtainable. Broadly speaking, then, increasing levels of perfectionism might be considered symptomatic of the way in which young people are coping – to feel safe, connected, and of worth – in neoliberalism's new culture of competitive individualism.

The rise of meritocracy and perfectionism

The caveat emptor of neoliberalism lies in its meritocratic starting point. The perfect life and lifestyle – encapsulated by achievement, wealth, and social status – are available to anyone *provided you try hard enough* (Frank, 2016). According to neoliberal meritocracy, those who reach the top schools and colleges, or gain entry to occupations offering the most profitable employment, receive their due rewards of wealth and social status. For those who do not reach such educational and professional heights, the doctrine of meritocracy dictates they are less deserving and their poor achievement reflects their inadequate personal abilities (e.g., skills, intelligence, and efforts; Hayes, 2012). The doctrine of neoliberal meritocracy therefore falsely and insidiously connects the principles of educational and professional achievement, status, and wealth with innate personal value (e.g., Clark, 1965; Ehrenreich, 1989; Gruiner, 2015). In turn, because individuals cannot avoid being sorted, sifted, and ranked by schools, universities, and the workplace, neoliberal meritocracy places a strong need to strive, perform, and achieve at the center of modern life.

Most acutely, the merging of academic and economic meritocracies has redefined the purpose of education. Whereas education has historically sought to provide young people with a broader repertoire of skills and knowledge, neoliberal meritocracy stresses that skills and knowledge are worthless unless they confer economic value (Verhaeghe, 2014). This places

considerable pressure on young people to strive, compete, and meet increasingly higher expectations in school and college – less they wish to damage their future market price. The effects of merging academic and economic meritocracies are reflected in the escalating educational expectations of young people. In the US, where cohort data is available, approximately half of high school seniors in 1976 expected to attain at least some college degree, by 2008 that figure had risen to over 80 percent (Jacob & Wilder, 2010). Yet actual degree attainment has failed to keep pace with rising expectations. The gap between the percentage of high school seniors expecting to obtain a college degree and the percent of young people with a college degree doubled between 1976 and 2000 and has continued to rise (Johnson & Reynolds, 2013; Reynolds, Stewart, MacDonald, & Sischo, 2006). Together, this research suggests that the expectations of many young people are increasingly unrealistic (Baird, Burge, & Reynolds, 2008).

As young people's expectations have increased, so have the educational demands placed on them. Intense competition for elite college admission has meant that, relative to previous generations, current high school students in the US, Canada, and the UK are subjected to more numerous and stringent standardized tests (Guinier, 2015). At the same time, although the number of students going to college has increased, the wage premium associated with a college degree has stagnated over the last 20 years (Moretti, 2013). One reason for this stagnation is a saturation of the graduate job market and underemployment among graduates in developed countries (i.e., holding jobs that do not require a degree), which is currently much higher among recent generations of college graduates than it was for older generations at the same period of life (Abel, Dietz, & Su, 2014). Instead, research in the US and the UK shows that the college premium is now almost entirely attributable to the income of those with postgraduate degrees

(Brynin, 2013; Shierholz & Mishel, 2013). Just 10 percent of the US workforce, 7 percent of the Canadian workforce, and 11 percent of the UK workforce have postgraduate qualifications (Lindley & Machin, 2013; Statistics Canada, 2012). Young people, therefore, must complete a college degree, and now must also obtain a postgraduate qualification, if they are to demonstrate their economic merit.

Over time, then, meritocracy raises the bar of society's expectations such that they become unattainable to the majority – especially for young people, and especially in terms of educational achievement. Perceptions of unrealistic achievement standards are common in models that seek to explain the development of perfectionism. Although written some time ago, Hamachek (1978) stated on the link between the need to achieve and perfectionism that "[perfectionists] may over-value performance and undervalue the self. He learns only through performance that he has a self" (p. 29). The notion that perfectionists come to overvalue accomplishment is also echoed and expanded upon in the recent writing of Hewitt et al (2017). Here, perfectionism is conceived as a misguided attempt to procure others' approval and repair feelings of unworthiness and shame through displays of high achievement. Hewitt et al.'s description of perfectionism development is allied to the machinations of meritocratic culture in that striving for high achievement standards and the attainment of perfection are actively encouraged and rewarded. Young people are taught that the principles of meritocracy are good, fair, and just. In response, they are compelled to demonstrate their merit, set increasingly higher and unrealistic goals, and come to define themselves in the strict and narrow terms of personal achievement.

Altered parental practices and perfectionism

As we have described, neoliberalism and its doctrine of meritocracy have combined to shape a culture in which everybody is expected to perfect themselves and their lifestyles by striving to meet unrealistic achievement standards. For parents, this new culture confers an additional burden. On top of their own duty to succeed, they are also responsible for the successes and failures of their children (Verhaeghe, 2014). Should a young person be unable to navigate an increasingly competitive social milieu, then it is not just their failure, it is also the parents' failure too. This internalized concern for one's child's success has been labelled child-contingent self-esteem (Soenens, Wuyts, Vansteenkiste, Mageau, & Brenning, 2015) and is evident in the rise of parental expectations for their children's achievements which, across the industrialized world, are at extremes that psychologists have noted are cause for concern (Sevilla & Borra, 2015).

Pressure to raise successful children in a culture that emphases monetary wealth and social standing has several consequences for the behavior of parents. Foremost, there is evidence that recent generations of parents are responding to pressure by spending far more time with their children on academic activities. This trend sits alongside a reduction in the amount of time parents report spending with their children doing other activities such as leisure or hobbies. Since the early 1990s, mothers in the US have reallocated over nine hours per-week from leisure time to childcare, including two additional hours per-week afforded specifically to education (Ramey & Ramey, 2010). Subsequent analyses show that this reallocation is correlated with a period in which competition to get into college has increased – a trend economists Ramey and Ramey (2010) have termed the 'rug rat race.'

Beyond increasing time dedicated to childcare, pressure on parents to secure a successful future for their children has more substantive effects on parenting itself. Theorists have

suggested that pressures from above, such as those associated with competition and the attainment of unrealistic expectations, are related to more anxious and overly controlling parental styles (see Soenens & Vansteenkiste, 2010). This is because parents act as social conduits, passing their own achievement anxieties onto their children by way of excessive involvement in their child's routines, activities, or emotions (Belsky, 1984). Available data from the US supports this idea. Between 1986 and 2006, youth reports of parenting practices associated with monitoring and surveillance, such as telling parents where they are and what they will be doing, have increased approximately two-fold (Collishaw et al., 2012). Meanwhile, young people's reports of autonomy supportive parent behaviors, such as showing an interest in children's ideas, have waned considerably (Collishaw et al., 2012).

Parental behavior is at the center of Hewitt et al.'s (2017) model of perfectionism development. This includes the availability and responsiveness of parents to attachment needs (asynchrony) that are thought to be fundamental to the initial development of perfectionistic tendencies, but also specific pathways to perfectionism through patterns of parental behavior. In one such pathway, Flett et al (2002) describe anxious rearing behaviors, akin to those on the rise, whereby parents project worry and concern regarding their child and their child responds by becoming hypersensitive and averse to mistakes. Flett and colleagues (2002) also describe controlling parental behaviors, again, similar to those that appear to be on the rise. Controlling behaviors include a combination of high expectations and high criticism and encourage children to adopt extremely high standards and strive for perfection, so to avoid criticism and gain the approval of their parents. In short, when reflecting on changes in parental practices and the likely influence on perfectionism, increases in both anxious and controlling parenting are likely to help explain why perfectionism may have increased among young people.

The present study

In this study, we ask a basic but important question: is perfectionism rising over time among young people? To address it, we test for generational changes in perfectionism using a cross-temporal meta-analysis of American, Canadian, and British college students' responses to the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991). This analysis tests the weighted (for sample size and measurement uncertainty) correlation of mean perfectionism scores for self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism with the year of data collection. As college students are approximately the same age, data collected from the Multidimensional Perfectionism Scale at different time points provide a test of birth cohort differences for generational variability. By this means, we can document how levels of perfectionism have changed, at the cohort level, since the late 1980s. In line with the theoretical and empirical evidence provided earlier, we expect that year of data collection would show a positive correlation with self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism.

Method

Literature search. An electronic literature search was conducted using PsycINFO, PsycARTICLES, MEDLINE, Google Scholar, and ProQuest Dissertations & Theses (American & International and the United Kingdom & Ireland). The search terms used were "Multidimensional Perfectionism Scale" AND "college students" OR "university students." We also conducted a cited title search of the Multidimensional Perfectionism Scale paper in Web of Science (i.e., "Perfectionism in the self and social contexts: conceptualization, assessment, and association with psychopathology.") The period of each search spanned publications between January 1989 and November 2017. No other restrictions were implemented. This initial literature

search yielded 1,768 studies. Once duplicates were removed and abstracts were screened for relevance (e.g., empirical studies of perfectionism), 405 studies remained (15 theses and 390 journal articles). Next, we embarked on a full-text review of the retrieved papers to further screen for relevance (e.g., studies that used Frost's Multidimensional Perfectionism Scale; Frost et al., 1990). Following the full-text review, 246 papers remained (9 theses and 237 journal articles).

A manual search followed the electronic search. The reference lists of the articles identified in the electronic search were inspected with the intention of identifying additional articles. In addition, authors with 2 or more articles retrieved in the electronic literature search were emailed to inquire about the possession of any unpublished studies/data sets that included the Multidimensional Perfectionism Scale and college students (e.g., conference papers) and to request the year of data collection for their studies. Twenty authors were contacted on this basis and 11 responded to our request within 8 weeks of the initial email (our stated deadline). This resulted in the addition of 5 studies (2 theses and 3 journal articles) and 38 clarifications of data collection year. In total, the electronic and manual literature search yielded 240 studies/data sets for reduction using the inclusion criteria. All literature searches and study screenings were conducted by the first author, who has a Ph.D. in psychology and is a regular contributor to research on perfectionism.

Inclusion criteria. For inclusion in the analysis, a study or data set had to report the total score (all items added together) or mean score (all items added together divided by number of items) and standard deviation (*SD*) of at least one Multidimensional Perfectionism Scale subscale, and meet the following criteria: (i) participant mean age was within typical undergraduate range (i.e., between 18 and 25 years), (ii) participants were attending a college or

university in the US, Canada, or the UK, (iii) participants were not selected based on criteria relating to the Multidimensional Perfectionism Scale (e.g., scoring high or low on an Multidimensional Perfectionism Scale subscale), (iv) if an experimental study, the experimental manipulation did not affect Multidimensional Perfectionism Scale scores (only scores taken before any manipulation were included), and (v) the study included a sample that was not replicated elsewhere (studies/datasets were included only once).

The Multidimensional Perfectionism Scale includes 45 items (15 items per subscale) and a 7-point Likert scale response format. Numerous studies reported Multidimensional Perfectionism Scale scores for males and females only. On these occasions, we calculated weighted grand means for the overall sample (i.e., pooled male and female scores). Furthermore, authors typically reported the total score of the subscales for self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism. For ease of interpretation, when this was the case, we divided these sums and *SD*s by 15 (i.e., the number of items in the Multidimensional Perfectionism Scale subscales) to put the scores back into their item-level units. Ten studies used a validated five-item short version of the Multidimensional Perfectionism Scale subscales (see Cox, Enns, & Clara, 2002). In these cases, we divided the total score and *SD*s by 5 to provide a comparable mean score. Finally, when the Multidimensional Perfectionism Scale was used, but the self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism total scores or mean score were not reported, we emailed authors with 2 or more studies in our analysis to request this information. Fourteen authors were contacted on this basis and 8 responded to our request within 8 weeks of the initial email.

To code the year of data collection, we adhered to the following procedure: (i) if the year of data collection was described in the study, we coded it as such, (i) if we retrieved data from

authors, we asked them to report when it was collected, and (iii) otherwise, the year of data collection was coded 2 years prior to publication. This is a strategy that is common in similar meta-analyses (Twenge et al., 2010; Twenge et al., 2008). We also coded the percentage of females in each sample and country of data collection as control variables. Data was coded solely by the first author. On November 1st, 2017 we ended our searches and requests for missing information to instigate data reduction and analysis. The implementation of the inclusion criteria resulted in the subsequent coding of 146 studies with 164 datasets, comprising a total of 41,641 college students (70.92% female, M_{age} = 20.66), reporting 155 mean scores for self-oriented perfectionism, 158 mean scores for socially prescribed perfectionism and 102 mean scores for other-oriented perfectionism (see Figure 1). These data sources are marked with an asterisk in the references section.

Meta-analytic procedures. To examine whether sample means for self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism have changed over time we conducted metaregression analyses using the metafor R package (Viechtbauer, 2010). For all analyses, year of data collection was entered as the predictor, and respective scale mean scores were the criterion. To allow for between-sample residual heterogeneity, random effects metaregression models were employed with an additive between-sample variance component (τ^2) derived from restricted maximum likelihood estimation (see Thompson & Sharp, 1999). Alongside estimated τ^2, we calculated I^2 values for each metaregression model to quantify the proportion of observed effect size dispersion due to between-sample heterogeneity.

To adjust for the possibility that changes in perfectionism are explained by gender and country, we sequentially added several control variables to our random effects metaregression models. The percentage of females in each sample was included as a continuous variable. We

also controlled for the country of data collection by including two dummy categorical variables. The first, USA, reflected the USA vs others contrast (coded USA = 1, UK and Canada = 0) and the second, UK, reflected the UK vs others contrast (coded UK = 1, USA and Canada = 0). When these dummy variables were entered to the metaregression model Canada was the reference group.

Following the metaregression analyses, we also computed the effect sizes for overall change in self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism across time. To do so, we used regression equations ($y = bx + c$) to derive predicted self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism scores for the first year of our dataset (1989) and the present day (2017). When the predicted perfectionism mean for the first year of data collection is subtracted from the predicted perfectionism mean for the present day, and divided by the weighted-average of within sample *SD*s, the resulting product quantifies the change in terms of units of *SD* (i.e., Cohen's *d*; Twenge, 2001a). Effect size magnitude was estimated using conventional standards (small, $d = 0.20$; medium, $d = 0.50$; large, $d = 0.80$; Cohen, 1992).

Results

Preliminary analysis. Prior to our primary analysis, mean scores for self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism were standardized and screened for extreme outliers. We did this to; (i) identify reporting errors, and (ii) reduce the statistical complications created by outliers in regression analyses. We deemed a data point to be an extreme outlier when it would be randomly sampled less than one time in a thousand (Tabachnick & Fidell, 2007; $Z > \pm 3.29$, $p < .001$). In accordance with the recommendations of Osbourne (2013), mean scores identified as extreme outliers were removed

from all analyses (self-oriented perfectionism $k = 1$; socially prescribed perfectionism $k = 1$; other-oriented perfectionism $k = 0$). Descriptive statistics for the screened data are presented in Table 1. In brief, studies reported mean self-oriented perfectionism scores of 4.60 ($SD = 0.20$), mean socially prescribed perfectionism scores of 3.60 ($SD = 0.21$), and mean other-oriented perfectionism scores of 3.85 ($SD = 0.17$).

Primary analysis. To examine the effect of time on perfectionism dimensions, we conducted several random effects metaregression models for self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism. The results of these analyses are displayed in Table 2 and Figure 2.

Self-oriented perfectionism. For self-oriented perfectionism, we first tested a simple random effects metaregression model including year of data collection (time) as a single covariate (Model 1). In this model, time did not explain a significant amount variance in self-oriented perfectionism scores ($R^2 = .02$, $Q_{model} = 3.13$, $df = 1$, $p > .05$).

Next, we entered our two dummy coded country variables alongside time in a multiple random effects metaregression model of self-oriented perfectionism (Model 2). The covariates explained a significant portion of variance in self-oriented perfectionism scores in Model 2 ($R^2 = .07$, $Q_{model} = 12.21$, $df = 3$, $p < .01$). An inspection of the metaregression coefficients revealed that time ($\beta = .17$, $p < .05$) and the USA dummy variable ($\beta = .20$, $p < .05$) significantly predicted self-oriented perfectionism but the UK dummy variable did not ($\beta = -.07$, $p > .05$). The positive sign of the time metaregression coefficient is consistent with the interpretation that more recent generations of college students reported higher scores for self-oriented perfectionism than older generations of college students. Furthermore, alongside significant Bonferroni pairwise

comparisons[1], the positive sign of the USA metaregression coefficient indicates that, relative to Canadian and British college students, self-oriented perfectionism is typically highest among American college students.

We then entered the gender covariate (female %) alongside the country covariates and time in a multiple random effects metaregression model of self-oriented perfectionism (Model 3). Consistent with Model 2, the covariates explained a significant portion of variance in self-oriented perfectionism scores in Model 3 (R^2 = .07, Q_{model} = 12.45, df = 4, p < .01). The significant metaregression coefficients for time (β = .17, p < .05) and the USA dummy variable (β = .19, p < .05) remained in Model 3 but the UK dummy variable (β = -.07, p > .05) and gender (β = -.02, p > .05) were not significant predictors of self-oriented perfectionism scores. Therefore, in this model, no evidence of a relationship was found for self-oriented perfectionism and the proportion of females in a sample.

Finally, we compared a restricted multiple random effects metaregression model of self-oriented perfectionism scores containing only the control covariates (i.e., USA dummy variable, UK dummy variable, and gender; R^2 = .05, Q_{model} = 7.81, df = 3, p > .05) to a full multiple random effects metaregression model containing time and the control covariates (i.e., Model 3). A significant amount of additional model variance was explained when time was included alongside the control covariates; ΔR^2 = .03, $F(1, 155)$ = 4.21, p < .05. Such model improvement is consistent with the interpretation that time explains variability in self-oriented perfectionism scores beyond the influence of country and gender.

Socially prescribed perfectionism. We used the same iterative model building process to examine the influence of time on socially prescribed perfectionism. The first simple random

[1] USA versus Canada $M_{difference}$ = .09 (95% BCa CI = .02, .15); USA versus UK $M_{difference}$ = .11 (95% BCa CI = .01, .22); UK versus Canada $M_{difference}$ = -.02 (95% BCa CI = -.13, .08).

effects metaregression model (Model 1) indicated that time explained a significant amount of variance in socially prescribed perfectionism scores (R^2 = .21, Q_{model} = 40.87, df = 1, p < .01). Inspection of the metaregression coefficient revealed that time positively predicted socially prescribed perfectionism scores (β = .45, p < .01). The positive sign of the metaregression coefficient is consistent with the interpretation that more recent generations of college students reported higher scores for socially prescribed perfectionism than older generations of college students.

Next, we added the country covariates alongside time in a multiple random effects metaregression model of socially prescribed perfectionism (Model 2). A significant portion of model variance was explained by the covariates in this model (R^2 = .26, Q_{model} = 53.22, df = 3, p < .01). The significant metaregression coefficient of socially prescribed perfectionism scores on time remained in this model (β = .49, p < .01). In addition, the USA dummy variable predicted socially prescribed perfectionism scores (β = -.23, p < .01) but the UK dummy variable did not (β = -.12, p > .05). Alongside significant Bonferroni pairwise comparisons[2], the negative sign of the USA metaregression coefficient is consistent with the interpretation that socially prescribed perfectionism is typically highest among Canadian and British college students relative to American college students.

We then entered our gender covariate to the country covariates and time in a third multiple random effects metaregression model of socially prescribed perfectionism (Model 3). The covariates explained a significant portion of variance in socially prescribed perfectionism scores in Model 3 (R^2 = .26, Q_{model} = 54.12, df = 4, p < .01). The significant metaregression coefficients for time (β = .50, p < .01) and the USA dummy variable (β = -.23, p < .01) remained

[2] USA versus Canada $M_{difference}$ = -.08 (95% BCa CI = -.15, -.01); USA versus UK $M_{difference}$ = -.10 (95% BCa CI = -.19, -.02); UK versus Canada $M_{difference}$ = .02 (95% BCa CI = -.07, .11).

in Model 3 but the UK dummy variable (β = -.11, p > .05) and gender (β = -.07, p > .05) were not significant predictors of socially prescribed perfectionism scores. Therefore, in this model, no evidence of a relationship was found for socially prescribed perfectionism and the proportion of females in a sample.

Lastly, we compared a restricted multiple random effects metaregression model of socially prescribed perfectionism scores containing only the control covariates (i.e., USA dummy variable, UK dummy variable, and gender; R^2 = .04, Q_{model} = 6.76, df = 3, p > .05) with a full multiple random effects metaregression model containing time and the control covariates (i.e., Model 3). A significant amount of additional model variance was explained when time was included alongside the control covariates; ΔR^2 = .22, $F(1, 158)$ = 45.30, p < .01. Such model improvement is consistent with the interpretation that time explains variability in socially prescribed perfectionism scores beyond the influence of country and gender.

Other-oriented perfectionism. For other-oriented perfectionism, as with self-oriented perfectionism and socially prescribed perfectionism, we first tested a simple random effects metaregression model including only time as a covariate (Model 1). An insignificant portion of variance in other-oriented perfectionism scores was explained by time (R^2 = .01, Q_{model} = 1.19, df = 1, p > .05).

Next, we entered the dummy country variables alongside time in a multiple random effects metaregression model of other-oriented perfectionism scores (Model 2). The covariates explained a significant portion of the variance in this model (R^2 = .16, Q_{model} = 20.62, df = 1, p < .01). An inspection of the metaregression coefficients revealed that time positively predicted other-oriented perfectionism scores (β = .23, p < .05), as did both the USA (β = .21, p < .05) and UK (β = -.28, p < .01) dummy variables. The positive sign of the time metaregression coefficient

is consistent with the interpretation that more recent generations of college students reported higher scores for other-oriented perfectionism than older generations of college students. Furthermore, together with significant Bonferroni pairwise comparisons[3], the positive sign of the USA metaregression coefficient and negative sign of the UK metaregression coefficient are consistent with the interpretation that other-oriented perfectionism is typically highest among American college students and lowest among British college students.

We then entered our gender covariate to the country covariates and time in a final multiple random effects metaregression model of other-oriented perfectionism (Model 3). Consistent with Model 2, the covariates explained a significant portion of variance in other-oriented perfectionism scores in Model 3 (R^2 = .17, Q_{model} = 20.76, df = 4, p < .01). The significant metaregression coefficients for time (β = .23, p < .05), the USA dummy variable (β = .21, p < .05), and the UK dummy variable (β = -.28, p < .01) remained in Model 3, but gender (β = -.04, p > .05) was not a significant predictor of other-oriented perfectionism scores. Hence, in this model, no evidence of a relationship was found for other-oriented perfectionism and the proportion of females in a sample.

Lastly, we compared a restricted multiple random effects metaregression model of other-oriented perfectionism scores containing only the control covariates (i.e., USA dummy variable, UK dummy variable, and gender; R^2 = .12, Q_{model} = 14.47, df = 3, p < .01) with a full multiple random effects metaregression model containing time and the control covariates (i.e., Model 3). A significant amount of additional model variance was explained when time was included alongside the control covariates; ΔR^2 = .04, $F(1, 102)$ = 5.14, p < .05. Such model improvement

[3] USA versus Canada $M_{difference}$ = .09 (95% BCa CI = .01, .16); USA versus UK $M_{difference}$ = .16 (95% BCa CI = .06, .75); Canada versus UK $M_{difference}$ = -.08 (95% BCa CI = -.17, .01).

is consistent with the interpretation that time explains variability in other-oriented perfectionism scores beyond the influence of country and gender.

Effect size. In the final step of our analysis, we calculated the effect size (Cohen's *d*) for overall change in perfectionism dimensions from our initial time point (1989) to the present day (2017). Effect size calculations were made using unstandardized beta coefficients from metaregression Model 3. For self-oriented perfectionism, the regression equation yielded a predicted value of 4.47 for 1989 and 4.59 for 2017. In the context of the weighted-average within-study *SD* of 1.03, there was an increase of 0.12 *SD*s on the self-oriented scale over the 28-year period of study. For socially prescribed perfectionism, the regression equation yielded a predicted value of 3.35 for 1989 and 3.71 for 2017. In the context of the weighted-average within-study *SD* of 0.90, there was an increase of 0.40 *SD*s on the socially prescribed perfectionism scale over the 28-year period of study. For other-oriented perfectionism, the regression equation yielded a predicted value of 3.81 for 1989 and 3.94 for 2017. In the context of the weighted-average within-study *SD* of 0.71, there was an increase of 0.19 *SD*s on the other-oriented perfectionism scale over the 28-year period of study.

Translating the *SD* change to percentile scores is informative. In the case of self-oriented perfectionism, if the average college student in 1989 scored at the 50th percentile of the distribution, the average college student in 2017 scored at the 55th percentile. This means that fifty-five percent of college students in 2017 were above the 1989 mean self-oriented perfectionism score, which amounts to a 10% increase. For socially prescribed perfectionism, if the average college student in 1989 scored at the 50th percentile of the distribution, the average college student in 2017 scored at the 66th percentile. Accordingly, nearly two-thirds of college students in 2017 were above the 1989 mean socially prescribed perfectionism score, which

amounts to a 32% increase. In the case of other-oriented perfectionism, if the average college student in 1989 scored at the 50th percentile of the distribution, the average college student in 2017 scored at the 58^{h} percentile. Hence, nearly three-fifths of college students in 2017 were above the 1989 other-oriented perfectionism mean, which amounts to a 16% increase.

Discussion

In the current study, multidimensional perfectionism measurements from 164 samples and 41,641 American, Canadian, and British college students were meta-analyzed to test for birth cohort differences between 1989 and 2016. In line with expectations, college students' mean self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism scores displayed linear increases. Our findings remained holding between gender differences in perfectionism scores constant. They also remained, or in the case of self-oriented and other-oriented perfectionism emerged, holding between country differences in perfectionism scores constant.

Self-oriented perfectionism

When holding between country differences in mean scores constant, we found that self-oriented perfectionism increased over time. This finding suggests that recent generations of college students are demanding higher expectations of themselves and attaching more importance to perfection than previous generations. As to why self-oriented perfectionism is rising, we speculated earlier on several cultural shifts that include competitiveness, individualism, meritocracy, and anxious and controlling parental practices that may be promoting perfectionism generally. The first two appear especially likely to instill an inner personal desire to strive for perfection (Sherry, Mackinnon, & Gautreau, 2016). However, it is noteworthy that the smallest change over time was observed for self-oriented perfectionism in

comparison to the other dimensions of perfectionism. Given that dimensions of perfectionism akin to self-oriented perfectionism have been found to have higher heritability than other dimensions, perhaps this is not surprising (see Tozzi et al., 2004). It may be that self-oriented perfectionism is the least amenable to change and therefore less affected by broader cultural shifts (Hewitt et al., 2017). Our findings appear to support this possibility.

Alongside the effect of time, American college students appeared to report higher self-oriented perfectionism than Canadian and British college students. Regarding why this might be the case, some researchers have suggested that the US has become 'hyper-individualistic' in recent decades (Klein, 2012). Since the 1980s and the Reagan era, communal values in the US have waned in favor of an individualized notion of liberty, in which the uninhibited pursuit of self-gain is prized more than anything else (Esposito, 2011). We also note that, relative to Canada and the UK, the US has an especially strong meritocratic ethos at the heart of the 'American dream,' which places emphasis on college to lift individuals up the social and economic ladder (Rosenbaum, 2001). To this cultural difference, research suggests that, relative to Canada and the UK, young people in the US report much higher educational expectations for themselves (Jerrim, 2013). Therefore, the especially strong individualistic and meritocratic culture in the US may explain why self-oriented perfectionism is seemingly especially high among American college students.

Socially prescribed perfectionism

Perhaps the most important finding from this research is that more recent generations of college students are reporting higher levels of socially prescribed perfectionism than previous generations. This finding suggests that young people are perceiving that their social context is increasingly demanding, that others judge them more harshly, and that they are increasingly

inclined to display perfection as a means of securing approval. We highlight the salience of this finding because of the size of the comparative increase, twice that of the other two dimensions, and the larger association between socially prescribed perfectionism and psychopathology (Limburg, Egan, Watson, & Hagger, 2017). Rising socially prescribed perfectionism dovetails with observations of rising externality of control, anxiety, and neurosis among young people, in addition to a rising sense of social disconnection (e.g., Paik & Sanchagrin, 2013; Twenge, 2000; Twenge, Zhang, & Im, 2004). These are worrying trends and suggest that young people may be increasingly more sensitive to perceived external pressures and are finding it more difficult than previous generations to cope with them.

Alongside the effect of time, American college students appeared to report lower socially prescribed perfectionism than Canadian and British college students. It is unclear why these differences are evident. As western, industrialized, predominantly English-speaking nations, these three countries arguably share more similarities than differences in terms of the cultural environments. It may be that given college students in the US also reported higher levels of self-oriented perfectionism than in Canada or the UK, perceptions that others are demanding are superseded by their own expectations of themselves. Alternatively, it may actually reflect changes and differences between the countries. For example, the US has been the fastest of the industrialized nations to shrink its communal investments (Blyth, 2013). This contrasts with Canada and the UK which, despite substantial reductions, still have sizable components of a welfare state (e.g., nationalized health services) and, possibly, a greater sense of communal responsibility and pressure. This may explain the current findings because perfectionism dimensions associated with social concern (e.g., socially prescribed perfectionism, concern over mistakes, parent criticism) are higher among individuals with heritage in communal cultures

(e.g., Asia) than among individuals with heritage in more individualistic cultures (e.g., North America and Europe; Chang, 1998, 2002; Pulford, Johnson, & Awaida, 2006).

Other-oriented perfectionism

Holding between country differences constant, we also found that other-oriented perfectionism increased over time. This finding indicates that more recent generations of college students appear to be imposing more demanding and unrealistic standards on those around them than generations previous. We note that this finding is in line with studies reporting generational increases in self-aggrandizement and interpersonal hostility (Bauman, 2002; Twenge, 2014). Increases in narcissism, assertiveness, and dismissive attachment have also been observed across a comparable period (Konrath, Chopik, Hsing, & O'Brien, 2014; Twenge, 2001b; Twenge, Konrath, Foster, Campbell, & Bushman, 2008). Describing these increases, researchers implicate a preoccupation with the perception and expression of self-esteem in contemporary culture. According to Twenge (2014), the rise of individualism in the US (and elsewhere) has contributed to a children's self-esteem becoming one of the dominant developmental outcomes within education and parenting practices. For other-oriented perfectionism, this developmental emphasis may have fostered a tendency in more recent generations of young people to zealously promote and protect their self-esteem by hostility and a projection of high standards onto others (e.g., Baumeister, Smart, & Boden, 1996; Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003; Kernis & Paradise, 2002).

Alongside the effect of time, analyses also suggested that British college students report lower levels of other-oriented perfectionism than American and Canadian college students. Again, we can only speculate on the reasons for this finding. Unlike in the US and Canada where self-promotion is culturally accepted and encouraged (Zweig, 2015), self-promotion is typically

considered ‘culturally taboo’ in the UK (Molinsky, 2013). Indeed, social anthropometric studies show people in the UK are typically uncomfortable with being praised in public, with modesty and self-deprecation preferred British traits (see Fox, 2004). Given this cultural distinction, it may not be surprising that scores on the aggrandizing dimension of perfectionism, that which is directed outwards onto others, are lower in UK samples. This is an interesting additional finding and one that merits subsequent research to be better understood.

Rising perfectionism and psychopathology

In reflecting on our findings, one issue of especial relevance is the harm and psychological difficulties that might accompany an increase in perfectionism. According to the most recent global health estimates from the World Health Organization (2017), serious mental illness afflicts a record number of young people. In the US, Canada, and the UK, young people are experiencing higher levels of depression, anxiety, and suicide ideation than they did a decade ago (e.g., Bloch, 2016; Bor, Dean, Najman, & Hayatbakhsh, 2014; Patel, Flisher, Hetrick, & McGorry, 2007). They also report more loneliness and present to clinicians with eating disorders and body dysmorphia at a higher rate than generations previous (e.g., Paik & Sanchagrin, 2013; Smink, et al., 2012; Thompson & Durrani, 2007). In the context of these data, and other meta-analytic evidence (e.g., Smith et al., 2016, in press; Hill & Curran, 2016), the increases in perfectionism observed here have the potential to explain some of the increase in the prevalence of psychopathology. At least, increases in perfectionism make for a compelling backdrop to these other trends.

We propose the link between rising perfectionism and rising psychopathology because perfectionism is a core vulnerability to a variety of disorders, symptoms, and syndromes (Flett & Hewitt, 2002). This is partly because, although perfectionists have an excessive need for others

approval, they feel socially disconnected and such alienation renders them susceptible to profound psychological turmoil (Hewitt et al., 2017). The dimension of perfectionism that exhibited the greatest increase, socially prescribed perfectionism, is especially damaging in this regard (Hewitt, Flett, Sherry, & Caelian, 2006). In a recent meta-analysis, socially prescribed perfectionism was revealed to be positively related to a range of psychological disorders and symptoms of disorders (e.g., social phobia, body dissatisfaction, bulimia nervosa, and suicide ideation) and had the largest relationship of other dimensions of perfectionism with depression and anxiety (Limburg et al., 2017). It is likely, then, that while the increases in self-oriented and other-oriented perfectionism are important, the size of the increase in socially prescribed perfectionism and its acute relevance to psychopathology means that, of the three dimensions, it is likely to be the most important in terms of explaining recent increases in mental health difficulties among young people.

Limitations and future research

Our study provides the first test of generational change in multidimensional perfectionism. However, several limitations of the study are noteworthy. Firstly, we focused on examining levels of perfectionism in college students. The findings are therefore restricted to this group who tend to be white and from higher socioeconomic backgrounds than young people generally. Secondly, while the between-study effect size variance in this meta-analysis was relatively small ($\tau \leq .17$), the proportion of this variance that was not due to chance was quite large ($I^2 \geq 88.66\%$). This is likely due to several factors including; (i) the vast time span of data retrieval (27-years), (ii) data collected from different laboratories, and (iii) the influence of other factors beyond the year of data collection that may influence perfectionism scores. To this latter possibility, several personality traits such as neuroticism, narcissism, and extraversion have been

found to have increased over a comparable period to the one studied here. Similar changes in demographic factors among college students (e.g., gender, social-economic status, country of origin) might also be significant and account for changes in perfectionism. Together, these factors may be important control variables in future work examining change in perfectionism across time. The use of a sole coder is a potential source of bias which we attempted to mitigate by; (i) establishing mutually defined decision rules for coding that the two authors agreed upon prior to coding and, (ii) checking for anomalies and outliers prior to analyses. Finally, as the perfectionism research continues to accrue, we believe it would be interesting for future research to examine the within-country effects of time on perfectionism for the US, Canada, and the UK. Alongside country-level estimates, such an analysis has the advantage of permitting tests of regional variation in levels of perfectionism, which can be mapped onto several political, economic, social, and health variables (see Rentfrow et al., 2013).

Conclusion

The current study is the first to examine generational differences in perfectionism at a cohort level. Our findings suggest that self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism have increased over the last 27 years. We speculate that this may be because, generally, American, Canadian, and British cultures have become more individualistic, materialistic, and socially antagonistic over this period, with young people now facing more competitive environments, more unrealistic expectations, and more anxious and controlling parents than generations before.

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Table 1.

Descriptive statistics and distributional properties of study variables

Variables	k_{means}	*N*	*M*	*SD*	Range
Perfectionism					
Self-oriented perfectionism	155	39,404	4.60	.20	3.93-5.22
Socially prescribed perfectionism	158	40,552	3.60	.21	3.06-4.18
Other-oriented perfectionism	102	24,370	3.85	.17	3.31-4.23
Country					
US	55 (33.54%)	14,134			
Canada	80 (48.78%)	20,550			
UK	29 (17.68%)	6,957			
Gender					
Female %	164	41,641	70.92	18.11	0.00-100.00

Note: N = sample size; *M* = mean; *SD* = standard deviation.

Table 2.
Summary of inverse variance-weighted metaregression results with controls included

	Self-oriented perfectionism (*k* = 155)									Socially prescribed perfectionism (*k* = 158)									Other-oriented perfectionism (*k* = 102)								
	Model 1			Model 2			Model 3			Model 1			Model 2			Model 3			Model 1			Model 2			Model 3		
	b	***SE***	***β***	***b***	***SE***	***β***	***b***	***SE***	***β***	***b***	***SE***	***β***	***b***	***SE***	***β***	***b***	***SE***	***β***	***b***	***SE***	***β***	***b***	***SE***	***β***	***b***	***SE***	***β***
Birth cohort																											
Time	.004	.002	.14	.004*	.002	.17	.004*	.002	.17	.01**	.002	.45	.01**	.002	.49	.01**	.002	.50	.002	.002	.11	.005*	.002	.23	.005*	.002	.23
Country[a]																											
USA				.08*	.04	.20	.09*	.04	.19				-.10**	.03	-.23	-.10**	.03	-.23				.07*	.03	.21	.07*	.04	.21
UK				-.04	.05	-.07	-.04	.04	-.07				-.06	.05	-.12	-.06	.05	-.11				-.12**	.05	-.28	-.12**	.05	-.28
Gender																											
% female							-.0003	.001	-.02							-.001	.001	-.07							-.0004	.001	-.04
Model statistics																											
$Q_{model}(df)$	3.13(1)			12.21(3)**			12.45(4)**			40.87(1)**			53.22(3)**			54.12(4)**			1.19(1)			20.62(3)**			20.76(4)**		
$Q_{residual}(df)$	156.08(153)			153.93(151)			153.07(150)			156.08(156)			155.14(154)			154.24(153)			104.36(100)			104.65(98)			104.03(97)		
R^2	.02			.07			.07			.21			.26			.26			.01			.16			.17		
$\tau^2(SE)$	.03(.004)			.03(.004)			.03(.004)			.03(.004)			.03(.004)			.03(.004)			.02(.004)			.02(.003)			.02(.003)		
I^2	89.21			88.66			88.66			91.32			90.77			90.70			92.19			90.53			90.58		

[a]The comparison group for the country covariate was Canada.
$p < .05^{*}$, $p < .01^{**}$

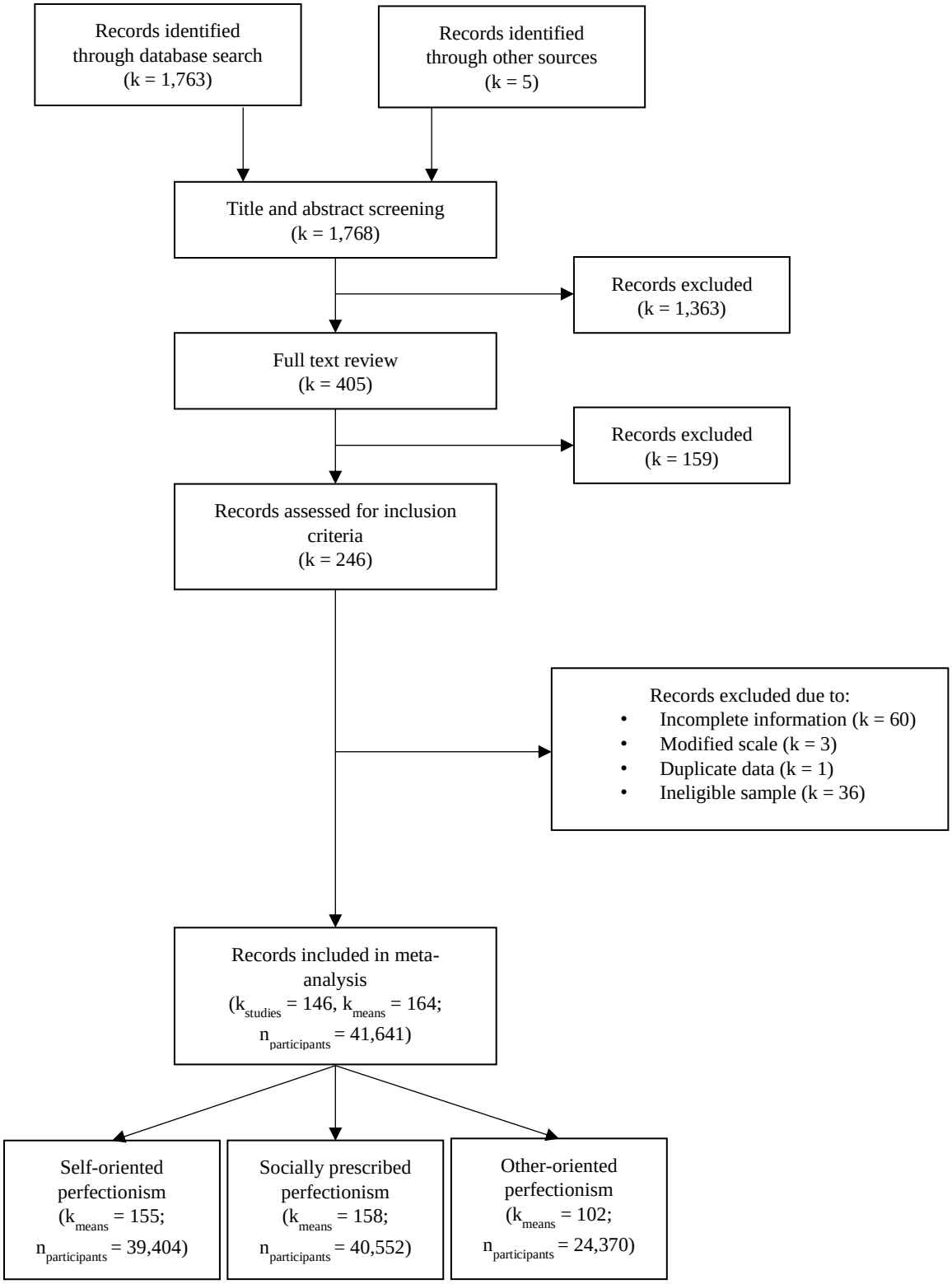

Figure 1. PRISMA flow diagram for the literature search.

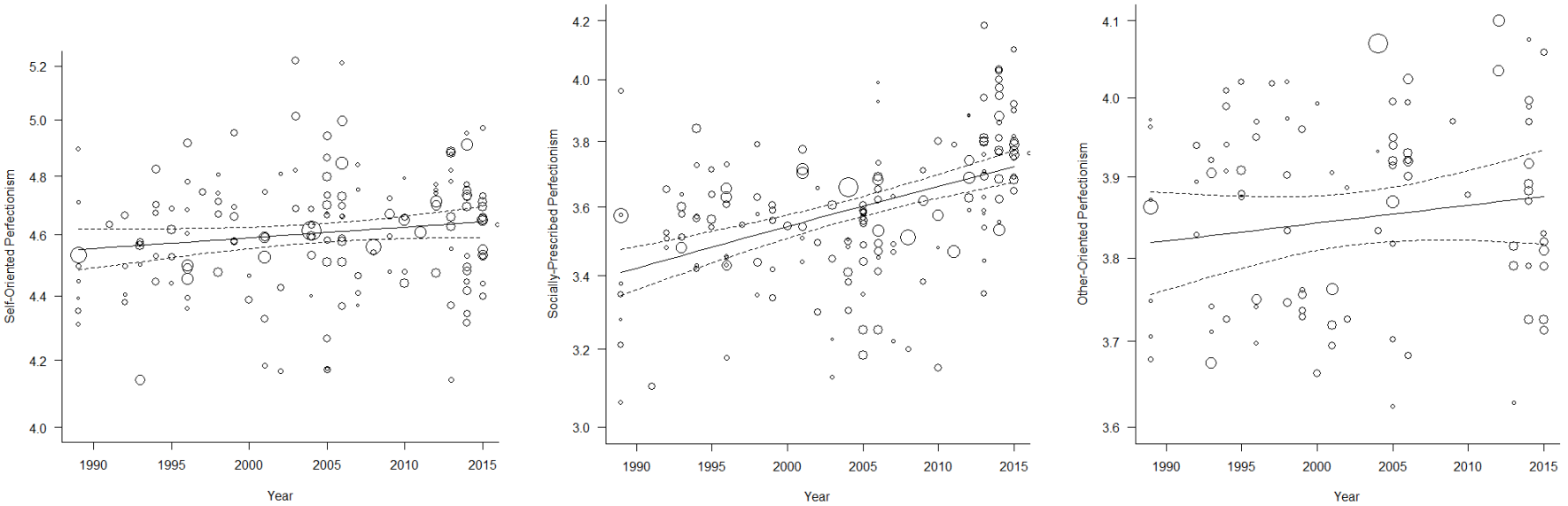

Figure 2. Multidimensional Perfectionism Scale subscale scores plotted against year of data collection.

Note. The solid regression line is plotted through the predicted perfectionism values from the metaregression equation in Model 1. Data-points represent study means and the size of the data-point is proportional to study (inverse variance) weighting. The dashed lines depict the upper and lower limits of the 95% confidence interval for the predicted values.