Perfectionism and Performance

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Abstract

Perfectionism is a personality disposition related to individual differences in performance in sport, school, and other areas of life where performance, tests, and competition play a major role. This chapter discusses the importance of differentiating two main dimensions of perfectionism—perfectionistic strivings and perfectionistic concerns—when examining the relationships between perfectionism and performance in sport, academics, music competitions, aptitude tests, and laboratory tasks. The chapter presents studies showing that perfectionistic strivings are positively associated with performance and predict higher performance beyond people's general aptitude and previous performance level. In contrast, the studies do not show that perfectionistic concerns are consistently negatively associated with performance. To conclude the chapter, implications for applied psychology are discussed as are open questions for future research regarding issues such as the development of perfectionism, performance and efficiency, and gender differences.

Keywords: perfectionism; performance; sport; training; competition; students; grade point average; achievement; effort; general aptitude

Introduction

Perfectionism [h1]

Perfectionistic Strivings and Perfectionistic Concerns [h2]

Perfectionism is a personality disposition characterized by striving for flawlessness and setting exceedingly high standards for performance accompanied by tendencies for overly critical evaluations (Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990). It is a disposition that pervades all areas of life, particularly work and school, and may also affect one's personal appearance and social relationships (Stoeber & Stoeber, 2009). Moreover, perfectionism is a common characteristic in competitive athletes (Dunn, Gotwals, & Causgrove Dunn, 2005).

Traditionally, perfectionism has been regarded as a sign of psychological maladjustment and disorder (e.g., Burns, 1980; Pacht, 1984) because people seeking psychological help for anxiety and depression often showed elevated levels of perfectionism. These early psychological conceptions regarded perfectionism as a one-dimensional personality disposition (e.g., Burns, 1980). In the 1990s, however, a more differentiated view emerged conceptualizing perfectionism as multidimensional and multifaceted (Frost et al., 1990; Hewitt & Flett, 1991; see Enns & Cox, 2002, for a review). A consensus has emerged from this research that two main dimensions of perfectionism should be differentiated (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Stoeber & Otto, 2006): perfectionistic strivings and perfectionistic concerns. The first dimension—perfectionistic strivings—captures those aspects of perfectionism associated with striving for perfection and setting exceedingly high standards of performance. The second dimension—perfectionistic concerns—captures those aspects associated with concerns over making mistakes, fear of negative evaluation by others, and feelings of discrepancy between one's expectations and performance.

The differentiation between the two dimensions is of central importance to the

understanding of perfectionism. Whereas the two dimensions are often highly correlated—most people who show elevated levels of perfectionistic strivings also show elevated levels of perfectionistic concerns—the two dimensions show differential, and often contrasting, patterns of relationships. Perfectionistic concerns show strong and consistent negative relationships, that is, positive associations with negative characteristics, processes, and outcomes (e.g., neuroticism, maladaptive coping, negative affect) and indicators of psychological maladjustment and mental disorder (e.g., depression). In contrast, perfectionistic strivings often show positive relationships, that is, positive associations with positive characteristics, processes, and outcomes (e.g., conscientiousness, adaptive coping, positive affect) and indicators of subjective well-being and good psychological adjustment (e.g., satisfaction with life) (see Stoeber & Otto, 2006, for a comprehensive review). Moreover, and in the present context more importantly, perfectionistic strivings and perfectionistic concerns also show differential relationships with performance.

However, it is important to note that the positive associations of perfectionistic strivings are often "masked" by the negative associations of perfectionistic concerns, and therefore may show only when the overlap of perfectionistic strivings with perfectionistic concerns is controlled for (R. W. Hill, Huelsman, & Araujo, 2010; Stoeber & Otto, 2006). Consequently, some researchers prefer to examine the differential relationships of perfectionistic strivings and perfectionistic concerns by adopting a group-based approach differentiating three groups of perfectionists (see Figure 1): healthy perfectionists (also called adaptive perfectionists) who are defined as people with high levels of perfectionistic strivings and low levels of perfectionistic concerns, unhealthy perfectionists (also called maladaptive perfectionists) who are defined as people with both high levels of perfectionistic strivings and high levels of perfectionistic concerns, and nonperfectionists who are defined as people with low levels of perfectionistic strivings (Rice & Ashby, 2007; Stoeber & Otto, 2006).

Measures [h2]

To measure individual differences in perfectionistic strivings and perfectionistic concerns, a number of multidimensional measures of perfectionism are available that have demonstrated reliability and validity. Measures of general perfectionism include the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990), the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991, 2004), the Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001), and the Perfectionism Inventory (PI; R. W. Hill et al., 2004). Measures of perfectionism in sport include the Sport Multidimensional Perfectionism Scale (Sport-MPS; Dunn, Causgrove Dunn, & Syrotuik, 2002; revised version: Gotwals & Dunn, 2009) and the Multidimensional Inventory of Perfectionism in Sports (MIPS; Stöber, Otto, & Stoll, 2004; English version: Stoeber, Otto, & Stoll, 2006). Finally, there is the Multidimensional Perfectionism Cognitions Inventory (MPCI; Kobori & Tanno, 2004; English version: Stoeber, Kobori, & Tanno, 2010) which measures individual differences in cognitions associated with multidimensional perfectionism that are more fleeting than those captured by the other measures which largely capture stable individual differences.

The two dimensions—perfectionistic strivings and perfectionistic concerns—are best captured when each dimension is measured with multiple scales (Frost et al., 1993; Stoeber & Otto, 2006; for a sport example, see Stoeber, Stoll, Salmi, & Tiikkaja, 2009). However, there are single scales that represent proxy measures of the two dimensions. Regarding the perfectionistic strivings dimension, proxy measures are the FMPS Personal Standards scale, particularly when only the items measuring pure personal standards are regarded (DiBartolo, Frost, Chang, LaSota, & Grills, 2004); the MPS Self-Oriented Perfectionism scale, particularly when only the items measuring perfectionistic striving are regarded (Campbell & Di Paula, 2002; Stoeber & Childs, 2010); the APS-R High Standards scale; the PI Striving for Excellence scale; the Sport-MPS Personal Standards

scale; the MIPS Striving for Perfection scale; and the MPCI Personal Standards scale. Regarding the perfectionistic concerns dimension, proxy measures are the FMPS Concern over Mistakes scale or the combination of the FMPS Concern over Mistakes and Doubts about Action scales (Stöber, 1998; Stumpf & Parker, 2000); the MPS Socially Prescribed Perfectionism scale, particularly when the items measuring conditional acceptance are regarded (Campbell & Di Paula, 2002; Stoeber & Childs, 2010); the APS-R Discrepancy scale; the PI Concern over Mistakes scale; the Sport-MPS Concern over Mistakes scale; the MIPS Negative Reactions to Imperfection scale; and the MPCI Concern over Mistakes scale.

To know which scales represent proxy measures of the two dimensions of perfectionism helps to understand the findings of studies that do not use multiple scales to measure the two dimensions shown in Figure 1. Moreover, it helps to understand the findings of studies that follow the group-based approach to differentiate between healthy perfectionists, unhealthy perfectionists, and nonperfectionists (see again Figure 1) which do not use multiple scales and cluster analytic methods to arrive at the three perfectionist groups (see Stoeber & Otto, 2006), but instead use single scales to measure each of the two dimensions—mostly the APS-R High Standards scale to measure perfectionistic strivings, and the APS-R Discrepancy scale to measure perfectionistic concern—to form the three groups of perfectionists (e.g., Rice & Ashby, 2007).

Perfectionism and Performance [h1]

Considering the conceptualization of perfectionism and the importance that perfectionists put on high standards of performance (Flett & Hewitt, 2002; Frost et al., 1990), it comes as a surprise that until recently perfectionism research has largely ignored how perfectionism relates to performance. Instead, the vast majority of research—following the traditional view prominent in clinical psychology and psychiatry that perfectionism is a pathological personality characteristic requiring treatment (e.g., Burns, 1980; Pacht, 1984)—focused on investigating how perfectionism is

related to indicators of psychological maladjustment, clinical symptoms, and mental disorder (e.g., Flett & Hewitt, 2002, 2007). The one exception is academic performance where numerous studies—following a view prominent in personality and individual differences and counseling psychology that perfectionism is a "normal" personality characteristic that has positive and negative aspects—have investigated how perfectionism is related to students' exam performance, grades, and grade point average (GPA).

Academic Performance [h2]

Regarding the studies on perfectionism and academic performance, the overwhelming majority shows that perfectionistic strivings are positively associated with academic performance: students with higher levels of perfectionistic strivings show higher exam performance, higher individual grades, and a higher GPA than students with lower levels of perfectionistic strivings (Accordino, Accordino, & Slaney, 2000; Bieling, Israeli, Smith, & Antony, 2003; Blankstein, Dunkley, & Wilson, 2008; Blankstein & Winkworth, 2004; Brown et al., 1999; Castro & Rice, 2003; Enns, Cox, Sareen, & Freeman, 2001; Grzegorek, Slaney, Franze, & Rice, 2004; Kawamura, Frost, & Harmatz, 2002; Leenaars & Lester, 2006; Nounopoulos, Ashby, & Gilman, 2006; Rice & Ashby, 2007; Sevlever & Rice, 2010; Stoeber & Eismann, 2007; Stoeber & Rambow, 2007; Vandiver & Worrell, 2002; Verner-Filion & Gaudreau, 2010; Witcher, Alexander, Onwuegbuzie, Collins, & Witcher, 2007). In contrast, the relationship of perfectionistic concerns with academic performance is less clear. Whereas most studies did not find significant negative correlations of perfectionistic concerns with academic performance (Stoeber & Otto, 2006), some studies report small negative correlations (Blankstein et al., 2008; Flett, Blankstein, & Hewitt, 2009; Leenaars & Lester, 2006; Mobley, Slaney, & Rice, 2005; Nounopoulos et al., 2006; Rice & Ashby, 2007; Sevlever & Rice, 2010; Vandiver & Worrell, 2002). However, the majority of these findings are from studies that measured perfectionistic concerns with the APS-R Discrepancy scale (Slaney et al., 2001) which mainly

captures perfectionistic concerns about the discrepancy between one's expectations and performance. Consequently, the findings of perfectionistic concerns' negative associations with academic performance may be specific to the APS-R Discrepancy scale and may not generalize to other measures of perfectionistic concerns.

Further evidence that perfectionistic strivings are associated with higher academic performance (and perfectionistic concerns not necessarily with lower academic performance) comes from three studies that followed the group-based approach differentiating healthy perfectionists, unhealthy perfectionists, and nonperfectionists (cf. Figure 1) and found significant GPA differences between the three groups (Grzegorek et al., 2004; Rice & Slaney, 2002, Studies 1 and 2). In all three studies, healthy perfectionists had a higher GPA than nonperfectionists. Moreover, in two studies (Rice & Slaney, 2002, Studies 1 and 2), healthy perfectionists also had a higher GPA than unhealthy perfectionists, whereas in one study (Grzegorek et al., 2004) healthy perfectionists did not. Instead, healthy and unhealthy perfectionists both had a higher GPA than nonperfectionists.

Performance in Music Competitions, Aptitude Tests, and Simple Laboratory Tasks [h2]

In comparison to the numerous studies that investigated the relationships between perfectionism and academic performance, studies investigating the relationships between perfectionism and performance in other areas are few. Disregarding the studies on sport performance (which are discussed in the following section), there are so far only four studies differentiating perfectionistic strivings and perfectionistic concerns that investigated non-academic indicators of performance and found significant relationships between perfectionism and performance: one investigating performance in music competitions (Stoeber & Eismann, 2007), one investigating performance in aptitude tests (Stoeber & Kersting, 2007), and two investigating performance in simple laboratory tasks (Kobori & Tanno, 2005; Stoeber, Chesterman, & Tarn, 2010).

Stoeber and Eismann (2007) investigated a sample of young talented musicians examining whether perfectionism was related to the number of awards that the musicians had won in music competitions on local, state, and nationwide levels (coming in first, second, or third place). Results showed that, whereas perfectionistic concerns were unrelated to the number of awards musicians had won, perfectionistic strivings were positively related to the number of awards: Musicians with higher levels of perfectionistic strivings in their music studies had on average won more awards than musicians with lower levels of perfectionistic strivings, suggesting that perfectionistic strivings show a positive relationship with how well young aspiring musicians perform in competitions.

Stoeber and Kersting (2007) investigated a diverse sample of young people (university students, people recruited at job centers) to examine whether perfectionistic strivings predicted how people performed in aptitude tests typically used in personnel selection such as reasoning tests, speed tests, and work sample tests (viz. sorting letters, processing emails). Results showed that perfectionistic strivings predicted higher test scores in the reasoning tests and the work sample tests, but not in the speed tests (with the exception of the verbal speed tests). Furthermore, perfectionistic strivings predicted performance in the work sample tests beyond what was predicted by young people's performance in the reasoning and speed tests—tests that are usually administered to measure people's general aptitude or "intelligence"—indicating that perfectionistic strivings explain variance in performance in work-relevant tasks beyond what can be explained by individual differences in general aptitude. Moreover, the study included a measure of conscientious achievement striving, which is the facet of trait conscientiousness (Costa & McCrae, 1995) that has shown the highest correlations with both perfectionistic strivings and performance, to examine how individual differences in the achievement striving facet of trait conscientiousness contributed to the results. As expected, conscientious achievement striving showed a substantial positive correlation with perfectionistic strivings. However, only perfectionistic strivings (but not conscientious

achievement striving) predicted higher performance in the reasoning and work sample tests, and also explained variance in the work sample tests beyond reasoning and speed, suggesting that perfectionistic strivings have positive effects on performance that go beyond the established findings of trait conscientiousness on performance.

Regarding performance in simple laboratory tasks, a first study (Kobori & Tanno, 2005) investigated performance in a computerized version of the Stroop color-naming task (Stroop, 1935) in which the names of colors were presented in differently colored text (e.g., the word "GREEN" is presented in red letters) and participants had to press a key representing the color of the word's letters, ignoring the word's meaning. The task was paced by the computer program (participants had 800 ms to respond to each word). Results showed that, whereas perfectionistic concerns did not show any significant correlations with task performance, perfectionistic strivings showed a positive correlation with task performance: Participants high in perfectionistic strivings achieved a higher number of correct answers in the task than participants low in perfectionistic strivings.

A second study (Stoeber et al., 2010) investigated performance in a modified version of the letter detection task used by Tallis, Eysenck, and Mathews (1991). On a computer screen, participants were presented 100 slides with 25 letters and numbers ordered in a 5 × 5 array. Half of the slides contained the letter "E," and the other half did not. The task was to detect the letter "E," and participants had two response keys: one key for "E present" responses, and one for "E absent" responses. In contrast to Kobori and Tanno's (2005) study, the task was self-paced because the authors wanted to measure time-on-task (i.e., the time participants took to complete the task) as an objective measure of effort that participants put into the task. Results showed that perfectionistic concerns showed no significant correlations with either task performance or time-on-task. In contrast, perfectionistic strivings showed a positive correlation with the number of correct responses. Moreover, they showed a positive correlation with time-on-task, suggesting that

participants high in perfectionistic strivings put more effort in the task than participants low in perfectionistic strivings, and that this increased effort was responsible for their higher task performance. This was confirmed when mediation analyses were conducted showing that time on task fully mediated the relationship between perfectionistic strivings and task performance.

Mediation is a key concept in psychological research (Baron & Kenny, 1986) because a mediator represents a "mechanism of action, a vehicle whereby a putative cause has its putative effect" (Cole & Maxwell, 2003, p. 558). Consequently, Stoeber et al.'s (2010) findings have important implications for research on perfectionism and performance because they suggest that invested effort is one mechanism that may explain how perfectionistic strivings lead to higher performance. Previous studies had already suggested that perfectionistic strivings may be associated with higher effort. For example, students high in perfectionistic strivings intend to study more (i.e., invest more hours studying) than students low in perfectionistic strivings (Bieling et al., 2003; Brown et al., 1999), and young musicians high in perfectionistic strivings spend more time practicing than young musicians low in perfectionistic strivings (Stoeber & Eismann, 2007). Stoeber et al.'s (2010) findings, however, were the first to demonstrate that people high in perfectionistic strivings actually invest more effort in task performance and that the additional effort they invest is responsible for their higher task performance.

Sport Performance [h2]

Finally, four studies investigated the relationships of perfectionism and sport-related performance. Unfortunately, their findings are not as straightforward as those discussed so far. Whereas three of the four studies found perfectionistic strivings to predict higher performance (Stoeber, Uphill, & Hotham, 2009, Studies 1 and 2; Stoll, Lau, & Stoeber, 2008), one study found perfectionistic strivings to predict lower performance after failure (Anshel & Mansouri, 2005) and one study found that athletes high in perfectionistic strivings and high in perfectionistic concerns—

that is, athletes who would be considered "unhealthy" perfectionists according to the model in Figure 1—showed the largest performance increments over a series of trials (Stoll et al., 2008). Therefore, I will discuss the studies in greater detail than the previous studies.

Anshel and Mansouri (2005) conducted a laboratory study investigating the performance of 30 male undergraduate athletes in a body-balancing task. Athletes completed a multidimensional measure of perfectionism including scales that measured perfectionistic strivings (the FMPS Personal Standards scale) and perfectionistic concerns (the FMPS Concern over Mistakes scale). Following this, they were asked to perform a body balancing task on a stabilometer for 20 trials. In half of the trials, athletes received no feedback on their performance. In the other half, they received false negative feedback that they were failing to reach their previous best. Results showed that perfectionistic strivings and perfectionistic concerns were unrelated to performance when athletes received no feedback, but both were associated with impaired performance when athletes received false negative feedback on their performance, suggesting that perfectionism may undermine sport performance when athletes are made to believe that they are underperforming.

The study's findings need to be interpreted with caution, however. First, with 30 athletes, the sample was rather small. Therefore the findings may not be as reliable as they would have been had a larger sample been used (cf. Maxwell, 2004). Second, the study measured athletes' general perfectionism (using the FMPS), not their perfectionism in sport (using a sport-specific measure like the Sport-MPS or the MIPS). This is important because research comparing athletes' levels of perfectionism across different domains (sport, school, general life) found that athletes show significantly higher levels of perfectionism in sport than at school and in general life (Dunn et al., 2005). Consequently, measures of general perfectionism may not capture the degree of athletes' perfectionism in sport (Dunn, Craft, Causgrove Dunn, & Gotwals, 2011). Finally, and most importantly, the study was conducted in a laboratory setting using a measure of sport performance

(body balancing performance on a stabilometer) that may have limited predictive validity for athletes' sport performance in "real life" settings because body balancing may be a key requirement in some disciplines (e.g., gymnastics), but not in others. Consequently, it can be expected that findings are different when studies investigate the relationships of perfectionism and sport performance out in the field—in training and in competitions—using sport-specific measures of perfectionism and examining larger samples of athletes.

Stoll and colleagues (2008) conducted a field study on perfectionism and training performance in 122 undergraduate student athletes. First, athletes completed a questionnaire assessing perfectionistic strivings (using the MIPS Striving for Perfection scale) and perfectionistic concerns (using the MIPS Negative Reactions to Imperfection scale) during training. Afterwards they performed a series of four trials with a new basketball training task that required scoring baskets from a nonstandard position. Results showed that perfectionistic strivings were associated with higher overall performance when performance was averaged across trials. Perfectionistic strivings, however, were unrelated to performance increments, that is, how much athletes improved their performance over the four trials. Instead, the interaction of perfectionistic strivings and perfectionistic concerns predicted performance increments: Athletes who were high in both perfectionistic strivings and perfectionistic concerns showed the largest performance increments over the four trials.

While the finding of perfectionistic strivings associated with higher performance was as expected (and in line with the findings from the studies on perfectionism and performance outside sports discussed in the previous sections), the findings that athletes high in both perfectionistic strivings and perfectionistic concerns showed the largest performance increments was unexpected. Speculating on why this was the case, Stoll et al. (2008) noted that the scale they used to measure perfectionistic concerns (the MIPS Negative Reactions to Imperfection scale) contains items that

capture anger, dissatisfaction, and frustration after mistakes and unsatisfactory performance (e.g., "I get completely furious when I make a mistake"). Thus athletes who were high in both dimensions of perfectionism—high in perfectionistic strivings and high in negative reactions to imperfection—may have wanted to show a perfect training performance, but experienced more anger, frustration, and dissatisfaction with their imperfect performance. As a result, they may have been more motivated to improve their performance, which at the beginning of the trials was no better than that of the other athletes, over the consecutive trials to avoid further anger, frustration, and dissatisfaction (cf. Frost & Henderson, 1991; Vallance, Dunn, & Causgrove Dunn, 2006). In comparison, athletes who were high in perfectionistic strivings (but not high in negative reactions to imperfection) may not have experienced strong negative affective reactions when their performance was imperfect and thus were less motivated to improve their performance, especially as their performance was higher than those of the other athletes across all four trials anyway. However, Stoll and colleagues' explanation, while plausible, faces the challenge that negative affective reactions usually lead to impaired performance, not improved performance. Consequently, future studies need to replicate the findings and include additional variables that may explain how athletes high in both dimensions of perfectionism "channeled" their negative affective reactions to improve their performance.

Finally, Stoeber, Uphill, and Hotham (2009) conducted two field studies investigating the relationships of perfectionism and competitive performance in triathletes and how perfectionistic strivings influence triathletes' race performance. The first study investigated race performance in 112 triathletes competing over the half-Ironman distance (1.9 km swimming, 90 km cycling, 21 km running), and the second study 321 triathletes competing over the Olympic distance (1.5 km swimming, 40 km cycling, 10 km running). Both studies employed a prospective correlational design. Athletes completed measures of perfectionistic strivings (the Sport-MPS Personal Standards scale) and perfectionistic concerns (the Sport-MPS Concern over Mistakes scale), all of which were

adapted to specifically refer to triathlon, the day before the race they had registered for. In addition, they indicated their previous performance level (seasonal best) and completed a questionnaire on the achievement goals they pursued in the upcoming race regarding four goals: performance approach goals (e.g., "It is important to me to perform better than others"), performance avoidance goals ("I just want to avoid performing worse than others"), mastery approach goals (e.g., "It is important to me to perform as well as I possibly can"), and mastery avoidance goals (e.g., "I worry that I may not perform as well as I possibly can") (Conroy, Elliot, & Hofer, 2003). In both studies, only perfectionistic strivings predicted triathletes' performance whereas perfectionistic concern was unrelated to performance. What is more, perfectionistic strivings predicted triathletes' performance beyond what was expected from their seasonal best (also controlling for gender and age). Furthermore, mediation analyses showed that the contrast between performance approach goals and performance avoidance goals fully mediated the effects of perfectionistic strivings on race performance. Triathletes high in perfectionistic strivings pursued performance approach goals rather than performance avoidance goals, and the greater the difference between the two goals, the better was their race performance. In short, triathletes high in perfectionistic strivings set more approach-oriented performance goals for the race and thus achieved a race performance that was higher than that of athletes low in perfectionistic strivings.

The findings from basketball training (Stoll et al., 2008) and triathlon competitions (Stoeber, Uphill, & Hotham, 2009) have important implications for research on perfectionism and sport performance because they indicate that, in "real life" settings and in the absence of false failure-feedback on performance, athletes high in perfectionistic strivings achieve higher levels of sport performance than athletes low in perfectionistic strivings. What is more, perfectionistic strivings predict competitive performance beyond what is expected from athletes' previous performance level (Stoeber, Uphill, & Hotham, 2009). Finally, the results of Stoeber et al.'s mediation analyses suggest

that the kind, and combination of, achievement goals that athletes pursue represent another "mechanism" that may explain how perfectionistic strivings lead to higher performance, namely by more strongly endorsing performance approach goals (viz. perform better than other competitors) than performance avoidance goals (viz. avoid performing worse than other competitors) when athletes set goals for their performance in an upcoming competition (see also Stoeber & Crombie, 2010).

Implications for Applied Psychology [h1]

The findings that perfectionistic strivings are associated with higher performance—higher academic performance at school and university; higher performance in music competitions, aptitude tests, and simple laboratory tasks; and higher sport performance in training and competitions—have important implications for our understanding, and our evaluation, of perfectionism. Perfectionism does not necessarily lead to impaired performance. On the contrary, with perfectionistic strivings, there is a dimension to perfectionism that motivates individuals to strive for the best possible outcome making them set higher standards than others and give their best effort. As a consequence, individuals high in perfectionistic strivings can achieve a higher performance than individuals low in perfectionistic strivings. Therefore, perfectionistic strivings represent an aspect of perfectionism that has implications for all areas of psychology in which performance plays a key role. Particularly, the findings that perfectionistic strivings predict higher performance beyond what is expected from people's general aptitude and previous performance level are noteworthy. For example, given that perfectionistic strivings predict higher performance in tests that are used in personnel selection (Stoeber & Kersting, 2007), industrial and organizational psychologists should investigate the role of perfectionism in recruitment and selection.

Moreover, regarding applied sport psychology, the findings that perfectionistic strivings show positive associations with training performance (Stoll et al., 2008) and predict competitive

performance beyond athletes' previous performance level (Stoeber, Uphill, & Hotham, 2009) have important implications for athletes, coaches, and personal trainers and advisors, as they show that perfectionism is a not necessarily a debilitating characteristic that is certain to undermine sport performance and prevent athletic development (Flett & Hewitt, 2005; Hall, 2006). Instead, perfectionistic strivings may help motivate athletes to achieve their best and boost their performance in training and competitions. Consequently, perfectionistic strivings may form part of the kind of "adaptive perfectionism" that was found to be a typical characteristic of Olympic champions (see Gould, Dieffenbach, & Moffit, 2002).

However, there is one important caveat. As mentioned earlier, most people who show elevated levels of perfectionistic strivings also show elevated levels of perfectionistic concerns, as indicated by the significant (and often high) positive correlations between perfectionistic strivings and concerns found in terms of general perfectionism (Stoeber & Otto, 2006) and perfectionism in sport (e.g., Stoeber, Otto, Pescheck, Becker, & Stoll, 2007; Stoeber, Stoll, et al., 2009). This represents a problem because perfectionistic concerns—while not necessarily leading to impaired performance—have shown close links with characteristics and processes that may impair performance. Whereas perfectionistic strivings in athletes are associated with characteristics and processes that are likely to have positive effects on athletes' performance such as hope of success, competitive self-confidence, approach goal orientations, and self-serving attributions of success and failure (Stoeber & Becker, 2008; Stoeber et al., 2007; Stoeber, Stoll, Pescheck, & Otto, 2008), perfectionistic concerns in athletes are associated with characteristics and processes that are likely to have negative effects such as fear of failure, competitive anxiety, avoidance goal orientations, and self-depreciating attributions of success and failure (Sagar & Stoeber, 2009; Stoeber & Becker, 2008; Stoeber et al., 2007, 2008). Moreover, perfectionistic concerns are associated with athlete burnout not only in adult athletes, but already in adolescent athletes (Gould, Udry, Tuffy, & Loehr, 1996; A.

P. Hill, Hall, Appleton, & Kozub, 2008). Consequently, perfectionistic concerns represent an aspect of perfectionism that clearly is maladaptive and poses a serious risk to athletes' motivation, self-esteem, health, and athletic development (Hall, 2006).

But how can coaches help athletes who suffer from perfectionistic concerns, and how can such athletes help themselves? Fortunately, there are two excellent self-help guides available to everyone who wants to curb the negative aspects of perfectionism. First, there is Antony and Swinson's (1998) guide which contains procedures and techniques (e.g., identifying and challenging maladaptive perfectionistic thoughts and behaviors) that have shown to be effective in helping perfectionists to cope with the negative aspects of perfectionism (Pleva & Wade, 2007). Second, there is Shafran, Egan, and Wade's (2010) recently published guide which contains further tried and tested techniques, based on cognitive behavioral methods, to help people suffering from perfectionistic concerns to overcome their concerns (and the associated negative thoughts, feelings, and behaviors) and learn to be less concerned over making mistakes, less afraid of negative evaluation by others, and less afflicted by feelings of discrepancy between one's expectations and performance. The techniques from both self-help guides can be easily applied—and easily adapted to the sport context—and thus may represent a helpful tool kit for anybody suffering from perfectionistic concerns or working with people who suffer from such concerns. However, more applied research is needed including athletes and other non-clinical populations to confirm that the techniques are widely applicable and generally effective in reducing perfectionistic concerns.

Open Questions and Future Directions [h1]

Over the last 20 years, research on perfectionism has made tremendous progress providing many important insights that have broadened and deepened our knowledge about what perfectionism is, and what it does. For example, we now know that perfectionism is best conceptualized as a multidimensional characteristic and we know about the importance of

differentiating perfectionistic strivings and perfectionistic concerns. Moreover, an increasing number of studies demonstrate that perfectionistic strivings are associated with, and predictive of, higher performance across different areas of life and in various achievement situations.

Nevertheless, there are still many open questions regarding perfectionism in general and the relationships of perfectionism and performance in particular. First, we still know little about how individual differences in perfectionism develop over a person's life. There is general agreement that perfectionism has its roots in childhood development and that parents play a key role in the development of general perfectionism (for reviews, see Flett, Hewitt, Oliver, & Macdonald, 2002; Stoeber & Childs, in press) and perfectionism in sport (Appleton, Hall, & Hill, 2010; Sapieja, Dunn, & Holt, 2011). However, it is unclear what parental factors are responsible for the *differential* development of perfectionistic strivings compared to perfectionistic concerns, that is, what factors contribute to the development of perfectionistic strivings and what factors contribute to the development of perfectionistic concerns. Unfortunately, there is a dearth of longitudinal studies investigating how parental factors influence the development of perfectionism. While the few longitudinal studies available indicate that harsh parenting and psychological controlling parenting are factors that contribute to the development of perfectionistic concerns (e.g., Soenens et al., 2008), it is unclear how parents contribute to the development of perfectionistic strivings. Findings from a study by Rice, Lopez, and Vergara (2005) suggest that parental expectations (parents expecting their children to be perfect) lead to perfectionistic strivings whereas parental criticism (parents criticizing their children if they are not perfect) leads to perfectionistic concerns (see also McArdle & Duda, 2008). However, the study did not employ a longitudinal design. Moreover, other factors than parental factors need to be taken into account, for example, differences in children's broad personality traits. As was shown in a recent longitudinal study, adolescents who were high in the personality trait of conscientiousness (i.e., the personality trait capturing individual differences in

organization, persistence, and motivation in goal-directed behavior) were found to show increases in perfectionistic strivings over time (Stoeber, Otto, & Dalbert, 2009), indicating that individual differences in trait conscientiousness are a factor in the development of perfectionistic strivings.

Another open question concerns gender differences. So far, little is known about gender differences in perfectionism because most studies on perfectionism do not report gender differences, and the studies that do report gender differences have produced inconclusive or inconsistent findings. Regarding absolute levels of perfectionism, there are findings suggesting that female athletes have higher levels of perfectionistic concerns than male athletes (Anshel, Kim, & Henry, 2009). However, the majority of studies reporting gender differences did not find that females show any higher (or lower) levels of perfectionistic strivings and perfectionistic concerns, neither regarding general perfectionism (e.g., Blankstein et al., 2008; Hewitt & Flett, 2004; Stoeber & Stoeber, 2009) nor perfectionism in sport (e.g., Anshel & Eom, 2003). As concerns gender differences in the relationships between perfectionism and performance, the findings are unclear too. Whereas the majority of studies on perfectionism and performance that analyzed gender differences did not find evidence that the relationships were different for males and females, two studies that found such evidence show inconsistent findings. Both studies investigated academic performance, as indicated by GPA. In one study (Blankstein & Winkworth, 2004), perfectionistic strivings predicted GPA only in men, but not in women. In the other study (Kawamura et al., 2002), perfectionistic strivings showed a significantly higher positive correlation with GPA in females than in males. Consequently, more research on gender differences in perfectionism is needed to confirm that there are significant and consistent gender differences in perfectionism and its relationships with performance—or to confirm that the "gender similarities hypothesis" (Hyde, 2005) also holds for perfectionism, that is, that perfectionism is another characteristic in which males and females do not show meaningful differences.

Moreover, more research is needed to find further mediators of the perfectionism–performance relationship that explain how perfectionistic strivings lead to higher performance. Whereas invested effort indicated by the time invested in task performance (Stoeber et al., 2010) and stronger approach than avoidance orientations in performance goals (Stoeber, Uphill, & Hotham, 2009) are important explanatory mechanisms, they may be limited to certain tasks and contexts (viz. self-paced tasks, athletic competitions). Consequently, future research needs to look at other factors, for example, aspiration level and goal setting considering that perfectionistic strivings have been associated with higher aspiration levels and with raising one's aspiration levels after success (Kobori, Hayakawa, & Tanno, 2009; Stoeber, Hutchfield, & Wood, 2008). Another important issue for future research is how perfectionism is related to efficiency of performance. Theory and research on anxiety and performance have long made the distinction between absolute performance and relative performance (or efficiency) taking into account the effort invested to achieve a specific level of performance (Eysenck & Calvo, 1992). Because perfectionistic strivings are associated with both higher absolute performance and higher effort, it is important to consider effort when investigating perfectionism and task performance, because when effort is taken into account and performance is regarded relative to invested effort (e.g., dividing absolute performance by invested effort), it may well be that perfectionistic strivings are associated with higher absolute performance, but lower efficiency—as demonstrated in two recent studies on perfectionism and proof-reading performance (Stoeber, 2011; Stoeber & Eysenck, 2008).

Furthermore, future research has to take note that perfectionism can be highly domain-specific (e.g., Dunn et al., 2005; Stoeber & Stoeber, 2009). Consequently, some of the central studies discussed in this chapter either used domain-specific measures of perfectionism (particularly the studies regarding sport performance) or presented participants the perfectionism measures together with instructions emphasizing the specific domain that the researchers were interested in. For

example, in Stoeber and Kersting's (2007) study, instructions were modified to specifically measure perfectionistic strivings in test situations by asking participants to indicate how they usually approached test situations (e.g., tests, written exams, oral exams). And in Stoeber and Eismann's (2007) study, participants were instructed to answer all items with respect to their main music subject (e.g., piano, violin, singing lessons). While it is unclear to what the degree the relationships between perfectionistic strivings and performance were influenced by the instructions' intentions to make the perfectionism measures more domain-specific, it is conceivable that the relationships the studies report are stronger than if the perfectionism measures had been used with standard instructions not stressing certain domains.

Finally, and most importantly, prospective and longitudinal studies using cross-lagged designs are needed to clarify the causal direction of the relationships between perfectionism and performance (viz. perfectionistic strivings "causing" higher performance, not vice versa), as some researchers have argued that higher academic performance may be a factor contributing to the development of perfectionism in children and adolescents (Flett et al., 2002). Moreover, we need to know more about the long-term consequences of perfectionistic strivings on performance, as some researchers have argued that perfectionistic strivings—while boosting performance in the short run—may have negative consequences in the long run such as burnout (Hall, 2006) and thus are detrimental to sustained performance.

Conclusions (h1)

So far, however, there is little evidence suggesting that perfectionistic strivings are detrimental to performance. On the contrary, across different domains and different indicators of performance, the evidence suggests that perfectionistic strivings are associated with higher performance and predict higher performance beyond what is expected from individuals' general aptitude or previous performance level. Perfectionistic strivings appear to have a motivational quality

that give individuals an extra "boost" to do their best, make an additional effort, and achieve the best possible results. Even some clinical psychologists are beginning to recognize that there is nothing unhealthy or maladaptive about perfectionistic strivings as such (e.g., Lundh, 2004). On the contrary, perfectionistic strivings may form part of a "healthy pursuit of excellence" (Shafran, Cooper, & Fairburn, 2002, p. 778). However, this may only be the case when perfectionistic strivings are not accompanied by elevated levels of perfectionistic concerns (cf. Figure 1), because the research suggests that perfectionistic concerns are unhealthy and maladaptive and—while they may not be immediately detrimental to performance—represent a serious risk to people's happiness, well-being, and mental health.

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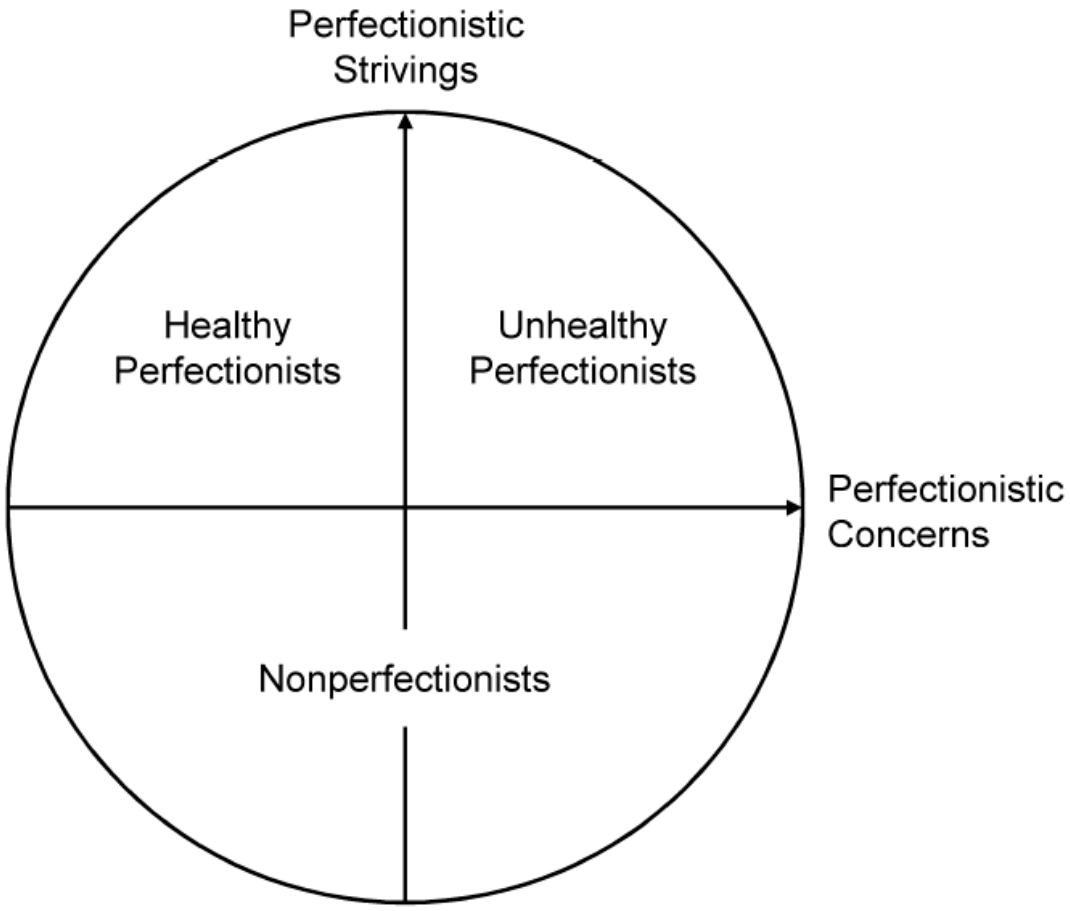
Figure Caption

Figure 1. Across multidimensional models of perfectionism, two main dimensions of perfectionism can be distinguished (perfectionistic strivings, perfectionistic concerns) which can be used to differentiate between three groups of perfectionists (healthy perfectionists, unhealthy perfectionists, nonperfectionists). Adapted from "Positive conceptions of perfectionism: Approaches, evidence, challenges," by J. Stoeber and K. Otto, *Personality and Social Psychology Review, 10,* p. 296.


Perfectionistic
Strivings
Healthy
Perfectionists
Unhealthy
Perfectionists
Perfectionistic
Concerns
Nonperfectionists

[Figure 1]