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Measuring Perfectionism in Sport, Dance, and Exercise:

Review, Critique, Recommendations

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Introduction

Aims and Content

Over the past 25 years, a number of multidimensional measures of perfectionism has been developed. Based on different models of multidimensional perfectionism, these measures contain different numbers of subscales, and most of the time the different subscales bear different names. This presents a confusing situation to researchers unfamiliar with the often complex details of the perfectionism literature who want to conduct research on perfectionism in sport, dance, and exercise and need to make a decision as to what measure to use to capture individual differences in multidimensional perfectionism. The aim of the present chapter is to give researchers some guidance in this decision. To this aim, the chapter will (a) review the available multidimensional measures that have been published in international peer-reviewed journals and (b) provide a critique of these measures. In addition, the chapter will provide (c) recommendations on which measures to use and guidance on which decisions researchers have to make when using these measures to capture perfectionism in sport, dance, and exercise.

Overview

Perfectionism is best conceptualized as a multidimensional construct because it comes in different forms and has various aspects (Enns & Cox, 2002). Consequently, the present chapter will not discuss measures of perfectionism that are based on unidimensional models of perfectionism such as the Burns Perfectionism Scale (Burns, 1980), the Perfectionism subscale of the Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983), or the Clinical Perfectionism Scale (Fairburn, Cooper, & Shafran, 2003). Moreover, research on multidimensional perfectionism has shown that the different forms and aspects of perfectionism—when examined together using factor analytic procedures—form two higher-order factors (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; see Stoeber & Otto, 2006, for a review). These higher-order factors have been given different names, but are nowadays mostly referred to as personal standards perfectionism and evaluative concerns perfectionism (Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000) or perfectionistic strivings and perfectionistic concerns (Stoeber & Otto, 2006). In the present chapter, we refer to them as perfectionistic strivings and perfectionistic concerns because these labels suggest that they are two different dimensions of the same construct, and not two different forms of perfectionism.

The differentiation of perfectionistic strivings and perfectionistic concerns is central to the understanding of multidimensional perfectionism. The reason is that only perfectionistic

concerns are associated with characteristics, processes, and outcomes that are considered indicative of psychological maladjustment (e.g., neuroticism, avoidant coping, negative affect). In contrast, perfectionistic strivings may be associated with characteristics, processes, and outcomes that are considered indicative of psychological adjustment (e.g., conscientiousness, problem-focused coping, positive affect) (see Stoeber & Otto, 2006, for a review). The same is true for perfectionistic strivings and perfectionistic concerns in sport, dance, and exercise (Gotwals, Stoeber, Dunn, & Stoll, 2012; Stoeber, 2011, 2014b). Consequently, the present chapter will also give advice as to which scales are considered key indicators (“proxies”) of perfectionistic strivings and concerns (see Table 1).

Finally, it is important to note that few perfectionists are perfectionistic in all domains of life and, if you ask people about perfectionism in general, most will mention work, school, or studies but not sport, dance, or exercise (Slaney & Ashby, 1996; Stoeber & Stoeber, 2009). Instead, perfectionism is often domain-specific (e.g., Dunn, Gotwals, & Causgrove Dunn, 2005; McArdle, 2010). Consequently, researchers have begun to use domain-specific measures of multidimensional perfectionism when examining how perfectionism relates to specific domains of peoples’ lives such as sport, parenting, sexuality, and morality (Dunn et al., 2006; Snell, Overbey, & Brewer, 2005; Stoeber, Harvey, Almeida, & Lyons, 2013; Yang, Stoeber, & Wang, 2015). Furthermore, domain-specific measures of perfectionism—which provide the best means of capturing the full extent of perfectionism in a given domain—have shown to be better predictors of domain-specific characteristics, processes, and outcomes than general measures of perfectionism (e.g., Dunn, Craft, Causgrove Dunn, & Gotwals, 2011; Stoeber & Yang, 2015). Hence it is important to differentiate between general measures of general perfectionism and domain-specific measures of perfectionism.

The first part of the chapter will review general measures of perfectionism that have been used to measure perfectionism in sport, dance, and exercise, but were not specifically developed for this purpose. The second part will review domain-specific measures of perfectionism that were specifically developed to measure perfectionism in sport. In this review, to aid clarity, the names of scales and subscales are capitalized (e.g., Personal Standards, Concern over Mistakes) whereas the psychological concepts the scales and subscales capture are in lower-case letters (e.g., personal standards, concern over mistakes).

General Measures

The Importance of Contextualization

Sport is a specific domain of life that does not rank highly when “normal people” are asked about the domains of life where they show perfectionistic tendencies, and neither do leisure activities like dance or exercise (Slaney & Ashby, 1996; Stoeber & Stoeber, 2009). This is different for people who are actively engaged and emotionally invested in sport, dance, or exercise such as athletes, dancers, and people who exercise regularly. Athletes, for example, have shown higher perfectionism in sports than in other areas of life (Dunn et al., 2005), and the same can be expected from dancers regarding perfectionism in dance (cf. Quested, Cumming, & Duda, 2014) and exercisers regarding perfectionism in exercise (cf. Taranis & Meyer, 2010).

Consequently, general measures of perfectionism need to be contextualized to make sure they capture individual differences in perfectionism in sport, dance, and exercise, not general perfectionism.¹ Research in personality and individual differences differentiates between tagging, instructional contextualization, and fully contextualized measures (e.g., Holtrop, Born, de Vries, & de Vries, 2014). Tagging refers to telling participants that the items of a measure should be responded to with reference to a specific domain by adding a “tag” in front of the item section (e.g., “In competitive rowing, ...”; A. P. Hill, Stoeber, Brown, & Appleton, 2014). Instructional contextualization refers to adapting the instructions so to tell participants what domain the items should be responded to (e.g., “Below are a number of statements regarding attitudes toward sport and sport performance. Please read each statement and decide to what degree this statement characterizes *your attitudes toward competitive rowing*”; A. P. Hill et al., 2014).

This, however, is often not sufficient for providing a reliable and valid assessment of domain-specific perfectionism, so general measures of perfectionism need to be fully contextualized. The reason is that these measures contain items that refer to life in general (e.g., “My parents rarely expected me to excel in all aspects of my life”; Hewitt & Flett, 1991) or to areas of life, activities, and people outside sport, dance, and exercise (e.g., “If I fail at work/school, I am a failure as a person,” “I expect higher performance in my daily tasks than most people”; Frost, Marten, Lahart, & Rosenblate, 1990; “I seldom criticize my friends for accepting second best,” reverse-scored; Hewitt & Flett, 1990). Such items need to be adapted

¹This is different if researchers intend to examine the correlates and consequences of *general* perfectionism in athletes (e.g., Gaudreau, & Antl, 2008). In that case, researchers may be advised to make clear to participants that the items do not refer to their sport, but to life in general (cf. Gaudreau & Verner-Filion, 2012).

(i.e., revised or rewritten), for example, by replacing “work/school” and “daily tasks” with “my sport” and replacing “friends” with “other athletes” or “team mates” (e.g., A. P. Hill et al., 2014). Only when general measures of perfectionism are contextualized, can researchers be sure that they capture perfectionism in sport, dance, and exercise and not general perfectionism in athletes, dancers, and exercisers (see Appendix).

Frost Multidimensional Perfectionism Scale (FMPS)

Description. The FMPS (Frost et al., 1990) is based on a multidimensional conception of perfectionism differentiating six aspects: personal standards, concern over mistakes, doubts about actions, parental expectations, parental criticism, and organization. In this, personal standards reflect perfectionists’ exceedingly high standards of performance. Concern over mistakes reflects perfectionists’ fear about making mistakes and the negative consequences that mistakes have for their self-evaluation, whereas doubts about actions reflect a tendency towards indecisiveness related to an uncertainty about doing the right thing. In contrast, parental expectations and parental criticism reflect perfectionists’ perceptions that their parents expected them to be perfect and were critical if they failed to meet these expectations. Finally, organization reflect tendencies to be organized and value order and neatness. To capture these aspects, Frost and colleagues (1990) developed the FMPS. The FMPS is comprised of 35 items forming six subscales: Personal Standards (7 items; e.g., “I have extremely high goals”), Concern over Mistakes (9 items; “If I fail at work/school, I am a failure as a person”), Doubts about Actions (4 items; “I usually have doubts about the simple everyday things that I do”), Parental Expectations (5 items; “My parents wanted me to be the best at everything”), Parental Criticism (4 items; “As a child, I was punished for doing things less than perfect”), and Organization (6 Items; “Organization is very important to me”).

It is important to note that the items of the Organization subscale are not included when computing total perfectionism scores (Frost et al., 1990). The reason is that Frost et al. considered order and organization a characteristic closely associated with perfectionism, but not a defining component of perfectionism. This view is supported by factor analyses showing that order and organization form a factor separate from perfectionistic strivings and perfectionistic concerns (L. E. Kim, Chen, MacCann, Karlov, & Kleitman, 2015; Rice, Lopez, & Vergara, 2005). This also means that organization should not be regarded as an indicator of perfectionistic strivings or be included in composite measures of perfectionistic strivings (cf. Stoeber & Otto, 2006).

Short form. Cox, Enns, and Clara (2002) published a 22-item short form of the FMPS comprising 22 items within five subscales: Personal Standards (5 items), Concern over Mistakes (5 items), Doubts about Actions (3 items), Parental Pressure (5 items from the Parental Expectations and Parental Criticism subscales), and Organization (4 items). The short form has shown good factorial validity but scores from the Doubts about Actions subscale have shown reliabilities $< .70$ (Cox et al., 2002). Because $.70$ is generally considered the lower threshold for acceptable reliability (e.g., Nunnally & Bernstein, 1994), the reliability of the short form's Doubts about Actions scores may be regarded as questionable.²

Reliability and validity. The FMPS has shown reliability and validity in numerous studies outside sport, dance, and exercise (see Flett & Hewitt, 2015, for a comprehensive review). In this, Personal Standards scores have shown to be a key indicator of perfectionistic strivings and Concern over Mistakes scores a key indicator of perfectionistic concerns (Stoeber & Otto, 2006).

The use of the FMPS in sport and dance, however, is limited and mainly restricted to the time before the sport adaptation of the FMPS (Sport-MPS, discussed shortly), was published (Dunn, Causgrove Dunn, & Syrotuik, 2002). Moreover, most of these studies used the FMPS without contextualizing it (e.g., Frost & Henderson, 1991; Gould, Udry, Tuffey, & Loehr, 1996). The same holds for research examining the FMPS in exercise (Taranis & Meyer, 2010). Consequently, it is unclear to what degree the studies captured perfectionism in sport and exercise (rather than general perfectionism in athletes and exercisers). A few studies, however, used contextualized versions of the FMPS subscales with satisfactory reliabilities. Mouratidis and Michou (2011), for example, contextualized Personal Standards and Concerns over Mistakes to examine perfectionism in sport, motivation, and coping in junior athletes; and Cumming and Duda (2012) contextualized Personal Standards, Concerns over Mistakes, and Doubts about Actions to examine perfectionism in dance, body-related concerns, and psychological health in vocational dance students.

Critique. There are a number of critical points researchers should be aware of when using

²Note that here and in the rest of the chapter when discussing the scores' reliability, we refer to Cronbach's alpha (internal consistency) which is the most commonly used statistic to assess reliability, but there are other statistics (e.g., test-retest correlation). Moreover, there are textbooks that regard Cronbach's alphas between $.60$ and $.70$ as acceptable (e.g., George & Mallery, 2003).

the FMPS. First, the factorial validity of the FMPS is unclear. Factor analyses of the FMPS items usually find between three and five rather than six factors combining Concern over Mistakes and Doubts about Actions items on one factor, or Parental Expectations and Parental Criticism items, or both (e.g., Cox et al., 2002; Stöber, 1998; Stumpf & Parker, 2000). Second, two items of the Personal Standards subscale (“If I do not set the highest standards for myself, I am likely to end up a second-rate person”; “It is important to me that I be thoroughly competent in everything I do”) seem to capture contingent self-worth rather than personal standards (DiBartolo, Frost, Chang, LaSota, & Grills, 2004). Hence researchers interested in capturing “pure” personal standards may consider using the reduced 5-item version suggested by DiBartolo et al. (2004). Third, because three Concern over Mistakes items make reference to other people (e.g., “People will probably think less of me if I make a mistake”), the scale confounds personal and social aspects of perfectionistic concerns (cf. Hewitt & Flett, 1991). Finally, most of the Parental Expectations and Parental Criticism items are in the past tense. Consequently, the scales capture how participants remember their parents (and how their parents raised them) rather than how participants perceive their parents today. This has two implications. First, it is unclear how accurate these retrospective reports are (cf. Halverson, 1988). Second, it is unclear if the scales capture aspects of perfectionism or if they should better be conceptualized as antecedents of perfectionism, that is, aspects that lead to the development of perfectionism (e.g., Damian, Stoeber, Negru, & Băban, 2013; Rice et al., 2005).

Our recommendation. Since there are two reliable and valid domain-specific measures of perfectionism in sport available that follow Frost et al.’s (1990) model of perfectionism—the Sport-MPS (Dunn et al., 2002) and the Sport-MPS 2 (Gotwals & Dunn, 2009)—the continued use of the FMPS to measure perfectionism in sport and dance is difficult to justify, even if the measure is fully contextualized. Hence we recommend that researchers interested in measuring the aspects of perfectionism in sport and dance following Frost et al.’s (1990) model should refrain from using the FMPS and instead use the Sport-MPS or Sport-MPS 2 contextualizing the items to specific contexts (e.g., dance) if necessary. Researchers interested in measuring perfectionism in exercise, however, may find it difficult to use the Sport-MPS or Sport-MPS 2 because of the items’ reference to competition and training and may instead prefer to use contextualized versions of the HF-MPS or MIPS (described below).

Hewitt-Flett Multidimensional Perfectionism Scale (HF-MPS)

Description: The HF-MPS (Hewitt & Flett, 1991, 2004) is based on a multidimensional

model of perfectionism differentiating three forms of perfectionism: self-oriented, other-oriented, and socially prescribed. Self-oriented perfectionism reflects internally motivated beliefs that striving for perfection and being perfect are important. Self-oriented perfectionists have exceedingly high personal standards, strive for perfection, expect to be perfect, and are highly self-critical if they fail to meet these expectations. In contrast, other-oriented perfectionism reflects internally motivated beliefs that it is important for others to strive for perfection and be perfect. Other-oriented perfectionists expect others to be perfect, and are highly critical of others who fail to meet these expectations. Finally, socially prescribed perfectionism reflects externally motivated beliefs that striving for perfection and being perfect are important to others. Socially prescribed perfectionists believe that others expect them to be perfect, and that others will be highly critical of them if they fail to meet their expectations (Hewitt & Flett, 1991, 2004). The HF-MPS is a 45-item measure with three subscales: Self-Oriented Perfectionism (15 items; e.g., “I demand nothing less than perfection of myself”), Other-Oriented Perfectionism (15 items; “If I ask someone to do something, I expect it to be done flawlessly”), and Socially Prescribed Perfectionism (15 items; “People expect nothing less than perfection from me”).

Short form. Cox et al. (2002) published a 15-item short form of the HF-MPS (with each subscale comprising five items) that has shown excellent factorial validity, but may be problematic when used to measure other-oriented perfectionism. The reasons are two-fold. First, Other-Oriented Perfectionism scores showed Cronbach’s alphas $< .70$ questioning the reliability of the scores. Second, all Other-Oriented Perfectionism items are reverse-scored whereas none of the Self-Oriented Perfectionism and Socially Prescribed Perfectionism items are. Because a recent psychometric study found the reverse-scored items of the HF-MPS to form a separate method factor (De Cuyper, Claes, Hermans, Pieters, & Smits, 2015), Cox et al.’s (2002) short form confounds content and method. Whereas self-oriented and socially prescribed perfectionism are measured with positively scored items (the more participants agree with the item content, the higher is their perfectionism), other-oriented perfectionism is measured with reverse-scored items (the less participants agree with the item content, the higher is their perfectionism). This is no problem when only Self-Oriented Perfectionism and Socially Prescribed Perfectionism are used (e.g., Jowett, Hill, Hall, & Curran, 2013), but presents difficulties of interpretation when using Other-Oriented Perfectionism because disagreeing with statements that it is ok for others to be imperfect may not be the same as agreeing with

statements that others should be perfect (cf. A. P. Hill et al., 2014). In addition, researchers should note that there is a 22-item version of the HF-MPS specifically created for use with children and adolescent called the Child–Adolescent Perfectionism Scale (CAPS; Flett, Hewitt, Boucher, Davidson, & Munro, 2000) capturing self-oriented perfectionism (12 items) and socially prescribed perfectionism (10 items), but omitting other-oriented perfectionism.

Reliability and validity. The HF-MPS has shown reliability and validity in numerous studies outside sport, dance, and exercise (see Hewitt & Flett, 2004, and Flett & Hewitt, 2015, for comprehensive reviews). Furthermore, Self-Oriented Perfectionism scores have been shown to be a key indicator of perfectionistic strivings and Socially Prescribed Perfectionism scores a key indicator of perfectionistic concerns (Stoeber & Otto, 2006).

The HF-MPS has been used less frequently to measure perfectionism in sport than the FMPS. To our knowledge, only one study³ has used the original HF-MPS to measure perfectionism in sport examining eating attitudes and body esteem in male athletes (Filaire, Rouveix, Pannafieux, & Ferrand, 2007), whereas we are not aware of any study using the HF-MPS to measure perfectionism in dance. In addition, one study has investigated perfectionism in exercise using the original HF-MPS (Hall, Hill, Appleton, & Kozub, 2009), one using the short form (A. P. Hill, Robson, & Stamp, 2015), and two studies have used a combination of Cox et al.'s (2002) HF-MPS short form and FMPS short form to investigate perfectionism in exercisers (Longbottom, Grove, & Dimmock, 2010, 2012).

There are, however, numerous studies that have used contextualized versions of the HF-MPS with satisfactory reliabilities. A. P. Hill, Hall, Appleton, and Kozub (2008), for example, used contextualized versions of Self-Oriented Perfectionism and Socially Prescribed Perfectionism to examine perfectionism in sport, unconditional self-acceptance, and athlete burnout in junior soccer players. Furthermore, Appleton and Hill (2012) used contextualized versions of Self-Oriented Perfectionism and Socially Prescribed Perfectionism from the CAPS to examine perfectionism in sport, motivation regulations, and burnout in junior elite athletes. A. P. Hill et al. (2014) used contextualized versions of all three subscales of Cox et al.'s (2002) HF-MPS short form to examine team perfectionism and competitive performance in rowers.

³The studies by Gaudreau and Antl (2008) and Gaudreau and Verner-Filion (2012) do not count because they aimed to examine general perfectionism in athletes, not perfectionism in sport.

Critique. There are, however, a number of open questions. First, the position of socially prescribed perfectionism in relation to the two-factor model of perfectionism is not 100% clear (cf. Sironic & Reeve, in press). Whereas SPP has been shown to be a reliable and valid indicator of perfectionistic concerns across numerous studies, there are researchers who consider socially prescribed perfectionism—that is, the perception that others are expecting one to be perfect—to be associated with perfectionism, but not an integral part of perfectionism (Shafran, Cooper, & Fairburn, 2002). Moreover, one item (“My parents rarely expected me to excel in all aspects of my life,” reverse-scored) has a similar content as the items of the FMPS Parental Expectations subscale capturing developmental antecedents of perfectionism rather than perfectionism itself (cf. Damian et al., 2013). Second, the factorial validity of the full-length scale has been questioned. Using confirmatory factor analysis (CFA) to test the three-factor structure of the scale, Cox et al. (2002) found most fit indices indicating an unsatisfactory fit which lead them to develop the 15-item short form described above. The reason for Cox et al.’s finding of unsatisfactory fit may be that the HF-MPS contains a significant number of reverse-scored items (e.g., “I never aim for perfection in my work”). As a recent CFA showed (De Cuyper et al., 2015), these items formed a separate factor. When this “method factor” was included in the CFA, the model fit improved significantly. Finally, some researchers have suggested that there are factors within the subscales of self-oriented and socially prescribed perfectionism that show different predictive validities (e.g., Campbell & Di Paula, 2002; Trumpeter, Watson, & O’Leary, 2006). In particular, Campbell and Di Paula’s (2002) suggestion to differentiate perfectionistic striving and importance of being perfect (when regarding self-oriented perfectionism) and conditional acceptance and others’ high standards (when regarding socially prescribed perfectionism) has been empirically supported (Stoeber & Childs, 2010), but so far this has not been taken up in research on perfectionism in sport, dance, and exercise with the exception of one study in which perfectionistic striving and importance of being perfect were differentiated (A. P. Hill, Hall, & Appleton, 2010).

Our recommendation. Researchers interested in measuring the aspects of perfectionism in sport, exercise, and dance following Hewitt and Flett’s (1991) multidimensional model of perfectionism should use the HF-MPS (Hewitt & Flett, 1991, 2004) but contextualize the measure to make sure they capture perfectionism in sport, dance, and exercise and not general perfectionism. Researchers who are only interested in self-oriented and socially prescribed perfectionism may use the respective 5-item subscales of Cox et al.’s (2002) HF-MPS short

form, but should consider using the full 15-item subscale of the HF-MPS measuring other-oriented perfectionism to avoid confounding content and method. Alternatively, they may consider using other measures of other-oriented perfectionism such as the 8-item Other-Oriented Perfectionism scale Hewitt and Flett published in 1990 (reprinted in Stoeber, 2014a, Appendix) or the 7-item High Standards for Others subscale of the Perfectionism Inventory (R. W. Hill et al., 2004).

Positive and Negative Perfectionism Scale (PANPS)

Description. The Positive and Negative Perfectionism Scale (PANPS; Terry-Short, Owens, Slade, & Dewey, 1995) is a scale that was designed to capture positive and negative *consequences* of perfectionism following Slade and Owens's (1998) dual process model of perfectionism. Unfortunately, the PANPS is often conceived of as a measure of perfectionistic strivings and perfectionistic concerns and used as a measure of positive and negative aspects of perfectionism. This is a misconception (see also critique section below). The PANPS has 40 items (reprinted in Haase & Prapavessis, 2004, Table 1) with two subscales: Positive Perfectionism (20 items; e.g., "My family and friends are proud of me when I do really well") and Negative Perfectionism (20 items; e.g. "When I start something I feel anxious that I might fail").

Short form. Haase and Prapavessis (2004) published a 19-item short form of the PANPS (with 7 items capturing positive perfectionism and 12 negative perfectionism) that has shown good factorial validity.

Reliability and validity. The PANPS has shown satisfactory reliability (Cronbach's alphas $> .70$), but there are reported problems with content, factorial, and predictive validity (see critique section below). The PANPS has been used with athletes (Egan, Piek, Dyck, & Kane, 2011; Haase & Prapavessis, 2004; Haase, Prapavessis, & Owens, 1999) but—to our knowledge—not in a contextualized form. Furthermore, we are not aware of any study using the PANPS with dancers or exercisers.

Critique. The PANPS has a number of problems. First and foremost, the items of the Positive Perfectionism subscale do not capture perfectionistic strivings. Instead they capture characteristics, feelings, and behaviors that people high in perfectionistic strivings should show if they feel positive about themselves and their accomplishment (e.g., "I enjoy the glory gained by my successes," "I gain deep satisfaction when I have perfected something," "I gain great approval from others by the quality of my accomplishments"). In other words, the Positive

Perfectionism subscale captures positive consequences of perfectionistic strivings that “positive perfectionists” should show but not perfectionistic strivings (see also Flett & Hewitt, 2006). The items of the Negative Perfectionism subscale are less contentious because many items are similar to items of subscales measuring perfectionistic concerns (e.g., FMPS Concern over Mistakes or HF-MPS Socially Prescribed Perfectionism). A few Negative Perfectionism items, however, are similar to items other scales use to capture perfectionistic strivings (e.g., “I set impossibly high standards for myself,” “When I am doing something I cannot relax until it is perfect”). Hence it comes as no surprise that the PANPS has shown problems with factorial validity. Haase and Prapavessis (2004) had to discard 21 of the 40 items before a two-factorial structure differentiating positive and negative perfectionism emerged. Similar problems with factorial validity were reported by Egan et al. (2011). Moreover, in a clinical sample, Egan et al. found positive perfectionism to positively predict depressive symptoms which is not in line with the construct of positive perfectionism. Similarly, Haase et al. (1999) found positive perfectionism to positively predict disordered eating in athletes, which again is not in line with the construct. Hence, we agree with Egan et al.’s (2011) conclusion that the PANPS is not an adequate measure of positive and negative perfectionism.

Our recommendation. Because of questionable content, factorial, and predictive validity, we recommend against using the PANPS as a measure of perfectionism in sport, dance, and exercise or a measure of general perfectionism. Readers interested in assessing positive and negative consequences of perfectionism may instead consider a measure developed by J. M. Kim (2010) which has shown adequate content, factorial, and predictive validity (Stoeber, Hoyle, & Last, 2013).

Other Measures

To conclude this section on general measures, we want to briefly mention two other multidimensional measures that are used to measure general perfectionism, but have not been used much in research on perfectionism in sport, dance, and exercise.

Revised Almost Perfect Scale (APS-R). The first measure is the revised Almost Perfect Scale (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001; for a review, see Flett & Hewitt, 2015). The APS-R comprises 23 items, is widely used in research on general perfectionism—after the FMPS and HF-MPS it is the third most frequently used scale—and comprises three subscales: High Standards (7 items; e.g., “I set very high standards for myself”), Discrepancy (12 items; “Doing my best never seems enough”), and Order (4 items; “Neatness is important to

me”). High Standards and Discrepancy can be used as indicators of perfectionistic strivings and concerns (Stoeber & Otto, 2006) whereas Order scores have been shown to load on a separate factor (e.g., L. E. Kim et al., 2015). To our knowledge, the APS-R has not been used as a measure of perfectionism in sport and dance except for one study investigating how perfectionism and exercise related to disordered eating (Paulson & Rutledge, 2014).

Perfectionism Inventory (PI). The second measure is the Perfectionism Inventory (PI; R. W. Hill et al., 2004). The PI comprises 59 items combining aspects of the HF-MPS and FMPS in addition to new aspects (e.g. rumination). With this, the PI is not only the most comprehensive multidimensional perfectionism scale, but also the longest which may be a reason why it is less frequently used than the other measures. The PI has eight subscales: Striving for Excellence (6 items; e.g., “My work needs to be perfect, in order for me to be satisfied”), Concern over Mistakes (8 items; “If I mess up on one thing, people might start questioning everything I do”), High Standards for Others (7 items; “I usually let people know when their work isn’t up to my standards”), Need for Approval (8 items; “I’m concerned with whether or not other people approve of my actions”), Organization (8 items; “I am well-organized”), Perceived Parental Pressure (8 items; “I’ve always felt pressure from my parent(s) to be the best”), Planfulness (7 items; “I find myself planning many of my decisions”), and Rumination (7 items; “I spend a lot of time worrying about things I’ve done, or things I need to do”). Striving for Excellence and Concern over Mistakes scores can be used as indicators of perfectionistic strivings and perfectionistic concerns (R. W. Hill et al., 2004, Figure 1). The PI has been used in the sport context as a measure of general perfectionism (e.g., Cremades, Donlon, & Poczwardowski, 2013; Elison & Partridge, 2012), but we are not aware of any study contextualizing the PI to measure perfectionism in sport or exercise. Nordin-Bates and colleagues, however, have used contextualized versions of the PI to measure perfectionism in dance (e.g., Nordin-Bates, Hill, Cumming, Aujla, & Redding, 2014; Nordin-Bates, Walker, & Redding, 2011).

Domain-Specific Measures

Sport-Multidimensional Perfectionism Scale (Sport-MPS) and Sport-MPS 2

Description. The Sport-MPS (Dunn et al., 2002) was the first published sport-specific measure of perfectionism and is based on Frost et al.’s (1990) multidimensional model. The Sport-MPS is comprised of 34 items forming four subscales: Personal Standards (7 items; e.g., “I have extremely high goals for myself in my sport”), Concern over Mistakes (8 items; “If I fail

in competition, I feel like a failure as a person”), Perceived Parental Pressure (9 items; “I feel like I am criticized by my parents for doing things less than perfectly in competition”), and Perceived Coach Pressure (6 items; “Only outstanding performance during competition is good enough for my coach”).

Whereas the Sport-MPS is based on the FMPS, there are some important differences to note. First, the Sport-MPS follows Stöber (1998) in combining parental expectations and parental criticism to one dimension labeled perceived parental pressure (see also Cox et al., 2002). Second, the Sport-MPS adds another dimension that is of key importance to athletes: perceived coach pressure (see also the PSS and MIPS described below). Moreover, except for one Perceived Parental Pressure item, all items of the two pressure scales are in the present tense, not past tense. Third, the Sport-MPS omits Doubts about Actions and Organization which were, however, added in a later revision of the Sport-MPS, the Sport-MPS 2 (Gotwals & Dunn, 2009). Both subscales reflect on athletes’ pre-competition training and preparation. In this, Doubts about Actions (6 items; e.g., “I usually feel unsure about the adequacy of my pre-competition practices”) reflects on doubts about the adequacy of pre-competition training, whereas Organization (6 items; “I follow pre-planned steps to prepare myself for competition”)⁴ reflects on having an organized pre-competition training regime and—for the same reasons as FMPS Organization detailed previously—should not be included in an overall perfectionism score or used as an indicator of perfectionistic strivings.

Reliability and validity. The Sport-MPS is the most widely used domain-specific measure of multidimensional perfectionism in sport and has demonstrated reliability and validity in numerous studies (e.g., Dunn et al., 2006; Dunn et al., 2002). The Sport-MPS 2 is less frequently used—most researchers continue to use the Sport-MPS or use the Sport-MPS 2 ignoring Doubts about Actions and Organization (e.g., Crocker, Gaudreau, Mosewich, & Kljajic, 2014)—but has demonstrated reliability and validity as well (e.g., Gotwals & Dunn, 2009; Gotwals, Dunn, Causgrove Dunn, & Gamache, 2010). As with the FMPS, Personal Standards and Concern over Mistakes scores have been shown to be key indicators of perfectionistic strivings and concerns (e.g., Stoeber, Uphill, & Hotham, 2009; Stoeber, Stoll, Salmi & Tiikkaja, 2009). To our knowledge, the Sport-MPS has not yet been used to measure

⁴Beware of the formatting error in Gotwals and Dunn’s (2009) Table 1. Item 31 captures doubts about actions, not organization.

perfectionism in dance or exercise.

Critique. There are a few minor issues to note. First, one Personal Standards item (“If I do not set the highest standards for myself in my sport, I am likely to end up a second-rate player”) seems to capture contingent self-worth rather than personal standards (see DiBartolo et al., 2004, and our FMPS critique above). Second, whereas both Sport-MPS and Sport-MPS 2 have shown good factorial validity (Dunn et al., 2006; Dunn et al., 2002; Gotwals & Dunn, 2009; Gotwals et al., 2010), some items have shown low loadings (loadings $< .30$) in their target factor or cross-loadings (loadings of $> .30$ on a different factor than the target factor). Third, the scales measuring perceived parental pressure and perceived coach pressure comprise a different number of items and items with different content. Hence, scores are not directly comparable and therefore one cannot test, for example, if athletes perceive more pressure to be perfect coming from their coach or their parents. Moreover, there are some inconsistencies across and within the Sport-MPS subscales regarding training and competition. Whereas all Concern over Mistakes items mention competition, only five of the Perceived Parental Pressure items, four of the Perceived Coach Pressure items, and none of the Personal Standards items do. Conversely, one Personal Standards item mentions training whereas no other Sport-MPS item does. In contrast, all Sport-MPS 2 Doubts about Actions and Organization items concern training.

Our recommendation. Notwithstanding these minor issues, both the Sport-MPS and the Sport-MPS 2 are excellent domain-specific measures of perfectionism in sport. Consequently, we recommend that researchers interested in measuring the aspects of perfectionism in sport and dance following Frost et al.’s (1990) model of perfectionism should use the Sport-MPS or Sport-MPS 2 to measure perfectionism in sport and use contextualized versions where needed (e.g., dance). Also note that some items need to be adapted for different sports (e.g., items mentioning “players” need to be revised for sports that do not have players such as track or figure skating; Dunn et al., 2011). However, because items of the Sport-MPS and Sport-MPS 2 make specific reference to competition and training, the Sport-MPS and Sport-MPS 2 may be less suited for measuring perfectionism in exercise than other measures (e.g., adapted/contextualized versions of the HF-MPS and MIPS).

Perfectionism in Sport Scale (PSS)

Description. The Perfectionism in Sport Scale (PSS; Anshel & Eom, 2003) was developed at about the same time as the Sport-MPS (Dunn et al., 2002) and, like the Sport-MPS, is based on Frost et al.’s (1990) multidimensional model of perfectionism. The PSS comprises 32 items

in four subscales: Personal Standards (8 items; e.g., “I set higher goals for myself than most people”), Concern over Mistakes (8 items; “Even the smallest mistake bothers me when I am competing”), Parental Criticism (8 items; “My parents always expected me to be perfect”), and Coach’s Criticism (8 items; “I never feel that I can meet my coach’s standards”).

Reliability and validity. Anshel and Eom (2003) report good reliabilities (Cronbach’s alphas $\geq .80$) for all subscales and evidence of factorial validity, but unfortunately no correlations with any other variables. Consequently, the PSS’s external and predictive validity are unclear. Moreover, the PSS does not seem to be widely used. Reviewing the literature, we found only one study using the PSS examining doping attitudes in athletes (Zucchetti, Candela, & Villosio, 2015). Even Anshel and colleagues did not use the PSS in consecutive studies, but instead used various other measures of perfectionism in sports (often constructed, it seems, in an ad-hoc fashion) such as (a) a 41-item scale combining items from the PSS with items from other multidimensional measures of perfectionism in sport (Anshel, Kim, & Henry, 2009), (b) a 35-item scale that contains items similar to those of the PSS but was introduced as a unidimensional measure of perfectionism in sport (Anshel, Weatherby, Kang, & Watson, 2009) and, most recently, (c) another 35-item scale capturing personal standards, concern over mistakes, parental criticism and expectations, coach criticism and expectations, and self-criticism (Watson Breeding & Anshel, in press). These scales should not be confused with the PSS.

Critique. The PSS has a number of issues. First, it is unclear if all PSS items capture perfectionism in sport. Whereas the Concern over Mistakes and Coach’s Criticism items make reference to sports (e.g., “If I perform poorly in a competitive event I feel I have failed as an athlete”), the Personal Standards and Parental Criticism items do not. Instead, some Personal Standards and Parental Criticism items appear to capture general perfectionism (e.g., “I expect higher performance in my daily tasks than most people,” “One of my goals is to be perfect at everything that I do,” “My parents always wanted me to be the best at everything that I do”). In addition, Personal Standards contains one item capturing personal standards for others (“If I ask someone to do something, I expect it to be done perfectly”) reflecting other-oriented perfectionism rather than self-oriented perfectionism (cf. Hewitt & Flett, 1991). Second, most Parental Criticism items mention “expectations” and “standards” suggesting that the scale captures parental expectations rather than parental criticism (cf. Frost et al., 1990) which is important because parental expectations and parental criticism have shown different effects in the etiology of perfectionism (Damian et al., 2013; McArdle & Duda, 2008). Finally, like with

the Sport-MPS, the scales measuring parental pressure and coach pressure comprise items with different content (e.g., “I never felt like I could meet my parents’ expectations,” “My coach’s standards tend to be too high for me”). In addition, all Parental Criticism items are in the past tense (“My parents always expected...”) whereas the Coach’s Criticism items are in the present tense (“My coach usually expects...”). Consequently, scores are not directly comparable.

Our recommendation. Because of issues detailed above and the lack of studies demonstrating external and predictive validity, the PSS cannot be recommended. Instead we recommend that researchers, who are interested in applying Frost et al.’s (1990) model of perfectionism to research on perfectionism in sport and dance use the Sport-MPS or Sport-MPS 2, whereas researchers interested in perfectionism in exercise may prefer using adapted/contextualized versions of the HF-MPS and MIPS.

Multidimensional Inventory of Perfectionism in Sports (MIPS)

Description. Like the PI (R. W. Hill et al., 2004), the MIPS is based on a combination of different models of multidimensional perfectionism: Frost et al.’s (1990), Hewitt & Flett’s (1991), and the two-factor model (Stoeber & Otto, 2006). The MIPS was developed in German (Stöber, Otto, & Stoll, 2004) and later translated to English (Stoeber, Otto, & Stoll, 2006). The original MIPS comprised 72 items forming 9 subscales each with 8 items: Perfectionistic Aspirations during Training (e.g., “During training, I strive to be as perfect as possible”), Perfectionistic Aspirations during Competitions (“During competitions, I strive to be as perfect as possible”), Negative Reactions to Nonperfect Performance during Training (e.g., “During training, I feel extremely stressed if everything does not go perfectly”), Negative Reactions to Nonperfect Performance during Competitions (“During competitions, I feel extremely stressed if everything does not go perfectly”), Perceived Pressure from Parents (“My parents expect my performance to be perfect”), Perceived Pressure from Coach (“My coach expects my performance to be perfect”), Perceived Pressure from Teammates (“My teammates expect my performance to be perfect), Perfectionistic Pressure on Teammates (“I expect perfect performance of my teammates”), and Negative Reactions to Nonperfect Performance of Teammates (“I feel extremely stressed if everything does not go perfectly for my teammates”) with the latter two subscales reflecting other-oriented perfectionism directed at teammates.

In the journal publications following the construction of the MIPS, the first four scales were renamed Striving for Perfection during Training/Competition and Negative Reactions to Imperfection during Training/Competition (Stoeber, Otto, Pescheck, Becker, & Stoll, 2007;

Stoeber, Stoll, Pescheck, & Otto, 2008). Moreover, the scales were reduced to 5 items to improve factorial validity (Stoeber et al., 2007).

Reliability and validity. The 5-item scales capturing striving for perfection and negative reaction to imperfection have shown reliability and validity in numerous studies (e.g., Stoeber et al., 2007; Stoeber et al., 2008; Stoll, Lau, & Stoeber, 2008). Moreover, in structural equation models, Striving for Perfection and Negative Reactions to Mistakes scores have been shown to be reliable indicators of perfectionistic strivings and perfectionistic concerns (e.g., Stoeber, Stoll, et al., 2009; Zarghmi, Ghamary, Shabani, & Varzaneh, 2010). The other scales, however, have so far not been validated in athlete samples beyond the sample used in the initial construction of the MIPS (Stöber et al., 2004). To our knowledge, the MIPS has not yet been used with dancers or exercisers.

Critique. Even though the Negative Reactions to Imperfection scale has been shown to be a reliable and valid indicator of perfectionistic concerns (Stoeber, Stoll, et al., 2009; Zarghmi et al., 2010; see also Gotwals et al., 2012), the scale captures negative reactions to imperfection rather than perfectionistic concerns per se, that is, anxiety and worry about imperfection (e.g., concern over making mistakes) or about the consequences of imperfection (e.g., negative evaluation from others). Furthermore, the MIPS scales capturing perfectionistic pressure on teammates and negative reactions to nonperfect performance of teammates have never been properly tried and tested. Consequently, it is unclear what to make of these scales. This is different for the scales capturing perceived pressure to be perfect. Whereas researchers are only beginning to validate these scales in athlete samples (Madigan, Stoeber, & Passfield, in press-a), the scales have been used in various non-athlete samples—such as young musicians, school students, and teachers—with satisfactory reliabilities (Stoeber & Eismann, 2007; Stoeber & Rambow, 2007; Stoeber & Rennert, 2008).

Our recommendation. Even though there are conceptual questions of whether Negative Reactions to Imperfection captures perfectionistic concerns (if we take “concerns” literally), both Striving for Perfectionism and Negative Reactions to Imperfection have been shown to be reliable and valid indicators of perfectionistic strivings and concerns in numerous studies and can be recommended. Moreover, we would recommend that researchers consider using the MIPS scales capturing perceived pressure from parents, coach, and teammates even though there is so far only limited information on their reliability and validity (Madigan et al., in press-a; Stöber et al., 2004). The reason is that these scales have the advantage over other scales

capturing the same constructs (e.g., the Sport-MPS Perceived Parental Pressure and Perceived Coach Pressure scales) of having the same number of items and parallel wording. Consequently scores are directly comparable and can be used, for example, to test if athletes perceive more pressure coming from their parents, their coach, or their teammates and the different effects of the three sources of perceived pressure to be perfect (see Stoeber & Rennert, 2008, for an example).

Concluding Comments

As our review shows, all multidimensional measures that can be used to measure perfectionism in sport, dance, and exercise, have some limitations. This includes the measures that are widely used and the measures that we recommend researchers should use: the Sport-MPS and Sport-MPS 2, the MIPS, and the HF-MPS if properly contextualized (cf. Appendix). There is, however, a way to “smooth out” some of the critical points that individual scales and subscales show when measuring perfectionistic strivings and perfectionistic concerns. This way is to combine two or more of the indicators listed in Table 1 to form composite measures of perfectionistic strivings and perfectionistic concerns.

This approach has a further advantage. Perfectionistic strivings and perfectionistic concerns are broad, higher-order dimensions that cannot be fully captured with single indicators (cf. Stoeber & Otto, 2006). (Hence Table 1 describes the scales as “indicators” or “proxies” and not as “measures” of the two dimensions.) When combining two or more scales, researchers can have greater confidence that they capture the higher-order dimensions instead of model-specific aspects of perfectionistic strivings and concerns. For example, combining the Personal Standards subscale of the Sport-MPS with the Striving for Perfection subscale of the MIPS (e.g., Stoeber, Stoll, et al., 2009) should alleviate concerns that the former scale contains an item capturing contingent self-worth rather than perfectionistic standards. Combining the Socially Prescribed Perfectionism subscale of the HF-MPS with the Concern over Mistakes subscale from the Sport-MPS (e.g., Jowett et al, 2003) should alleviate concerns about the former scale’s containing items that may capture antecedents of perfectionistic concerns (perceived pressure to be perfect) rather than perfectionistic concerns. And combining the Negative Reactions to Imperfection subscale of the MIPS with the Concern over Mistakes subscale of the Sport-MPS (e.g., Stoeber, Stoll, et al., 2009) should alleviate concerns that the former scale captures negative reactions to imperfection rather than perfectionistic concerns. Note, however, that the subscales have different numbers of items and different response scales. Consequently,

researchers should either use the scales as indicators in structural equation modeling (e.g., Stoeber, Stoll, et al., 2009) or—if this is not feasible—researchers should first standardize all scores to make sure the scores are on the same scale ($M = 0$, $SD = 1$) before they are combined. This will ensure that all subscales combined get the same weight and avoid the situation where scales that have more items or use response scales with more categories (e.g., a 1-7 scale compared to a 1-5 scale) will get a disproportionate weight in the aggregate score (Dunkley, Zuroff, & Blankstein, 2003; Madigan, Stoeber, & Passfield, in press-b).

Finally, researchers should take note that all measures reviewed in the present chapter capture dispositional perfectionism (that is, perfectionism as a relatively stable personality characteristic). There are, however, two further important aspects of perfectionism that go beyond dispositional perfectionism. The first are perfectionism cognitions (Flett, Hewitt, Blankstein, & Gray, 1998; Stoeber, Kobori, & Tanno, 2010) reflecting individual differences in the day-to-day experience of automatic thoughts concerning perfectionism. The second is perfectionistic self-presentation (Hewitt et al., 2003) reflecting individual differences in the ways in which people present themselves as perfect or hide imperfections. Whereas research on perfectionism in sport has started to take perfectionism cognitions into account (A. P. Hill & Appleton, 2011), we are not aware of any published research examining perfectionistic self-presentation in sport, dance, and exercise except for one study on exercise dependence (A. P. Hill et al., 2015). For a comprehensive understanding of perfectionism, however, all three aspects—dispositional perfectionism, perfectionism cognitions, and perfectionistic self-presentation—are important because perfectionism cognitions and perfectionistic self-presentation have been shown to explain individual differences in psychological adjustment and maladjustment over and beyond dispositional perfectionism (Hewitt et al., 2003; Flett et al., 1998; Stoeber et al., 2010). Consequently, future research may profit from including contextualized measures of perfectionism cognitions and perfectionistic self-presentations when examining causes, correlates, and consequences of perfectionism in sport, dance, and exercise.

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Table 1

Scales Capturing Perfectionistic Strivings and Perfectionistic Concerns in Sport, Dance, and Exercise

Measures	Reference	Subscales recommended as indicators (“proxies”) of ...	
		Perfectionistic strivings	Perfectionistic concerns
<i>General measures^a</i>			
FMPS	Frost et al. (1990)	Personal Standards	Concern over Mistakes
HF-MPS	Hewitt & Flett (1991, 2004)	Self-Oriented Perfectionism	Socially Prescribed Perfectionism
APS-R	Slaney et al. (2001)	High Standards	Discrepancy
PI	R. W. Hill et al. (2004)	Striving for Excellence	Concern over Mistakes
<i>Domain-specific measures</i>			
Sport-MPS, Sport-MPS 2	Dunn et al. (2002); Gotwals et al. (2009)	Personal Standards	Concern over Mistakes
PSS	Anshel & Eom (2003)	Personal Standards	Concern over Mistakes
MIPS	Stöber et al. (2004); Stoeber et al. (2006)	Striving for Perfection	Negative Reactions to Imperfection

Note. Measures are listed in the order as discussed in this chapter. FMPS = Frost Multidimensional Perfectionism Scale; HF-MPS = Hewitt-Flett Multidimensional Perfectionism Scale; APS-R = revised Almost Perfect Scale; PI = Perfectionism Inventory. Sport-MPS = Sport Multidimensional Perfectionism Scale; PSS = Perfectionism in Sport Scale; MIPS = Multidimensional Inventory of Perfectionism in Sport. The Positive and Negative Perfectionism Scale (PANPS; Terry Short et al., 1995) does not capture perfectionistic strivings (see text for details) and was therefore omitted from this table.

^aNote that general measures need to be contextualized or have their items adapted (or both) to measure perfectionistic strivings and concerns in sport, exercise, and dance (see text and Appendix for details).

Appendix

Checklist for Measuring Perfectionism in Sport, Dance, and Exercise

Checklist

- What do you want to investigate? (A) General perfectionism in athletes, dancers, or exercisers? (B) Perfectionism in sport, dance, or exercise?
- If (A), use a measure of general perfectionism, but make clear that the items do not refer to their sport/dance/exercise, but to life in general. If (B), use (a) a domain-specific measure of perfectionism or (b) a general measure of perfectionism but make sure to fully contextualize it.
- If (a), make sure the instructions tell participants to self-report how they see themselves regarding sport, dance, or exercise (and not how they see themselves in general). If this is not the case, contextualize the instructions and—to make double-sure—tag the item section (e.g., “In my sport, ...”). In addition, check if items need to be adapted (e.g., “other players” to “other athletes”).
- If (b), contextualize the instructions so they tell participants to self-report how they see themselves regarding sport, dance, or exercise (and not how they see themselves in general). To make double-sure, tag the item section (e.g., “In my sport, ...”). Check all items if they need to be adapted (e.g., “all aspects of my life” to “all aspects of my sport”).
- In both cases, (a) or (b), ask yourself—where applicable—if you want to cover training, competitions, or both. Double-check all items and, if necessary, adapt instruction and items and tag the item section accordingly (e.g. “During training, ...” vs. “During competitions, ...”).
- In any case—whether A or B—always use a multidimensional measure of perfectionism that has the potential to differentiate perfectionistic strivings and perfectionistic concerns (see Table 1). Moreover, when communicating the findings of your study (e.g., in a journal article), make sure to provide all necessary details so readers know what you measured (e.g., A or B), how you measured it (e.g., a or b), and what further adaptations and additions you made to the measure.