

The Big Three Perfectionism Scale: A New Measure of Perfectionism

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Abstract

This article introduces a new measure of dispositional perfectionism: the Big Three Perfectionism Scale (BTPS). The BTPS assesses three higher-order global factors (rigid perfectionism, self-critical perfectionism, narcissistic perfectionism) via 10 lower-order perfectionism facets (self-oriented perfectionism, self-worth contingencies, concern over mistakes, doubts about actions, self-criticism, socially prescribed perfectionism, other-oriented perfectionism, hypercriticism, grandiosity, entitlement). The present investigation examined the structure of the BTPS using exploratory factor analysis in Study 1 (288 undergraduates) and confirmatory factor analyses in Study 2 (352 community adults) and Study 3 (290 undergraduates). Additionally, in Study 3 the relationships among the BTPS, other measures of perfectionism, and the five-factor model of personality were investigated. Overall, findings provide first evidence for the reliability and validity of the BTPS as a multidimensional measure of perfectionism.

Keywords

perfectionism, rigidity, self-criticism, narcissism, factor analysis, reliability, validity, personality, gender

Perfectionism is a personality trait characterized by striving for flawlessness and setting excessively high standards for performance accompanied by overly critical evaluations of one's behavior (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991). Over the past 25 years, a wealth of evidence suggests two higher-order factors underlie and account for shared variance among lower-order perfectionism facets: personal standards perfectionism and evaluative concerns perfectionism (Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Dunkley, Blankstein, Masheb, & Grilo, 2006; Sherry, Gautreau, Mushquash, Sherry, & Allen, 2014). Personal standards perfectionism involves a family of traits encompassing the tendency to demand perfection of oneself (i.e., self-oriented perfectionism; Hewitt & Flett, 1991) and the propensity to hold unrealistically high personal expectations (i.e., personal standards; Frost et al., 1990). Evaluative concerns perfectionism involves a constellation of traits comprising the tendency to perceive others as demanding perfection (i.e., socially prescribed perfectionism; Hewitt

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& Flett, 1991), have overly negative reactions to perceived failures and setbacks (i.e., concerns over mistakes; Frost et al., 1990), and doubts about performance abilities (i.e., doubts about actions; Frost et al., 1990).

Personal standards perfectionism is a double-edged form of perfectionism. On one hand, personal standards perfectionism is associated with negative characteristics, processes, and outcomes such as neuroticism, ruminative brooding, and depression (M. M. Smith, Sherry, Rnic, Saklofske, Enns, & Gralnick, 2016; see Hewitt & Flett, 2004, for a review). On the other hand, personal standards perfectionism is associated with positive characteristics such as conscientiousness and task-oriented coping (Blankstein & Dunkley, 2002; Rice, Ashby, & Slaney, 2007). In contrast, evaluative concerns perfectionism clearly represents a negative form of perfectionism showing strong and consistent associations with negative affect and various indicators of psychological maladjustment (see Stoeber & Otto, 2006, for a review).

Typically, personal standards perfectionism and evaluative concerns perfectionism are assessed by combining subscales from the two most prominent and widely used measures of multidimensional perfectionism: the Multidimensional Perfectionism Scales by Frost et al. (1990; Frost Multidimensional Perfectionism Scale [FMPS]) and Hewitt and Flett (1991; Hewitt–Flett Multidimensional Perfectionism Scale [HF-MPS]). While useful, a shortcoming of this patchwork approach reflects not so much a particular limitation of the FMPS or HF-MPS, but rather a fundamental scientific principle: as knowledge of a construct advances, the constructs definition must be revisited (G. T. Smith, Fischer, & Fister, 2003).

Following an extensive literature review, 10 facets appeared worthy of inclusion in a contemporary perfectionism measure resulting in the development of scales labeled *self-oriented perfectionism*, *self-worth contingencies*, *concern over mistakes*, *doubts about actions*, *self-criticism*, *socially prescribed perfectionism*, *other-oriented perfectionism*, *hypercriticism*, *entitlement*, and *grandiosity*. Self-worth contingencies were included in consideration of research suggesting that disentangling self-oriented perfectionism from self-worth contingencies provides a more detailed and informative assessment of personal standards perfectionism (DiBartolo, Frost, Chang, LaSota, & Grills, 2004). Self-criticism reflected evidence suggesting that self-criticism is a core component of perfectionism (e.g., Blankstein & Dunkley, 2002; Dunkley, Zuroff, & Blankstein, 2003). In addition, to allow for the assessment of a third superordinate factor labeled narcissistic perfectionism (see Nealis, Sherry, Sherry, Stewart, & Macneil, 2015), four scales were included: other-oriented perfectionism, hypercriticism, entitlement, and grandiosity. This new measure is named the Big Three Perfectionism Scale (BTPS; see online supplemental material for full scale).

The Big Three Perfectionism Scale

The BTPS was developed to provide a fine-grained analysis of multidimensional perfectionism. To this aim, the authors constructed a 45-item self-report questionnaire designed to measure three global perfectionism factors (rigid perfectionism, self-critical perfectionism, and narcissistic perfectionism) composed of 10 core perfectionism facets. Scales constructed using facets assuage theoretical confusion, reduce the possibility of omitting core content, and afford greater reliability and precision in assessment (Comrey, 1988; Paunonen, Haddock, Forsterling, & Keinonen, 2003; Reise, Waller, & Comrey, 2000; G. T. Smith et al., 2003).

The BTPS's first global factor is labeled rigid perfectionism. Although this label was inspired by the subscale of the same name from the Personality Inventory for the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013; Krueger, Derringer, Markon, Watson, & Skodol, 2013; see Stoeber, 2014), our items were specifically written to capture the rigid insistence that one's own performance must be flawless, perfect, and without errors. Rigid perfectionism also borrows heavily from the work of DiBartolo et al. (2004), Hewitt and Flett (1991), Sturman, Flett, Hewitt, and Rudolph (2009), and Stoeber and

Childs (2010), and is composed of two facets: self-oriented perfectionism and self-worth contingencies. Self-oriented perfectionism refers to the belief that striving for perfection, as well as being perfect, are important (Hewitt & Flett, 1991; Stoeber & Childs, 2010). Self-worth contingencies refer to the tendency to base self-worth on self-imposed perfectionistic standards (DiBartolo et al., 2004; Sturman et al., 2009).

The BTPS's second global factor is self-critical perfectionism. We operationalized self-critical perfectionism following the model proposed by Dunkley et al. (2003) in which self-critical perfectionism subsumes four facets: concern over mistakes, doubts about actions, self-criticism, and socially prescribed perfectionism. Concern over mistakes is the tendency to have overly negative reactions to perceived setbacks and failures (Frost et al., 1990). Doubts about actions reflect uncertainties about performance (Frost et al., 1990). Self-criticism measures the tendency to engage in harsh self-criticism when performance falls short of perfection (Dunkley et al., 2003). Socially prescribed perfectionism denotes a tendency to perceive others as demanding perfection (Hewitt & Flett, 1991).

The third BTPS global factor is narcissistic perfectionism. Narcissistic perfectionism was operationalized following Nealis et al.'s (2015) model and is composed of four facets: other-oriented perfectionism, hypercriticism, entitlement, and grandiosity. Other-oriented perfectionism is the tendency to hold unrealistic expectations for others (Hewitt & Flett, 1991). Hypercriticism involves harsh devaluation of others and their imperfections (Nealis et al., 2015). Entitlement refers to the belief that one is entitled to perfect or special treatment (Nealis et al., 2015). Grandiosity denotes a sustained view of oneself as perfect or superior to others (Flett, Sherry, Hewitt, & Nepon, 2014; Nealis, Sherry, Lee-Baggle, Stewart, & Macneil, 2016; Stoeber, Sherry, & Nealis, 2015). While narcissistic perfectionism is often discussed in theory (e.g., Beck, Davis, & Freeman, 2014; Hewitt & Flett, 1991; Millon, Grossman, Millon, Meagher, & Ramnath, 2004), the BTPS offers the only self-report measure designed specifically to assess individuals who believe they are perfect, superior to others, and justified in holding unrealistic expectations (i.e., narcissistic perfectionists). Additionally, narcissistic perfectionism, as operationalized in the BTPS, is distinguishable from currently available measures of narcissism given that other-oriented perfectionism (e.g., "I expect those close to me to be perfect"), hypercriticism (e.g., "I get frustrated when other people make mistakes"), entitlement (e.g., "It bothers me when people don't notice how perfect I am"), and grandiosity (e.g., "I know that I am perfect") directly reference either perfection or highly related concepts (e.g., concern over others mistakes).

The Present Research

Against this background, the aim of the present research was to provide a first investigation of the reliability and validity of the newly constructed BTPS across two university student samples and one community adult sample. Exploratory factor analyses and confirmatory factor analyses (CFAs) were conducted to evaluate the homogeneity of the BTPS facets, the anticipated higher-order three-factor solution, and gender invariance. In addition, to examine convergent and differential validity, correlations with established measures of multidimensional perfectionism and the five-factor model of personality (Costa & McCrae, 2008) were examined.

Data Analytic Strategy

In Study 1, exploratory factor analysis was conducted using SPSS 22. Following the recommendations of Fabrigar, Wegener, MacCallum, and Strahan (1999), we used maximum likelihood estimation with oblique rotation (promax) for factor extraction. Parallel analysis was used to determine the number of factors to retain (Fabrigar et al., 1999). In Study 2 and Study 3, confirmatory factor analysis (CFA) was conducted using weighted least squares means and variance

adjusted (WLSMV) estimation in Mplus 7.2 (Muthén & Muthén, 2013). Samejima's (1969) graded response models were produced by specifying factor indicators as ordered categorical variables. WLSMV χ^2 tests were used for model comparisons. In addition to WLSMV χ^2 , we used the following fit indices for model evaluation: root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker–Lewis index (TLI). Following Hu and Bentler (1998), we considered RMSEA values close to .06 as indicative of good fit, values between .07 and .08 as indicative of moderate fit, values between .08 and .10 as indicative of marginal fit, and values greater than .10 as indicative of poor fit. Regarding CFI and TLI, values in the range of .95 or above suggest good model fit and values between .90 and .95 suggest marginally acceptable fit.

Data Screening

Investigating whether any participants gave uniform responses resulted in the exclusion of six participants from Study 1 and seven participants from Study 2 who showed zero variance across all 45 BTPS items. Next, we computed the scores for each of the 10 BTPS facets. Because multivariate outliers can severely distort the results of factor analyses (Tabachnick & Fidell, 2007), we excluded one participant from Study 1, nine participants from Study 2, and one participant from Study 3 who showed a Mahalanobis distance larger than the critical value of $\chi^2(10) = 29.59$, $p < .001$. With this, Study 1 comprised 288 university students, Study 2 comprised 352 community adults, and Study 3 comprised 290 university students.

Study 1: Item Selection, Reduction, and Exploratory Analysis

The first step in developing a new self-report measure involves meticulous explication of the target construct, rational generation of a large item pool, and the selection of the best items (Jackson, 1975). The purpose of Study 1 was thus to develop a set of homogeneous facets, derived from theory and research, that measure three global perfectionism factors (rigid perfectionism, self-critical perfectionism, and narcissistic perfectionism) via 10 core perfectionism facets. An initial pool of 102 items was generated by the authors over the course of a year. Items judged as problematic (e.g., overly redundant or ambiguous) were deleted. This resulted in the 45-item BTPS (see Supplementary Material).

Method

Participants. Participants were 288 undergraduates (199 men, 89 women) mostly in their first year of study (88.1%) recruited from the first author's university. Self-reported ethnicities were White (51.2%), Chinese (14.6%), South Asian (6.8%), Korean (3.7%), multiracial (8.5%), and other (9.8%) with 5.4% missing.

Measures and procedure. Participants were administered the 45-item BTPS with instructions to respond to each item using a 5-point rating scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The arrangement of items was randomized.

Results

Descriptive statistics. The means, standard deviations, bivariate correlations, and internal consistency of the BTPS facets and global factors are shown in Table 1. Internal consistency measured by Cronbach's alpha ranged from .79 to .89 for the 10 facets and from .92 to .93 for the three global factors. In contrast to the facets comprising other factors, the means for the narcissistic perfectionism facets

Table 1. Big Three Perfectionism Scale (BTPS): Bivariate Correlations, Means, Standard Deviations, and Cronbach's Alphas.

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	M	SD	α
Facets																
1. Self-oriented perfectionism	—	.87 ^{***}	.62 ^{***}	.47 ^{***}	.73 ^{***}	.57 ^{***}	.55 ^{***}	.67 ^{***}	.57 ^{***}	.61 ^{***}	.97 ^{***}	.69 ^{***}	.66 ^{***}	2.87	0.98	.89
2. Self-worth contingencies	.84 ^{***}	—	.66 ^{***}	.52 ^{***}	.74 ^{***}	.59 ^{***}	.59 ^{***}	.69 ^{***}	.63 ^{***}	.61 ^{***}	.97 ^{***}	.69 ^{***}	.66 ^{***}	2.75	0.96	.88
3. Concern over mistakes	.47 ^{***}	.56 ^{***}	—	.74 ^{***}	.83 ^{***}	.46 ^{***}	.54 ^{***}	.50 ^{***}	.46 ^{***}	.36 ^{***}	.66 ^{***}	.92 ^{***}	.51 ^{***}	2.94	0.99	.88
4. Doubts about actions	.30 ^{***}	.35 ^{***}	.63 ^{***}	—	.67 ^{***}	.34 ^{***}	.42 ^{***}	.42 ^{***}	.40 ^{***}	.27 ^{***}	.51 ^{***}	.87 ^{***}	.42 ^{***}	2.84	1.00	.90
5. Self-criticism	.57 ^{***}	.65 ^{***}	.79 ^{***}	.56 ^{***}	—	.47 ^{***}	.55 ^{***}	.58 ^{***}	.50 ^{***}	.46 ^{***}	.76 ^{***}	.89 ^{***}	.58 ^{***}	2.86	1.03	.89
6. Socially prescribed perfectionism	.31 ^{***}	.33 ^{***}	.54 ^{***}	.52 ^{***}	.57 ^{***}	—	.55 ^{***}	.61 ^{***}	.56 ^{***}	.56 ^{***}	.60 ^{***}	.74 ^{***}	.63 ^{***}	2.63	0.91	.83
7. Hypercriticism	.35 ^{***}	.33 ^{***}	.25 ^{***}	.14*	.30 ^{***}	.23**	—	.76 ^{***}	.76 ^{***}	.72 ^{***}	.59 ^{***}	.59 ^{***}	.89 ^{***}	2.42	0.92	.83
8. Other-oriented perfectionism	.32 ^{***}	.31 ^{***}	.19**	.06	.27 ^{***}	.36**	.71 ^{***}	—	.78 ^{***}	.76 ^{***}	.70 ^{***}	.60 ^{***}	.92 ^{***}	2.81	0.94	.90
9. Entitlement	.27 ^{***}	.28 ^{***}	.18**	.07	.25 ^{***}	.34 ^{***}	.58 ^{***}	.72 ^{***}	—	.81*	.62 ^{***}	.55*	.92 ^{***}	2.15	1.01	.89
10. Grandiosity	.36 ^{***}	.28 ^{***}	.08	.06	.21 ^{***}	.25 ^{***}	.56 ^{***}	.63 ^{***}	.69 ^{***}	—	.63 ^{***}	.55 ^{***}	.92 ^{***}	2.28	0.99	.86
Global factors																
11. Rigid perfectionism	.96 ^{***}	.96 ^{***}	.53*	.34 ^{***}	.64 ^{***}	.33 ^{***}	.36 ^{***}	.33 ^{***}	.29 ^{***}	.34 ^{***}	—	.73*	.70*	2.81	0.94	.94
12. Self-critical perfectionism	.50 ^{***}	.58 ^{***}	.90*	.80 ^{***}	.87 ^{***}	.66 ^{***}	.28 ^{***}	.26 ^{***}	.25 ^{***}	.13*	.57 ^{***}	—	.61*	2.86	1.03	.95
13. Narcissistic perfectionism	.38 ^{***}	.35 ^{***}	.20*	.06	.30 ^{***}	.34 ^{***}	.83*	.90*	.87 ^{***}	.83 ^{***}	.38*	.27 ^{***}	—	2.31	0.88	.96
M	3.02	3.02	3.08	3.12	2.94	2.57	2.20	1.85	1.89	2.03	3.02	2.94	1.99			
SD	0.92	0.95	0.99	0.91	1.02	0.87	0.95	0.87	0.89	0.92	0.90	1.02	0.78			
Cronbach's α	.85	.86	.85	.84	.87	.79	.82	.88	.81	.79	.92	.92	.93			

Note. Study 1 (N = 288) participants are below the diagonal; Study 2 (N = 352) participants are above the diagonal.
*p < .05. **p < .01. ***p < .001.

Table 2. Exploratory Factor Analysis of the Unidimensionality of the BTPS Facets.

Facets	No. of items	Eigenvalue 1	Eigenvalue 2	% variance explained by eigenvalue 1
Self-oriented perfectionism	5	3.153	0.645	63.05
Self-worth contingencies	5	3.216	0.538	64.32
Concern over mistakes	5	3.094	0.574	61.89
Doubts about actions	5	3.082	0.640	61.64
Self-criticism	4	2.853	0.425	71.32
Socially prescribed perfectionism	4	2.457	0.629	61.42
Other-oriented perfectionism	5	3.412	0.515	68.23
Hypercriticism	4	2.581	0.542	64.54
Entitlement	4	2.560	0.578	64.01
Grandiosity	4	2.460	0.661	61.51

Note. $N = 288$. Factor extraction method = maximum likelihood; BTPS = Big Three Perfectionism Scale.

were low due to a lower frequency of endorsement. Nevertheless, bivariate correlations complemented prior research (e.g., Nealis et al., 2015) and indicated that narcissistic perfectionism and self-critical perfectionism are conceptually, as well as empirically, distinguishable.

Exploratory analysis of BTPS items and facets. The Kaiser–Meyer–Olkin measure of sampling adequacy was .93, indicating that the data were suitable for factor analysis. Separate exploratory factor analyses were performed on each of the 10 facets (Table 2). We also conducted exploratory factor analysis using all 45 BTPS items. Parallel analysis indicated that four factors were significant and should be retained (cf. Preacher & MacCallum, 2003): Factor 1 had an eigenvalue of 12.89 (29.26% of the variance), Factor 2 had an eigenvalue of 5.99 (13.93% of the variance), Factor 3 had an eigenvalue of 3.04 (7.07% of the variance), and Factor 4 had an eigenvalue of 1.87 (4.34% of the variance). As the fourth factor contained no salient loadings, a three-factor solution was forced and loadings are shown in Table 3. Additionally, a second-order exploratory factor analysis was conducted (Table 4).

Discussion

Results supported the unidimensionality and homogeneity (Comrey, 1988) of each of the 10 BTPS facets (Table 1). Results also indicated that the BTPS facets and global factors had adequate internal consistency. In addition, results suggested that the BTPS is composed of three higher-order factors corresponding to the three proposed global factors (rigid perfectionism, self-critical perfectionism, and narcissistic perfectionism) that in turn underlie 10 lower-order perfectionism facets (self-oriented perfectionism, self-worth contingencies, concern over mistakes, doubts about actions, self-criticism, socially prescribed perfectionism, other-oriented perfectionism, hypercriticism, entitlement, and grandiosity). In light of findings that self-worth contingencies are central to understanding the link between perfectionism and psychological maladjustment (DiBartolo et al., 2004; Sturman et al., 2009), the inclusion of self-worth contingencies as a facet of perfectionism is a notable strength of the BTPS.

Study 2: Confirmatory Factor Analysis

When creating a new instrument, it is important to evaluate its underlying structure across different groups. It is also crucial to determine the extent to which the proposed structure is invariant

Table 3. BTPS: Items and Factor Loadings From the EFAs and CFAs.

	Facet	EFA 1			CFA 1			CFA 2		
		F1	F2	F3	F1	F2	F3	F1	F2	F3
Rigid perfectionism										
1. I have a strong need to be perfect.	SOP	.83	-.03	-.06	.84	—	—	.86	—	—
2. I strive to be as perfect as possible.	SOP	.83	-.13	.11	.74	—	—	.61	—	—
3. I never settle for less than perfection from myself.	SOP	.76	.10	-.11	.80	—	—	.81	—	—
4. It is important to me to be perfect in everything I attempt.	SOP	.73	.01	.09	.84	—	—	.76	—	—
5. I do things perfectly, or I don't do them at all.	SOP	.59	-.06	.14	.82	—	—	.68	—	—
6. I always need to be aiming for perfection to feel "right" about myself.	SWC	.76	-.12	.11	.85	—	—	.77	—	—
7. I could never respect myself if I stopped trying to achieve perfection.	SWC	.74	.01	.02	.75	—	—	.77	—	—
8. My value as a person depends on being perfect.	SWC	.69	.05	-.06	.90	—	—	.82	—	—
9. Striving to be as perfect as possible makes me feel worthwhile.	SWC	.68	.02	.04	.76	—	—	.69	—	—
10. My opinion of myself is tied to being perfect.	SWC	.69	.06	.12	.87	—	—	.79	—	—
Self-critical perfectionism										
11. When I make a mistake, I feel like a failure.	COM	.01	.73	-.01	—	.78	—	—	.81	—
12. I am very concerned about the possibility of making a mistake.	COM	.11	.65	-.12	—	.67	—	—	.76	—
13. The idea of making a mistake frightens me.	COM	-.15	.64	-.04	—	.79	—	—	.76	—
14. When I notice that I have made a mistake, I feel ashamed.	COM	.07	.62	.02	—	.75	—	—	.73	—
15. Making even a small mistake would upset me.	COM	.26	.58	.03	—	.78	—	—	.79	—
16. I have doubts about most of my actions.	DAA	-.22	.79	-.01	—	.78	—	—	.78	—
17. I feel uncertain about most things I do.	DAA	-.16	.74	-.05	—	.74	—	—	.75	—
18. I have doubts about everything I do.	DAA	-.07	.69	.00	—	.75	—	—	.76	—
19. I am never sure if I am doing things the correct way.	DAA	-.06	.65	-.13	—	.67	—	—	.66	—
20. I tend to doubt whether I am doing something "right."	DAA	.08	.64	-.23	—	.66	—	—	.68	—
21. I judge myself harshly when I don't do something perfectly.	SC	.25	.60	.04	—	.81	—	—	.84	—
22. When my performance falls short of perfection, I get very mad at myself.	SC	.25	.55	.09	—	.85	—	—	.78	—
23. I feel disappointed with myself, when I don't do something perfectly.	SC	.32	.54	-.01	—	.80	—	—	.86	—
24. I have difficulty forgiving myself when my performance is not flawless.	SC	.20	.53	.24	—	.87	—	—	.87	—
25. People expect too much from me.	SPP	-.16	.52	-.03	—	.58	—	—	.50	—
26. People are disappointed in me whenever I don't do something perfectly.	SPP	-.14	.43	.24	—	.78	—	—	.65	—
27. People make excessive demands of me.	SPP	-.03	.37	.23	—	.58	—	—	.52	—
28. Everyone expects me to be perfect.	SPP	.06	.35	.26	—	.86	—	—	.65	—
Narcissistic perfectionism										
29. I demand perfection from my family and friends.	OOP	-.03	-.02	.81	—	—	.87	—	—	.86
30. Everything that other people do must be flawless.	OOP	-.14	.09	.79	—	—	.84	—	—	.85
31. I expect those close to me to be perfect.	OOP	-.05	.07	.77	—	—	.87	—	—	.89
32. People complain that I expect too much of them.	OOP	-.07	-.06	.73	—	—	.75	—	—	.75
33. It is important to me that other people do things perfectly.	OOP	-.04	.04	.72	—	—	.78	—	—	.81
34. I am highly critical of other people's imperfections.	HC	.00	.04	.66	—	—	.83	—	—	.81

(continued)

Table 3. (continued)

	Facet	EFA 1			CFA 1			CFA 2		
		F1	F2	F3	F1	F2	F3	F1	F2	F3
35. I get frustrated when other people make mistakes.	HC	.04	.08	.59	—	—	.68	—	—	.70
36. I feel dissatisfied with other people, even when I know they are trying their best.	HC	.10	-.03	.59	—	—	.74	—	—	.74
37. I am quick to point out other people's flaws.	HC	-.01	.12	.56	—	—	.72	—	—	.71
38. I am entitled to special treatment.	ENT	.03	-.03	.74	—	—	.86	—	—	.77
39. I expect other people to bend the rules for me.	ENT	-.10	.07	.68	—	—	.81	—	—	.71
40. It bothers me when people don't notice how perfect I am.	ENT	-.09	.11	.67	—	—	.86	—	—	.81
41. I deserve to always have things go my way.	ENT	.08	-.18	.65	—	—	.82	—	—	.76
42. I am the absolute best at what I do.	GRAN	.06	.01	.63	—	—	.69	—	—	.73
43. I know that I am perfect.	GRAN	.07	-.16	.62	—	—	.84	—	—	.71
44. Other people secretly admire my perfection.	GRAN	.20	-.11	.59	—	—	.85	—	—	.75
45. Other people acknowledge my superior ability.	GRAN	.18	-.19	.51	—	—	.72	—	—	.64

Note. EFA ($n = 288$): EFA with maximum likelihood estimation and promax rotation. CFA conducted using WLSMV estimation. BTPS = Big Three Perfectionism Scale; EFA = exploratory factor analysis; CFA = confirmatory factor analysis; Bolded CFA factor loadings were significant at the .001 level. F1 = rigid perfectionism; F2 = self-critical perfectionism; F3 = narcissistic perfectionism; SOP = self-oriented perfectionism; SWC = self-worth contingencies; COM = concern over mistakes; DAA = doubts about actions; SC = self-criticism; SPP = socially prescribed perfectionism; OOP = other-oriented perfectionism; HC = hypercriticism; ENT = entitlement; GRAN = grandiosity; WLSMV = weighted least squares means and variance.

Table 4. Second-Order Exploratory Factor Analysis of the BTPS Facets.

Facet	Three-factor model		
	Rigid perfectionism	Self-critical perfectionism	Narcissistic perfectionism
Self-oriented perfectionism	.99	-.07	.01
Self-worth contingencies	.81	.14	.00
Concern over mistakes	.00	.93	-.04
Doubts about actions	-.06	.74	-.11
Self-criticism	.18	.75	.04
Socially prescribed perfectionism	-.06	.47	.27
Other-oriented perfectionism	-.05	.03	.89
Hypercriticism	.03	.07	.72
Entitlement	-.09	.05	.86
Grandiosity	.15	-.18	.76

Note. $N = 288$. Pattern matrix. Factor extraction method = maximum likelihood; rotation method = promax. Loadings $> .30$ are bold-faced. $r(\text{rigid perfectionism, self-critical perfectionism}) = .59$, $r(\text{rigid perfectionism, narcissistic perfectionism}) = .41$, $r(\text{self-critical perfectionism, narcissistic perfectionism}) = .28$. BTPS = Big Three Perfectionism Scale.

across men and women (Reise et al., 2000). In addition, as noted by G. T. Smith et al. (2003), the theoretical contention that broad factors underlie groups of facets must be empirically tested, rather than assumed.

Method

Measures and procedure. The 45-item BTPS was administered to 367 community adults (178 men, 174 women, 15 not reported) recruited from CrowdFlower, an internet platform comparable with Amazon's Mechanical Turk, which is used to obtain reliable data from community

Table 5. Fit Indices and Factor Loadings of Unidimensional Confirmatory Factor Analysis Models of BTPS Facets.

BTPS facets	χ^2	df	CFI	TLI	Loadings
Study 2 (N = 352)					
Self-oriented perfectionism	27.90	5	.994	.987	.76-.87
Self-worth contingencies	63.22	5	.984	.968	.72-.89
Concern over mistakes	11.84	5	.997	.995	.76-.83
Doubts about actions	26.01	5	.995	.990	.77-.88
Self-criticism	3.17	2	1.000	.999	.81-.88
Socially prescribed perfectionism	47.58	2	.975	.926	.77-.88
Hypercriticism	3.82	2	.999	.997	.71-.86
Other-oriented perfectionism	2.96	5	1.000	1.000	.77-.90
Entitlement	3.68	2	1.000	.999	.83-.91
Grandiosity	23.59	2	.991	.974	.80-.84
All facets	1,767.64	900	.971	.968	.71-.95
Study 3 (N = 290)					
Self-oriented perfectionism	21.76	5	.989	.978	.63-.88
Self-worth contingencies	18.75	5	.990	.980	.71-.86
Concern over mistakes	6.94	5	.999	.999	.76-.82
Doubts about actions	13.26	5	.997	.995	.77-.88
Self-criticism	0.08	2	1.000	1.000	.82-.89
Socially prescribed perfectionism	30.75	2	.976	.929	.78-.80
Hypercriticism	1.54	2	1.000	1.000	.75-.83
Other-oriented perfectionism	7.98	5	.998	.997	.75-.91
Entitlement	0.46	2	1.000	1.010	.76-.87
Grandiosity	16.98	2	.983	.949	.75-.88
All facets	1,165.44	900	.981	.979	.63-.90

Note. BTPS = Big Three Perfectionism Scale; χ^2 = weighted least squares estimation; CFI = comparative fit index; TLI = Tucker–Lewis index.

samples (e.g., Buhrmester, Kwang, & Gosling, 2011). Participants were asked to indicate their agreement to the BTPS items using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Country of origin was restricted to the United States and Canada. Participants were paid a small fee (\$US 1.00). Self-reported ethnicities were as follows: White (81.7%), Latin American (6.0%), Chinese (3.0%), multiracial (1.9%), and other (3.9%) with 3.5% missing.

Descriptive statistics. The means, standard deviations, bivariate correlations, and internal consistency of the BTPS facets and global factors are presented in Table 1. Cronbach's alpha ranged from .83 to .90 for the 10 facets and from .92 to .93 for the three global factors.

Confirmatory factor analysis of the BTPS facets. To evaluate the homogeneity of the 10 BTPS facets, we assessed the unidimensionality of each facet separately using CFA. Loadings ranged from .72 to .95 (Table 5). In addition, when all 10 BTPS facets were estimated simultaneously, model fit was good: WLSMV $\chi^2(900) = 1,767.64$, RMSEA = .051 (90% confidence interval [CI] = [.048, .055]), CFI = .971, and TLI = .968.

Second-order confirmatory factor analysis. To further examine the relationship between the 10 BTPS facets, we compared the fit of models with one, two, and three higher-order global factors. For the one-factor model, all 10 BTPS facets were specified to load on a single global factor. For

the two-factor model, self-oriented perfectionism and self-worth contingencies were specified to load on one global factor, and all remaining facets were specified to load on a second global factor. Finally, for the three-factor model, self-oriented perfectionism and self-worth contingencies were specified to load on one global factor (rigid perfectionism), concern over mistakes, doubts about actions, and self-criticism, and socially-prescribed perfectionism to load on a second global factor (self-critical perfectionism), and other-oriented perfectionism, hypercriticism, entitlement, and grandiosity to load on a third global factor (narcissistic perfectionism).

The fit of the model with one second-order global factor was poor: WLSMV $\chi^2(935) = 4,052.27$, RMSEA = .095 (90% CI = [.092, .098]), CFI = .896, and TLI = .890. In contrast, the fit of the model with two global factors was marginally acceptable: WLSMV $\chi^2(934) = 3,780.28$, RMSEA = .091 (90% CI = [.088, .094]), CFI = .905, and TLI = .899. As expected, the fit of the model (Figure 1) with three global factors was good: WLSMV $\chi^2(932) = 2,463.50$, RMSEA = .067 (90% CI = [.064, .070]), CFI = .949, and TLI = .946. Furthermore, the model with three global factors fit significantly better than the model with only two global factors: WLSMV $\Delta\chi^2(2) = 159.73$, $p < .001$.

Multiple-group CFA for invariance across gender. Measurement invariance across men and women was investigated. The fit of the configural model was marginally acceptable: WLSMV $\chi^2(1,884) = 3,037.78$, RMSEA = .066 (90% CI = [.061, .070]), CFI = .913, and TLI = .908. Constraining factor loadings to be equal across men and women did not result in a significant loss of fit (WLSMV $\Delta\chi^2[43] = 47.00$, $p = .312$). Similarly, constraining item thresholds, as well as factor loadings, to be equal across men and women did not result in a significant loss of fit (WLSMV $\Delta\chi^2[32] = 155.08$, $p = .083$).

Discussion

Study 2 provided further evidence that each of the 10 BTPS facets is reliable and homogeneous. Results also supported the multidimensional nature of the BTPS and suggest it is best conceptualized as measuring three oblique global factors that underlie 10 perfectionism facets. In addition, the BTPS appeared to show the same factor structure in men and women.

Study 3: Convergent and Divergent Validity

In Study 3, convergent validity was assessed by administering the two most prominent and widely used measures of perfectionism—the FMPS (Frost et al., 1990) and the HF-MPS (Hewitt & Flett, 1991)—alongside a measure of the five-factor model of personality. We expected that after controlling for variance attributable to self-critical perfectionism and narcissistic perfectionism that rigid perfectionism would show a distinct positive relation with conscientiousness (Hill, McIntire, & Bacharach, 1997; Rice et al., 2007). Similarly, we expected that self-critical perfectionism would have a unique positive relation with neuroticism (Bekes et al., 2015) and narcissistic perfectionism would have a distinct negative relation with agreeableness (Nealis et al., 2015). Given the importance of replication, the factor structure of the BTPS was re-evaluated.

Method

Participants and procedure. The sample was composed of 290 undergraduates (88 men, 202 women) recruited from the first author's university. Participants completed the BTPS, the FMPS, the HF-MPS, and Saucier's (1994) Big-Five Mini-Markers. Self-reported ethnicities were as follows: White (53.0%), Chinese (21.6%), South Asian (7.7%), Korean (2.4%), Arab (1.4%), and other (4.8%) with 9.1% missing.

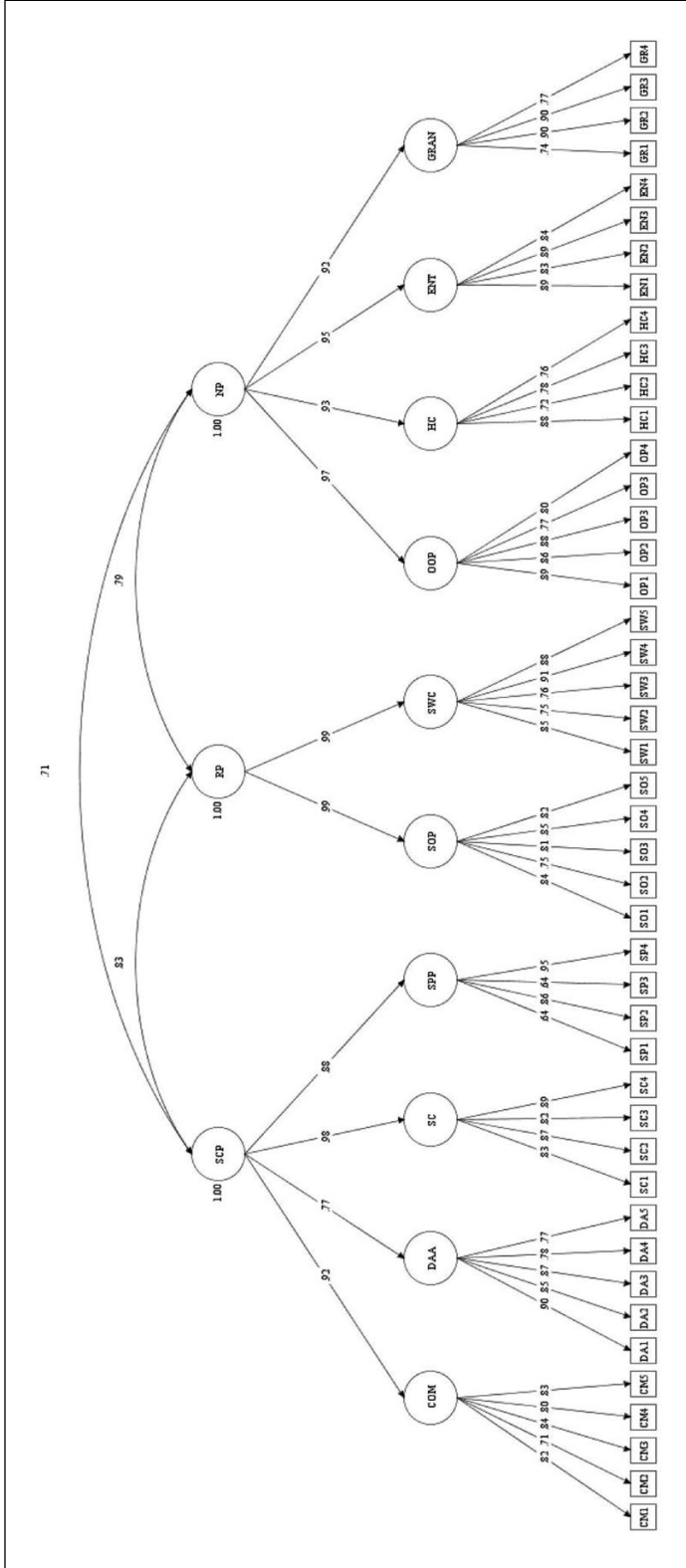


Figure 1. Study 2 (N = 352).

Note. Second-order factor analysis of the BTPS. SCP = self-critical perfectionism; RP = rigid perfectionism; NP = narcissistic perfectionism; COM = concern over mistakes; DAA = doubts about actions; SC = self-criticism; SPP = socially prescribed perfectionism; SOP = self-oriented perfectionism; SWC = self-worth contingencies; OOP = other-oriented perfectionism; HC = hypercriticism; ENT = entitlement; GRAN = grandiosity; CMI to CM4 = concern over mistakes items 1 to 4; DAI to DA5 = doubts about actions items 1 to 5; SC1 to SC4 = self-criticism items 1 to 4; SP1-SP4 = socially prescribed perfectionism items 1 to 4; SO1 to SO5 = self-oriented perfectionism items 1 to 5; SW1 to SW5 = self-worth contingencies items 1 to 5; OPI to OP5 = other-oriented perfectionism items 1 to 5; HCl to HC4 = hypercriticism items 1 to 4; EN1 to EN4 = entitlement items 1 to 4; GRI to GR 4 = grandiosity items 1 to 4; BTPS = Big Three Perfectionism Scale.

Confirmatory factor analysis of the BTPS facets. The unidimensionality of each facet was investigated using CFA (Table 5). When all 10 facet scales were simultaneously estimated, model fit was again good: WLSMV $\chi^2(900) = 1,165.44$, RMSEA = .032 (90% CI = [.027, .037]), CFI = .981, and TLI = .979.

Second-order confirmatory factor analysis. As in Study 2, the fit of the model with 10 first-order facets and one second-order global factor was poor: WLSMV $\chi^2(935) = 4,145.73$, RMSEA = .109 (90% CI = [.106, .113]), CFI = .765, and TLI = .752. Similarly, the fit of the model with two global factors was poor: WLSMV $\chi^2(934) = 3,647.76$, RMSEA = .101 (90% CI = [.097, .104]), CFI = .802, and TLI = .790. In contrast, as was expected, the fit of the model with three global factors was good (Figure 2): WLSMV $\chi^2(932) = 1,627.79$, RMSEA = .051 (90% CI = [.047, .055]), CFI = .949, and TLI = .946. Moreover, the model with three global factors fit significantly better than the model with two global factors: WLSMV $\Delta\chi^2(2) = 184.64$, $p < .001$.

Correlations with perfectionism and personality indicators. Correlations between the 10 BTPS facets with other measures of perfectionism and the five-factor model of personality are presented in Table 6. Bivariate correlations and semipartial correlations between the BTPS's three global factors (rigid, self-critical, and narcissistic perfectionism) and indicators of perfectionism and personality are presented in Table 7. All patterns of significant correlations were as expected. Following Cohen's (1992) guidelines for what constitutes large, medium, and small effects, rigid perfectionism showed a large-sized positive correlation with personal standards and self-oriented perfectionism, a medium-sized positive correlation with conscientiousness, and a small-sized positive correlation with neuroticism. Self-critical perfectionism showed large-sized positive correlations with concern over mistakes, doubts about actions, self-oriented perfectionism, and socially prescribed perfectionism, a medium-sized positive correlation with neuroticism, a medium-sized negative correlation with extraversion, and a small-sized negative correlation with agreeableness. Narcissistic perfectionism showed a large-sized positive correlation with other-oriented perfectionism, a large-sized negative correlation with agreeableness, and a medium-sized positive correlation with neuroticism. Examining the semipartial correlations revealed that after controlling for rigid perfectionism and narcissistic perfectionism, self-critical perfectionism was the only global factor significantly positively correlated with doubts about actions, parental criticism, and socially prescribed perfectionism.

General Discussion

The aim of this research was to present validity and reliability evidence regarding a new measure of multidimensional perfectionism: the Big Three Perfectionism Scale (BTPS). Across two university samples and one community adult sample, each of the 10 BTPS facets (self-oriented perfectionism, self-worth contingencies, concern over mistakes, doubts about actions, self-criticism, socially prescribed perfectionism, other-oriented perfectionism, hypercriticism, entitlement, and grandiosity) showed clear homogeneity and unidimensionality (G. T. Smith et al., 2003). In addition, both exploratory and confirmatory factor analyses indicated the majority of common variance among the BTPS's 10 core facets was accounted for by three higher-order global factors: rigid perfectionism, self-critical perfectionism, and narcissistic perfectionism. While moderate to large correlations were observed among the BTPS's three global factors, our factor analytic findings suggest the BTPS is best conceptualized as multidimensional. Results also suggested that the BTPS shows the same factorial structure in men and women. Bivariate and semipartial correlations were in line with expectations and provided

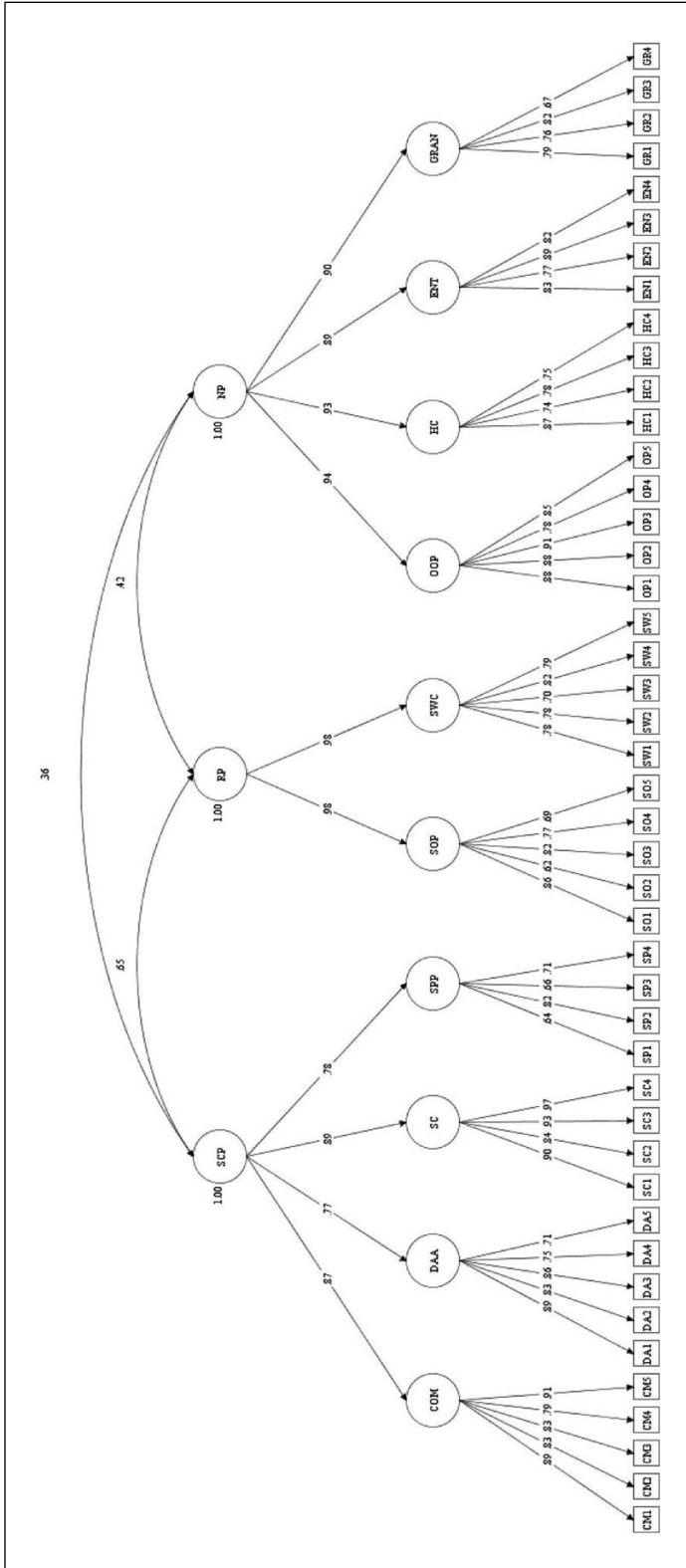


Figure 2. Study 3 (N = 290).

Note. Second-order factor analysis of the BTPS. SCP = self-critical perfectionism; RP = rigid perfectionism; NP = narcissistic perfectionism; COM = concern over mistakes; DAA = doubts about actions; SC = self-criticism; SPP = socially prescribed perfectionism; SOP = self-oriented perfectionism; SWC = self-worth contingencies; OOP = other-oriented perfectionism; HC = hypercriticism; ENT = entitlement; GRAN = grandiosity; CMI to CM4 = concern over mistakes items 1 to 4; DAI to DA5 = doubts about actions items 1 to 5; SC1 to SC4 = self-criticism items 1 to 4; SPP-SP4 = socially prescribed perfectionism items 1 to 4; SOI to SO5 = self-oriented perfectionism items 1 to 5; SW1 to SW5 = self-worth contingencies items 1 to 5; OPI to OP5 = other-oriented perfectionism items 1 to 5; HCl to HC4 = hypercriticism items 1 to 4; EN1 to EN4 = entitlement items 1 to 4; GR1 to GR 4 = grandiosity items 1 to 4; BTPS = Big Three Perfectionism Scale.

Table 6. Study 3: Bivariate Correlations Between Perfectionism Indicator Subscales and Related Measures.

Scale	SOP	SWC	COM	DAA	SC	SPP	OOP	HC	ENT	GRAN
Perfectionism: FMPS										
Concern over mistakes	.51***	.56***	.66***	.48***	.69***	.53***	.43***	.41***	.31***	.25***
Doubts about actions	.33***	.34***	.64***	.72***	.56***	.37***	.27***	.24***	.12*	.08
Personal standards	.61***	.56***	.43***	.20***	.56***	.32***	.26***	.27***	.20***	.26***
Parental criticism	.16**	.18***	.41***	.37***	.38***	.50***	.27***	.23***	.16*	.14*
Parental expectations	.25***	.23***	.36***	.29***	.36***	.56***	.21***	.19**	.11	.12*
Organization	.34***	.28***	.18**	.08	.17**	.01	.00	.00	-.11	.00
Perfectionism: HF-MPS										
Self-oriented perfectionism	.76***	.71***	.54***	.30***	.65***	.30***	.26***	.26***	.08	.17*
Other-oriented perfectionism	.30***	.32***	.18***	.07	.26***	.19***	.52***	.53***	.33***	.29***
Socially prescribed perfectionism	.35***	.35***	.49***	.37***	.47***	.69***	.28***	.30***	.17*	.16*
Five-factor personality										
Neuroticism	.18***	.23***	.40***	.36***	.34***	.15***	.31***	.39***	.22***	.14
Openness	.10	.11	.01	-.10	.00	.07	.02	.01	.04	.04
Conscientiousness	.35***	.26***	.04	-.13*	.08	-.06	-.05	-.08	-.14	.03
Agreeableness	-.05	-.15*	-.18**	-.21***	-.17**	-.15*	-.43***	-.55***	-.41***	-.29***
Extraversion	-.10	-.08	-.37***	-.42***	-.33***	-.11	-.09	-.15**	-.01	.00

Note: N = 290. SOP = self-oriented perfectionism; SWC = self-worth contingencies; COM = concern over mistakes; DAA = doubts about actions; SC = self-criticism; SPP = socially prescribed perfectionism; OOP = other-oriented perfectionism; HC = hypercriticism; ENT = entitlement; GRAN = grandiosity; FMPS = Frost Multidimensional Perfectionism Scale; HF-MPS = Hewitt-Flett Multidimensional Perfectionism Scale.
 *p < .05. **p < .01. ***p < .001.

Table 7. Study 3: Correlations Between BTPS Facets and Global Factors With Perfectionism Indicators and Personality.

	Bivariate correlations			Semipartial correlations		
	Rigid perfectionism	Self-critical perfectionism	Narcissistic perfectionism	Rigid perfectionism	Self-critical perfectionism	Narcissistic perfectionism
Perfectionism: FMPS						
Personal standards	.61***	.45***	.29***	.51***	.16**	.06
Concern over mistakes	.56***	.71***	.41***	.21***	.55***	.17***
Doubts about actions	.35***	.71***	.21***	-.05	.73***	.01
Parental expectations	.25***	.46***	.19**	-.01	.45***	.06
Parental criticism	.18**	.49***	.23**	-.16**	.54***	.13*
Organization	.33***	.14*	-.03	.39***	-.02	-.16**
Perfectionism: HF-MPS						
Self-oriented perfectionism	.77***	.54***	.23***	.69***	.19***	-.07
Other-oriented perfectionism	.32***	.21***	.49***	.19**	-.03	.44***
Socially prescribed perfectionism	.36***	.58***	.27***	.05	.52***	.09
Five-factor personality						
Neuroticism	.22***	.39***	.31***	-.05	.35***	.23***
Extraversion	-.10	-.39***	-.08	.15*	-.47***	.01
Openness	.11	-.01	.03	.17*	-.11	.00
Agreeableness	-.10	-.22***	-.50***	.15*	-.15*	-.50***
Conscientiousness	.32***	-.02	-.07	.51***	-.24***	-.18**

Note. N = 287. Semipartial correlations from multiple regression simultaneously entering rigid perfectionism, self-critical perfectionism, and narcissistic perfectionism. BTPS = Big Three Perfectionism Scale; FMPS = Frost Multidimensional Perfectionism Scale; HF-MPS = Hewitt-Flett Multidimensional Perfectionism Scale.

*p < .05. **p < .01. ***p < .001.

further evidence regarding the validity of the BTPS. Rigid perfectionism had a distinct association with conscientiousness, self-critical perfectionism had distinct association with neuroticism, and narcissistic perfectionism had a distinct association with agreeableness.

Relative to existing measures, the BTPS has a number of notable features. In particular, the BTPS differentiates self-oriented perfectionism from self-worth contingencies and, by doing so, allows for a more detailed and informative assessment of multidimensional perfectionism (see Stoeber & Childs, 2010). Moreover, the BTPS offers the only self-report measure capable of assessing individuals who believe they are perfect, superior to others, and justified in holding unrealistic expectations (i.e., narcissistic perfectionists). Furthermore, an important strength of the BTPS is that it provides researchers with the option of studying perfectionism at either its lowest level via the 10 BTPS facets or its broadest level via the three global BTPS factors. In addition, the BTPS is the only available instrument capable of assessing personal standards perfectionism (i.e., rigid perfectionism), evaluative concerns perfectionism (i.e., self-critical perfectionism), and narcissistic perfectionism using a single self-report scale.

Limitations and Future Directions

The results of the present study should be considered in light of its limitations. The magnitude of intercorrelations among facets and global factors in the student and community samples were notably distinct (see Figures 1 and 2). A potential explanation is that intercorrelations between the BTPS factors may vary across samples due to the presence of a moderating factor. For instance, in the student samples, less than perfect grades may attenuate grandiosity and amplify self-criticism. Nonetheless, this speculation remains to be tested. Additionally, all samples were composed of predominately Caucasian participants from Canada and the United States. Future research should investigate the generalizability of the BTPS across more ethnically diverse samples, as well as additional nationalities. Further research is also needed to determine how narcissistic perfectionism relates to grandiose and vulnerable narcissism (Stoeber et al., 2015). Moreover, in the present research, validation measures were restricted to the FMPS, HF-MPS, and the five-factor model of personality. Future studies should investigate how the BTPS's global factors and facets relate to social desirability, alternative measure of perfectionism, as well as other models of personality (e.g., the HEXACO model; Ashton & Lee, 2007). A fuller understanding of the incremental validity of the BTPS is also needed. Future research should determine if the BTPS predicts outcomes (e.g., academic performance or prosocial vs. antisocial behaviors) beyond existing measures such as the FMPS and the HF-MPS. Additionally, a version of the BTPS that allows for collection of informant reports would help to overcome potential limitations associated with use of participant self-report (e.g., self-serving reporting biases; Stoeber & Hotham, 2013).

Concluding Remarks

Following from the results of these preliminary studies, the BTPS appears to be a promising new instrument for the multidimensional assessment of the various facets of perfectionism and their superordinate factors (rigid perfectionism, self-critical perfectionism, and narcissistic perfectionism). In addition, the BTPS provides the first and only scale comprising a measure of narcissistic perfectionism.

Declaration of Conflicting Interests

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Supplemental Material

The online supplement is available at <http://jpa.sagepub.com/supplemental>

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