

Relations of the German almost perfect scale-revised and short almost perfect scale with the big five personality facets

Stricker, Johannes; Simonsmeier, Bianca A.; Buecker, Susanne; Simacek, Thomas; Wang, Kenneth

Veröffentlichungsversion / Published Version

Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:

Stricker, J., Simonsmeier, B. A., Buecker, S., Simacek, T., & Wang, K. (2022). Relations of the German almost perfect scale-revised and short almost perfect scale with the big five personality facets. *Current Psychology*, Latest Articles, 1-9. <https://doi.org/10.1007/s12144-022-03386-3>

Nutzungsbedingungen:

Dieser Text wird unter einer CC BY Lizenz (Namensnennung) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:

<https://creativecommons.org/licenses/by/4.0/deed.de>

Terms of use:

This document is made available under a CC BY Licence (Attribution). For more information see:

<https://creativecommons.org/licenses/by/4.0>



Relations of the German Almost Perfect Scale-Revised and Short Almost Perfect Scale with the Big Five Personality Facets

Johannes Stricker¹ · Bianca A. Simonsmeier² · Susanne Buecker³ · Thomas Simacek² · Kenneth Wang⁴

Accepted: 21 June 2022
© The Author(s) 2022

Abstract

The Almost Perfect Scale-Revised (APS-R) and its short form (SAPS) are among the most-established multidimensional perfectionism measures. Yet, investigations into the APS-R/SAPS nomological networks have mainly been limited to the level of broader personality traits. This reliance on trait-level associations hampers the conceptual understanding of perfectionism traits by masking more complex relations with specific cognitive, emotional, and behavioral tendencies (personality facets). In this study, we validated German versions of the APS-R and SAPS and assessed their relations with the Big Five personality facets in two samples ($N_{\text{Sample 1}} = 305$ university students; $N_{\text{Sample 2}} = 467$ community adults). Both scales displayed satisfactory psychometric properties, convergent and criterion-related validity. Analyses on the level of the Big Five personality facets revealed complex and nuanced patterns of relations. These findings provide new insights into the APS-R and SAPS nomological networks and facilitate the conceptual distinction between the APS-R subscales.

Keywords Perfectionism · Almost perfect scale-revised · Short almost perfect scale · Validation · Personality facets

Perfectionism is a multidimensional personality disposition characterized by excessively high standards for oneself coupled with harsh self-evaluations (Flett & Hewitt, 2002). The Almost Perfect Scale-Revised (APS-R; Slaney et al., 2001) and its short form, the Short Almost Perfect Scale (SAPS, Rice et al., 2014), are among the best-established perfectionism measures. Both scales have been used in various populations to investigate the nature and consequences of multidimensional perfectionism (see, e.g., Smith et al., 2019, 2021). However, to date, research using the APS-R and SAPS is limited in at least two significant ways. First, most research using the APS-R and SAPS has been conducted in English-speaking, predominantly North American populations. To increase the generalizability of perfectionism research, different translations of the APS-R and SAPS

have been developed in recent years. However, no validated German APS-R and SAPS versions exist, although the German population has been commonly associated with heightened perfectionistic tendencies (Haller et al., 2019; Schroll-Machl, 2016). A second notable gap in the empirical literature is that previous work into the APS-R and SAPS nomological networks (i.e., the system of relations with other constructs needed to establish construct validity; Cronbach & Meehl 1955) has been limited to trait-level measures, such as the Big Five personality traits (for meta-analyses, see Smith et al., 2019; Stricker et al., 2019a). Although the Five Factor Model (FFM) generally provides a suitable framework for describing other personality traits (e.g., Ozer & Reise 1994), facet-level analyses are required to understand maladaptive personality characteristics adequately (e.g., Samuel & Widiger 2008). Insights into the relations of the APS-R and SAPS subscales with narrower personality facets are needed to reveal which specific behavioral, emotional, and cognitive tendencies these scales assess (for previous work on facet-level relations of other perfectionism measures, see Dunkley et al., 2012). To address the aforementioned research gaps, the present study added to the validation of the APS-R and SAPS in two ways. First, we evaluated the factor structure and validity of

✉ Johannes Stricker
Johannes.stricker@hhu.de

¹ Psychology Department, Heinrich Heine University Düsseldorf, Universitätsstraße 1, 40225 Düsseldorf, Germany

² Psychology Department, University of Trier, Trier, Germany

³ Psychology Department, Ruhr University Bochum, Bochum, Germany

⁴ Fuller Theological Seminary, Pasadena, CA, USA

German scale versions. Second, we assessed the relations of these scales with the Big Five personality facets.

The APS-R and the SAPS

The APS-R comprises three subscales capturing the tendency to set high standards for oneself (standards subscale), the tendency to perceive a discrepancy between one's standards and actual performance (discrepancy subscale), and a preference for orderliness (order subscale). The SAPS is an eight-item short form of the APSR capturing standards and discrepancy. Compared to the APS-R, the SAPS displays reduced item-level redundancy and is suitable for large-scale surveys with constraints on the number of items. (Rice et al., 2014).

Various studies have demonstrated the factor structure, reliability, and validity of the APS-R and SAPS (for a review, see Flett & Hewitt 2015). In terms of convergent validity, the standards subscale is most strongly related to other perfectionism scales that assess the tendency to set exceedingly high personal standards, such as the personal standards subscale from Frost's (1990) Multidimensional Perfectionism Scale (FMPS; e.g., $r = .65$; Rice et al., 2007). The discrepancy subscale is typically most strongly related to other scales that assess the tendency to be concerned about imperfections, such as the FMPS concern over mistakes and doubts about actions subscales (e.g., $r = .62$ to $.68$; Rice et al., 2007). The APS-R order subscale is typically most strongly related to other indicators of a preference for orderliness and organization, such as the FMPS organization scale (e.g., $r = .87$; Rice et al., 2007).

The criterion-related validity of the APS-R and SAPS is often established through relations with indicators of subjective well-being (e.g., Rice et al., 2019). The standards subscale usually displays small positive, albeit often non-significant, correlations with maladaptive (e.g., negative affect) and adaptive outcomes (e.g., positive affect or life satisfaction; Lo & Abbott 2013; Wang et al., 2009). In contrast, the discrepancy subscale consistently displays substantial negative correlations with indicators of subjective well-being, including lower life satisfaction (Rice et al., 2019), lower positive affect, and higher negative affect (e.g., Lo & Abbott 2013). The order subscale often shows small positive relations with indicators of subjective well-being, such as life satisfaction (e.g., Wang et al., 2009).

Different meta-analyses and systematic reviews of multidimensional perfectionism have called for greater diversity in the samples used in perfectionism research (e.g., Stricker et al., 2020). Basing perfectionism research on a narrow range of populations (e.g., English-speaking North Americans) may limit its global generalizability (see

Henrich et al., 2010). For example, recently, perfectionistic strivings have been found to be more strongly related to work engagement in an Italian—compared to a US sample (Spagnoli et al., 2021). One potential explanation for such between-country differences is that perfectionism development and consequences thereof may differ depending on how much perfectionistic tendencies are valued or expected in a specific culture or society (see Flett et al., 2002). To broaden the spectrum of populations to be considered in perfectionism research, recently, much effort has gone into validating translated APS-R and SAPS versions (e.g., Brazilian-Portuguese, Lins de Holanda Coelho et al., 2021; Chinese, Wang et al., 2009; and Italian, Loscalzo et al., 2019). As perfectionism has frequently been speculated to be a particular characteristic of the German population (e.g., Schroll-Machl 2016), it seems puzzling why, to date, perfectionism research in German-speaking populations is hampered by the lack of validated APS-R and SAPS scales.

Relations of the APS-R/SAPS with the Big Five Personality Traits and Facets

The FFM is commonly used to characterize other personality characteristics, including perfectionism traits (Smith et al., 2019; Stricker et al., 2019a). Below its broader personality trait domains (extraversion, agreeableness, conscientiousness, neuroticism, and openness), the FFM comprises narrower personality facets (Costa & McCrae, 1992; Soto & John 2017a). Yet, all previous research into relations of the APS-R and SAPS scales with the FFM (e.g., Rice et al., 2007) has remained on the trait level. This issue is problematic because assessing nomological networks of perfectionism traits merely on the trait-level masks more nuanced relations on the facet-level and limits insights into the nature of multidimensional perfectionism (e.g., Dunkley et al., 2012). For example, on trait-level, the APS-R standards subscale and the APS-R order subscale are both predominantly characterized by conscientiousness (e.g., Rice et al., 2007). Thus, based on these trait-level findings, standards and order appear difficult to differentiate. However, on the facet level, more nuanced relations may arise. For example, the standards subscale may be primarily characterized by high productivity (i.e., the productiveness facet of conscientiousness), whereas the order subscale may be primarily characterized by the tendency to be organized (i.e., the organization facet of conscientiousness).

For the discrepancy subscale, the strongest relations on trait-level have been found for neuroticism (Smith et al., 2019). However, it has remained unclear whether this only pertains to the depression and anxiety facets of neuroticism (see Sironic & Reeve 2015) or also the emotional volatility

facet of neuroticism. Previous work into relations of other perfectionism measures (e.g., Dunkley et al., 2012) and broader maladaptive personality trait domains (e.g., Samuel & Widiger 2008) with the Big Five personality facets supports the view that facet-level analyses provide essential insights beyond trait-level relations.

The Present Study

This study aimed to examine the psychometric properties and the validity of German versions of the APS-R and SAPS. Additionally, we sought to provide nuanced insights into the nomological networks of these scales by assessing their relations with the Big Five personality facets. To this end, we administered the APS-R/SAPS to two German-speaking samples within two larger collaborative data collection efforts.

Method

Samples and Procedure

Sample 1 comprised German-speaking university students that participated online for partial course credit ($N=305$, 86% female, $M_{\text{age}} = 22.17$ years, $SD = 3.19$, Range = 18–48; 88.20% psychology students). We recruited this sample from the research participation pool of the first author's university and administered the study online via SONA systems.

Sample 2 comprised German-speaking community adults recruited via various social media channels ($N=467$, 68% female, $M_{\text{age}} = 31.88$ years, $SD = 14.18$, Range = 18–82). Of the participants, 47% were students or trainees, 41% were employed, and 11% indicated other occupational statuses (e.g., retired). According to predefined criteria, we excluded 73 participants from Sample 2 for incorrectly responding to at least one of six validity-check items (e.g., “To improve data quality, please select response option 4 = Agree”) or for failing to complete the APS-R/SAPS items. Participants in Sample 2 completed the study on the Qualtrics platform and did not receive any compensation for their participation. All participants provided their informed consent.

Measures

Measures Administered to both Samples

APS-R/SAPS. The APS-R comprises three subscales: standards (seven items), discrepancy (12 items), and order (four items). Two experienced psychological researchers with

high proficiency in English independently translated all APS-R items from English to German. Discrepancies were resolved by discussion. Next, an experienced bilingual psychological researcher back-translated all items. There was a high correspondence between the original scale and the back-translation. Any discrepancy was discussed, and the German scale was refined until an agreement was reached. The SAPS comprises two subscales (standards and discrepancy) that consist of a subset of eight items from the APS-R (four items for standards and discrepancy each). The participants rated all items on a 7-point Likert scale ranging from 1 “strongly disagree” to 7 “strongly agree”. The German APS-R and SAPS are available from the Electronic Supplementary Material.

Measures Administered only to Sample 1

FMPS. We administered four subscales of the German FMPS (Frost et al., 1990; Stöber, 1995) to assess the convergent validity of the APS-R/SAPS scales. Participants completed the personal standards subscale (seven items, e.g., “I set higher goals than most people.”), the concern over mistakes subscale (nine items, e.g., “People will probably think less of me if I make a mistake.”), the doubts about actions subscale (four items, e.g., “Even when I do something very carefully, I often feel that it is not quite right.”), and the organization subscale (six items, e.g., “I try to be an organized person.”). All items were rated on a 5-point Likert scale ranging from 1 “strongly disagree” to 5 “strongly agree”. The German FMPS has displayed reliability and validity in various studies (e.g., Stricker et al., 2019b).

Subjective well-being. We administered two subjective well-being measures as indicators of the criterion-related validity of the APS-R and SAPS. Participants completed the German versions of the Satisfaction with Life Scale (SWLS; Janke & Glöckner-Rist, 2014a) and the Positive and Negative Affect Schedule (PANAS; Breyer & Bluemke 2016). The SWLS uses five items (e.g., “I am satisfied with life”) to assess life satisfaction (i.e., the general satisfaction with one's life). The PANAS assesses positive and negative affect over the past two weeks with ten items each. Participants rated the SWLS items on a 7-point Likert scale ranging from 1 “applies not at all” to 7 “applies fully” and the PANAS items (e.g., “enthusiastic” for positive affect and “scared” for negative affect) on a 5-point Likert scale ranging from 1 “not at all” to 5 “extremely”. Both instruments have displayed reliability and validity in various studies (e.g., Dreisoerner et al., 2021; Galbusera et al., 2019).

Big Five Inventory-2 Short Form (BFI-2-S). We used the German version of the BFI-2-S (Rammstedt et al., 2018a) to assess the Big Five personality traits and 15 lower-order Big Five personality facets. Each of the Big Five personality

traits was assessed with six items and comprised three personality facets (assessed with two items each). Participants rated all items on a 5-point Likert scale ranging from 1 “disagree strongly” to 5 “agree strongly”. The German BFI-2-S has demonstrated reliability and validity across numerous studies. Yet, traditional measures of internal consistency for its facet scales are typically low due to their brevity (e.g., Rammstedt et al., 2018a; Soto & John, 2017b).

Measures Administered only to Sample 2

BFI-2. We assessed the Big Five personality facets and traits with the German version of the BFI-2 (Danner et al., 2016) in Sample 2. The BFI-2 assesses the Big Five personality traits with 12 items each and the 15 lower-order Big Five personality facets with four items each. All items were rated on a 5-point Likert scale ranging from 1 “disagree strongly” to 5 “agree strongly”. The German BFI-2 trait and facet scales have frequently displayed reliability and validity (e.g., Rammstedt et al., 2018b).

Statistical analyses

We used confirmatory factor analysis (CFA) to test the factor structures of the German APS-R and SAPS. Kline (2005) suggested $CFI \geq 0.90$, $RMSEA \leq 0.08$, and $SRMR \leq 0.10$ as indications of acceptable model fit. To test the replicability of the German APS-R and SAPS factor structures, we conducted the confirmatory factor analyses for both samples separately. We conducted all analyses with the *psych* and *lavaan* packages in the *R* statistical environment. The data and *R* scripts are available via the Open Science Framework: https://osf.io/tbdxq/?view_only=3926a96b42c744638f29ee741578d79a.

Results

Preliminary Analyses

Tables S1 and S2 display the bivariate correlations, descriptive statistics, and internal consistencies for all variables. Internal consistencies were satisfactory for the standards (APS-R: $\alpha = .86$ to $.87$, SAPS: $\alpha = .86$ to $.89$), discrepancy (APS-R: $\alpha = .94$ to $.95$, SAPS: $\alpha = .85$ to $.87$), and order ($\alpha = .84$ to $.88$) subscale scores. Internal consistencies of the Big Five personality facet scales were similar to the internal consistencies obtained in their validation studies (BFI-2-S: $M_\alpha = .64$, Range = $.32$ to $.82$; BFI-2: $M_\alpha = .78$, Range = $.63$ to $.88$; Danner et al., 2016; Rammstedt et al., 2018a). Standards and discrepancy were positively correlated across all scale versions and samples ($r = .27$ to $.37$). Order was

positively related to standards ($r = .27$ to $.32$) and not statistically significantly related to discrepancy ($r = -.09$).

Confirmatory Factor Analyses

In Sample 1, the RMSEA and the SRMR, but not the CFI indicated acceptable model fit for the APS-R ($CFI = .899$, $RMSEA = .080$, $SRMR = .069$). In Sample 2, the SRMR, but not the CFI and RMSEA indicated acceptable model fit ($CFI = .886$, $RMSEA = .091$, $SRMR = .091$). The SAPS displayed overall acceptable model fit in Sample 1 ($CFI = .971$, $RMSEA = .078$, $SRMR = .049$) and Sample 2 ($CFI = .963$; $RMSEA = .098$, $SRMR = .058$). All χ^2 goodness of fit tests reached statistical significance ($p < .001$).

Due to the unsatisfactory model fit for the APS-R, we allowed correlated residuals between three pairs of items with high overlap in content and wording (“My best just never seems to be good enough for me” and “Doing my best never seems to be enough”; “My performance rarely measures up to my standards.” and “I am seldom able to meet my own high standards of performance”; “I have high expectations for myself” and “I set very high standards for myself”).

In Sample 1, the absolute fit indices indicated acceptable model fit for the APS-R with correlated residuals ($CFI = .917$, $RMSEA = .073$, $SRMR = .068$). In Sample 2, all absolute fit indices except the RMSEA indicated acceptable model fit for the APS-R with correlated residual ($CFI = .909$, $RMSEA = .082$, $SRMR = .091$). Table S3 and Table S4 show the descriptive statistics for all APS-R and SAPS items. Table S5 and Table S6 display the standardized factor loadings for the APS-R subscales ($\lambda = .37$ to $.90$) and the SAPS subscales ($\lambda = .62$ to $.91$).

Convergent and Criterion-Related Validity

The pattern of relations (standardized regression coefficients) was highly similar for the German APS-R and SAPS ($|\Delta\beta| = .03$).

Relations with Perfectionism Measures and Subjective Well-Being

Table 1 displays the relations of the APS-R and SAPS with the FMPS and indicators of subjective well-being. Regarding convergent validity, the standards subscale was most strongly related to FMPS personal standards ($\beta = .74$ to $.75$, $p < .001$), the discrepancy subscale was most strongly related to FMPS concern over mistakes ($\beta = .59$ to $.63$, $p < .001$) and FMPS doubts about actions ($\beta = .62$ to $.66$, $p < .001$), and the order subscale was most strongly related to FMPS organization ($\beta = .86$, $p < .001$).

Table 1 Bivariate Relations of the APS-R and SAPS Subscales With the FMPS Subscales and Indicators of Subjective Well-Being in Sample 1

Variable	Standards (APS-R)	Standards (SAPS)	Discrepancy (APS-R)	Discrepancy (SAPS)	Order (APS-R)
FMPS scales					
Personal standards	.75***	.74***	.37***	.33***	.30***
Concern over mistakes	.38***	.40***	.63***	.59***	.03
Doubts about actions	.24***	.26***	.66***	.62***	-.09
Organization	.35***	.30***	-.10	-.12*	.86***
Subjective well-being					
Life satisfaction	.00	-.03	-.48***	-.48***	.16**
Positive affect	.10	.08	-.33***	-.33***	.15*
Negative affect	.14*	.16**	.45***	.45***	-.09

Note. All values represent standardized regression coefficients. APS-R=German Almost Perfect Scale-Revised. SAPS=German Short Almost Perfect Scale. FMPS=German version of Frost et al.'s (1990) Multidimensional Perfectionism Scale (FMPS, Stöber 1995). * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$

Regarding criterion-related validity, the standards subscale displayed only small relations with indicators of subjective well-being. The relations with negative affect reached statistical significance ($\beta = .14$ to $.16$, $ps \leq .017$) but the relations with life satisfaction ($\beta = -.03$ to $.00$, $ps \leq .554$) and positive affect ($\beta = .08$ to $.10$, $ps \leq .081$) did not. The discrepancy subscale was substantially negatively related to life satisfaction ($\beta = -.48$, $ps < .001$) and positive affect ($\beta = -.33$, $ps < .001$) and positively related to negative affect ($\beta = .45$, $ps < .001$). The order subscale displayed small to medium positive relations with life satisfaction ($\beta = .16$, $p = .004$) and positive affect ($\beta = .15$, $p = .010$) and was not statistically significantly related to negative affect ($\beta = -.09$, $p = .137$).

Relations with the Big Five Personality Traits and Facets

Due to the low reliability of the 2-item BFI-2-S facet scales used in Sample 1, we chose a conservative approach and only interpreted relations that replicated across both samples regarding direction and statistical significance. Table 2 displays the standardized bivariate regression coefficients for the relations of the APS-R and SAPS scales with the Big Five personality traits and facets. On the trait-level, the standards subscale ($\beta = .25$ to $.35$, $ps < .001$) and the order subscale ($\beta = .69$ to $.76$, $ps < .001$) were most strongly related to conscientiousness. Additionally, as in previous work, the discrepancy subscale was most strongly related to neuroticism ($\beta = .53$ to $.65$, $ps < .001$).

The facet-level analyses revealed a more nuanced relationship pattern than the trait-level investigation (see Table 1). For example, the standards subscale was most strongly associated with the productiveness facet of conscientiousness ($\beta = .24$ to $.40$, $ps < 0.001$). In contrast, the order subscale was most strongly associated with the organization facet of conscientiousness ($\beta = .79$ to $.86$, $ps < .001$).

For the discrepancy subscale, a consistent negative relation with the agreeableness facet trust emerged ($\beta = -.14$ to $-.23$, $ps \leq .010$), whereas relations with other agreeableness facets were smaller and did not replicate across samples. Conversely, for the neuroticism trait domain, facet-level analyses revealed that all three facets (anxiety, depression, and emotional volatility) were substantially related to the discrepancy subscale ($\beta = .32$ to $.68$, $ps < .001$).

Discussion

This study validated German versions of the APS-R and SAPS in two large samples. Additionally, this study provided fine-grained insights into the nomological networks of the constructs assessed with these scales by investigating their relations with the Big Five personality facets.

Psychometric Properties and Validity of the German APS-R and SAPS

Overall, the German APS-R and SAPS displayed satisfactory psychometric properties. Yet, not all fit indices indicated ideal model fit (significant χ^2 -tests, RMSEA values in Sample 2). Future work may test how the German APS-R and SAPS fit within alternative factor structures of perfectionism that emerge when a broad width of perfectionism measures is administered simultaneously (e.g., 5-factor structures, Robinson et al., 2020, or bifactor models; Smith & Saklofske 2017).

Regarding the relations between the APS-R/SAPS subscales, the correlation between the standards subscale and the discrepancy subscale ($r = .27$ to 0.37) was larger than in previous studies using the original English APS-R and SAPS (Slaney et al., 2001; Rice et al., 2014). Hence, persons

Table 2 Bivariate Relations of the APS-R and SAPS Subscales With the Big Five Personality Traits and Facets

Variable	Standards (APS-R)		Standards (SAPS)		Discrepancy (APS-R)		Discrepancy (SAPS)		Order (APS-R)	
	Sample 1	Sample 2	Sample 1	Sample 2	Sample 1	Sample 2	Sample 1	Sample 2	Sample 1	Sample 2
extraversion	.14*	.18***	.11*	.13**	-.11	-.40***	-.12*	-.40***	.06	.11*
sociability	.02	.06	.02	.03	-.01	-.27***	-.02	-.28***	-.10	.03
assertiveness	.20***	.15**	.16**	.12**	-.05	-.36***	-.05	-.35***	.15**	.09
energy level	.09	.23***	.09	.17***	-.21***	-.36***	-.23***	-.37***	.11	.16***
agreeableness	.06	.16***	.05	.09*	-.11	-.17***	-.14*	-.20***	.02	.19***
compassion	.11	.20***	.12*	.16***	-.05	-.06	-.09	-.09	.04	.17***
respectfulness	.03	.15***	.02	.10*	-.08	-.13**	-.10	-.17***	.04	.21***
trust	.00	.04	-.01	-.02	-.14*	-.21***	-.15*	-.23***	-.03	.11*
conscientiousness	.33***	.35***	.28***	.25***	-.17**	-.34***	-.19***	-.36***	.69***	.76***
organization	.19*	.24***	.17**	.18***	-.09	-.20***	-.09	-.21***	.79***	.86***
productiveness	.30***	.40***	.24***	.31***	-.20***	-.31***	-.23***	-.33***	.39***	.53***
responsibility	.29***	.23***	.25***	.13**	-.09	-.37***	-.12*	-.40***	.40***	.49***
neuroticism	.26***	-.03	.29***	.06	.57***	.65***	.53***	.62***	-.07	-.17***
anxiety	.25***	.02	.27***	.09	.45***	.57***	.40***	.53***	-.04	-.11*
depression	.22***	-.06	.24***	.04	.59***	.68***	.57***	.65***	-.08	-.19***
emotional volatility	.17**	-.01	.19***	.05	.35***	.44***	.32***	.43***	-.05	-.15***
openness	.06	.13**	.06	.13**	-.10	.00	-.14*	-.01	-.07	.05
aesthetic sensitivity	.01	.03	.01	.05	-.04	.07	-.08	.07	-.15**	.05
intellectual curiosity	.08	.13**	.07	.14**	-.08	-.04	-.12*	-.04	.00	.00
creative imagination	.07	.16***	.07	.13**	-.13*	-.05	-.12*	-.06	.02	.07

Note. All values represent standardized regression coefficients. APS-R = German Almost Perfect Scale. * $p < .05$. ** $p < .01$. *** $p < .001$

with exceedingly high standards seem to perceive a greater discrepancy between these standards and their actual performance in the German samples used in this study compared to previously used English-speaking samples. Interestingly, substantial positive correlations between the standards subscale and the discrepancy subscale, for example, also occurred in studies with Chinese samples using different Chinese translations of the APS-R (Chan, 2012; Wang et al., 2009). Further research is needed to test whether this is an artifact of the translation processes or due to cultural factors. For example, individuals with high standards may experience more pronounced dissatisfaction with their performance when their environment expects and reinforces to tendency to aim for—and achieve such standards (cf. perfectionistic climate; Hill & Grugan, 2020).

The German APS-R and SAPS showed convergent and criterion-related validity. All subscales most strongly correlated with the conceptually most closely related FMPS scales. Also, the relations with indicators of subjective well-being were in line with previous work and theoretical expectations: The discrepancy subscale showed substantial negative, the standards subscale showed only weak and mostly insignificant, and the order subscale showed small positive correlations with indicators of subjective well-being.

Specifying the APS-R/SAPS Nomological Network through Relations with the Big Five Personality Facets

This study is the first that delineated the nomological network of the APS-R and SAPS on the level of the Big Five personality facets. This approach provided novel and detailed insights that enrich previous trait-level findings. On the trait level, the standards subscale and the organization subscale were both predominantly characterized by conscientiousness. However, on the facet level, the standards subscale was primarily characterized by the productivity facet of conscientiousness. In contrast, the order subscale was primarily characterized by the organization facet of conscientiousness. Thus, facet-level analyses aided in differentiating standards and order. Additionally, the standards-productivity relation may explain the positive link of standards with achievement outcomes (e.g., Madigan, 2019). For the order subscale, the strong relation with the BFI-2/BFI-2-S organization scale ($\beta = .79$ to $.86$) indicated a substantial overlap between the constructs assessed with the two scales. The remarkable magnitude of this relation (also see Rice et al., 2007) may be indicative of a so-called jangle fallacy (Kelley, 1927), i.e., a constellation in which scales with different labels assess an identical (or highly similar)

latent construct. This issue presumably also applies to the FMPS organization scale, which correlated strongly with the order subscale ($r = .86$) and the BFI-2/BFI-2-S organization scale ($r = .78$ to $.86$).

Regarding the discrepancy subscale, the moderate to strong relations with the emotional volatility facet of neuroticism ($\beta = .32$ to $.44$) shows that the discrepancy-neuroticism link is not based solely on relations of discrepancy with depression and anxiety. Whereas associations with depression and anxiety are well established, the role of discrepancy in emotional volatility has received less attention. Our findings support the idea that perfectionistic concerns are linked to personality difficulties characterized by emotional turbulences (Chen et al., 2019; Hewitt et al., 1994). The observation that, within the agreeableness domain, the discrepancy scale was most strongly associated with interpersonal distrust confirms assumptions of the Perfectionism Social Disconnection Model (e.g., Hewitt et al., 2017). Additionally, the negative relation of discrepancy with the productivity facet of conscientiousness provides a potential explanation for the negative link of discrepancy with achievement outcomes (e.g., Madigan, 2019).

Limitations

This study has some noteworthy limitations. First, as in their validation studies (Rammstedt et al., 2018a; Soto & John, 2017b), the BFI-2-S facet scales displayed comparatively low reliabilities. To address this limitation, we only interpreted relations that replicated with the more reliable and extensive BFI-2 facet scales in Sample 2. Second, we used a convenience university student sample and a convenience community adult sample in this study. Future work is needed to validate the German APS-R and SAPS in more diverse, preferably nationally representative, samples (e.g., containing a lower proportion of students and female participants). Third, all participants in these studies were German-speaking, but we did not assess the country of residence in Sample 2. Thus, in theory, participants could reside outside of German-speaking countries. Therefore, this data is not suitable for cross-country comparisons.

Conclusions

The German APS-R and SAPS are reliable and valid measurement instruments for assessing standards, discrepancy, and order. Facet-level analyses offered new insights into the nomological networks of these perfectionism traits. All subscales of the APS-R and SAPS were clearly distinguishable

and displayed unique characteristics based on their relations with the Big Five personality facets.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s12144-022-03386-3>.

Author contributions Johannes Stricker developed the study conception and wrote the initial draft of the manuscript. Bianca A. Simonsmeier, Susanne Buecker, Thomas Simacek, and Kenneth Wang contributed to the study conception and critically revised the manuscript.

Funding Open Access funding enabled and organized by Projekt DEAL. The authors did not receive external funding for conducting this study.

Data Availability The data are available via the Open Science Framework: https://osf.io/tbdxq/?view_only=3926a96b42c744638f29ee741578d79a.

Code Availability The R scripts are available via the Open Science Framework: https://osf.io/tbdxq/?view_only=3926a96b42c744638f29ee741578d79a.

Declarations

Conflict of interest The authors do not have any conflict of interest to declare.

Ethics approval The study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments. Sample 1 comprised healthy university students that completed questionnaire measures without any questions pertaining to participants' mental or physical health. For this data collection effort, no local ethics approval was required. The data collection effort in Sample 2 was approved by the institutional review board (IRB) of the Ruhr University Bochum, Germany.

Consent to participate All participants provided their informed consent.

Consent for publication All participants agreed for their anonymized data to be published.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Breyer, B., & Bluemke, M. (2016). *Deutsche Version der Positive and Negative Affect Schedule PANAS* [German version of the Positive and Negative Affect Schedule PANAS]. GESIS. <https://zis.gesis.org/DoiId/zis242>
- Chan, D. W. (2012). Life satisfaction, happiness, and the growth mindset of healthy and unhealthy perfectionists among Hong Kong Chinese gifted students. *Roeper Review*, *34*, 224–233. <https://doi.org/10.1080/02783193.2012.715333>
- Chen, C., Hewitt, P. L., Flett, G. L., & Roxborough, H. M. (2019). Multidimensional perfectionism and borderline personality organization in emerging adults: A two-wave longitudinal study. *Personality and Individual Differences*, *146*, 143–148. <https://doi.org/10.1016/j.paid.2019.04.011>
- Costa, P. T. Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Psychological Assessment Resources
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, *52*, 281–302. <https://doi.org/10.1037/h0040957>
- Danner, D., Rammstedt, B., Bluemke, M., Treiber, L., Berres, S., Soto, C., & John, O. P. (2016). *Die deutsche Version des Big Five Inventory 2 (BFI-2)* [The German version of the Big Five Inventory 2 (BFI-2)]. GESIS. <https://doi.org/10.6102/zis247>
- Dreisoerner, A., Junker, N. M., & Van Dick, R. (2021). The relationship among the components of self-compassion: A pilot study using a compassionate writing intervention to enhance self-kindness, common humanity, and mindfulness. *Journal of Happiness Studies*, *22*, 21–47. <https://doi.org/10.1007/s10902-019-00217-4>
- Dunkley, D. M., Blankstein, K. R., & Berg, J. L. (2012). Perfectionism dimensions and the five-factor model of personality. *European Journal of Personality*, *26*, 233–244. <https://doi.org/10.1002/per.829>
- Flett, G. L., & Hewitt, P. L. (2002). Perfectionism and maladjustment: An overview of theoretical, definitional, and treatment issues. In P. L. Hewitt, & G. L. Flett (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 5–31). American Psychological Association. <https://doi.org/10.1037/10458-001>
- Flett, G. L., & Hewitt, P. L. (2015). Measures of perfectionism. In G. J. Boyle, D. H. Saklofske, & G. Matthews (Eds.), *Measures of personality and social psychological constructs* (pp. 595–618). Elsevier Academic Press. <https://doi.org/10.1016/B978-0-12-386915-9.00021-8>
- Flett, G. L., Hewitt, P. L., Oliver, J. M., & Macdonald, S. (2002). Perfectionism in children and their parents: A developmental analysis. In G. L. Flett, & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 89–132). American Psychological Association
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, *14*, 449–468. <https://doi.org/10.1007/BF01172967>
- Galbusera, L., Finn, M. T., Tschacher, W., & Kyselo, M. (2019). Interpersonal synchrony feels good but impedes self-regulation of affect. *Scientific Reports*, *9*, 1–12. <https://doi.org/10.1038/s41598-019-50960-0>
- Haller, P. M., Naegele, U., & Berger, S. (2019). Why another intercultural manual?. In P. M. Haller, U. Naegele, & S. Berger (Eds.), *Bridging cultural barriers* (pp. 1–6). Springer
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. *Nature*, *466*, 29. <https://doi.org/10.1038/466029a>
- Hewitt, P. L., Flett, G. L., & Turnbull, W. (1994). Borderline personality disorder: An investigation with the Multidimensional Perfectionism Scale. *European Journal of Psychological Assessment*, *10*, 28–33

- Hewitt, P. L., Flett, G. L., Mikail, S. F., Kealy, D., & Zhang, L. C. (2017). Perfectionism in the therapeutic context: The perfectionism social disconnection model. In J. Stoeber (Ed.), *The psychology of perfectionism* (pp. 306–330). Routledge
- Hill, A. P., & Grugan, M. (2020). Introducing perfectionistic climate. *Perspectives on Early Childhood Psychology and Education*, 4, 263–276
- Janke, S., & Glöckner-Rist, A. (2014a). *Deutsche Version der Satisfaction with Life Scale (SWLS)* [German version of the Satisfaction with Life Scale (SWLS)]. GESIS. <https://doi.org/10.6102/zis147>
- Kelley, T. L. (1927). *Interpretation of educational measurements*. World Book Co
- Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). Guilford Press
- Lins, H., Coelho, G., Pereira Monteiro, R., Vilar, R., Hanel, H. P., Cunha, P., & Gouveia, V. V. (2021). Psychometric evidence of the short Almost Perfect Scale (SAPS) in Brazil. *The Counseling Psychologist*, 49, 6–32. <https://doi.org/10.1177/0011000020949146>
- Lo, A., & Abbott, M. J. (2013). The impact of manipulating expected standards of performance for adaptive, maladaptive, and non-perfectionists. *Cognitive Therapy and Research*, 37, 762–778. <https://doi.org/10.1007/s10608-013-9528-1>
- Loscalzo, Y., Rice, S. P., Giannini, M., & Rice, K. G. (2019). Perfectionism and academic performance in Italian college students. *Journal of Psychoeducational Assessment*, 37, 911–919. <https://doi.org/10.1177/0734282918800748>
- Madigan, D. J. (2019). A meta-analysis of perfectionism and academic achievement. *Educational Psychology Review*, 31, 967–989. <https://doi.org/10.1007/s10648-019-09484>
- Ozer, D. J., & Reise, S. P. (1994). Personality assessment. *Annual Review of Psychology*, 45, 357–388. <https://doi.org/10.1146/annurev.ps.45.020194.002041>
- Rammstedt, B., Danner, D., Soto, C. J., & John, O. P. (2018a). Validation of the short and extra-short forms of the Big Five Inventory-2 (BFI-2) and their German adaptations. *European Journal of Psychological Assessment*, 36, 149–161. <https://doi.org/10.1027/1015-5759/a000481>
- Rammstedt, B., Lechner, C. M., & Danner, D. (2018b). Relationships between personality and cognitive ability: A facet-level analysis. *Journal of Intelligence*, 6, 28. <https://doi.org/10.3390/jintelligence6020028>
- Rice, K. G., Ashby, J. S., & Slaney, R. B. (2007). Perfectionism and the five-factor model of personality. *Assessment*, 14, 385–398. <https://doi.org/10.1177/1073191107303217>
- Rice, K. G., Gnillka, P. B., Davis, D. E., & Ashby, J. S. (2019). Addressing concerns about how perfectionistic discrepancy should be measured with the Revised Almost Perfect Scale. *Assessment*, 26, 432–444. <https://doi.org/10.1177/1073191117702241>
- Rice, K. G., Richardson, C. M., & Tueller, S. (2014). The short form of the Revised Almost Perfect Scale. *Journal of Personality Assessment*, 96, 368–379. <https://doi.org/10.1080/00223891.2013.838172>
- Robinson, A., Stasik-O'Brien, S., & Calamia, M. (2020). Toward a more perfect conceptualization of perfectionism: An exploratory factor analysis in undergraduate college students. *Assessment*. Advance online publication. <https://doi.org/10.1177/1073191120976859>
- Samuel, D. B., & Widiger, T. A. (2008). A meta-analytic review of the relationships between the five-factor model and DSM-IV-TR personality disorders: A facet level analysis. *Clinical Psychology Review*, 28, 1326–1342. <https://doi.org/10.1016/j.cpr.2008.07.002>
- Schroll-Machl, S. (2016). *Doing business with Germans: Their perception, our perception*. Vandenhoeck & Ruprecht
- Sironic, A., & Reeve, R. A. (2015). A combined analysis of the Frost Multidimensional Perfectionism Scale (FMPS), Child and Adolescent Perfectionism Scale (CAPS), and Almost Perfect Scale-Revised (APS-R): Different perfectionist profiles in adolescent high school students. *Psychological Assessment*, 27, 1471–1483. <https://doi.org/10.1037/pas0000137>
- Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised almost perfect scale. *Measurement and Evaluation in Counseling and Development*, 34, 130–145. <https://doi.org/10.1080/07481756.2002.12069030>
- Smith, M. M., & Saklofske, D. H. (2017). The structure of multidimensional perfectionism: Support for a bifactor model with a dominant general factor. *Journal of Personality Assessment*, 99, 297–303. <https://doi.org/10.1080/00223891.2016.1208209>
- Smith, M. M., Sherry, S. B., Ray, C., Hewitt, P. L., & Flett, G. L. (2021). Is perfectionism a vulnerability factor for depressive symptoms, a complication of depressive symptoms, or both? A meta-analytic test of 67 longitudinal studies. *Clinical Psychology Review Advance online publication*. <https://doi.org/10.1016/j.cpr.2021.101982>
- Smith, M. M., Sherry, S. B., Vidovic, V., Saklofske, D. H., Stoeber, J., & Benoit, A. (2019). Perfectionism and the five-factor model of personality: A meta-analytic review. *Personality and Social Psychology Review*, 23, 367–390. <https://doi.org/10.1177/1088868318814973>
- Soto, C. J., & John, O. P. (2017a). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, 113, 117–143. <https://doi.org/10.1037/pspp0000096>
- Soto, C. J., & John, O. P. (2017b). Short and extra-short forms of the Big Five Inventory-2: The BFI-2-S and BFI-2-XS. *Journal of Research in Personality*, 68, 69–81. <https://doi.org/10.1016/j.jrp.2017.02.004>
- Spagnoli, P., Rice, K., Scafuri Kovalchuk, L., Rice, F., Molinaro, D., & Carpentieri, S. (2021). The Two-Factor Perfectionism Model and Heavy Work Investment in Italy and the US. *Journal of Personality Assessment*. Advance online publication. <https://doi.org/10.1080/00223891.2021.1975724>
- Stöber, J. (1995). *Frost Multidimensional Perfectionism Scale-Deutsch (FMPS-D)*. Freie Universität Berlin
- Stricker, J., Buecker, S., Schneider, M., & Preckel, F. (2019a). Multidimensional perfectionism and the big five personality traits: A meta-analysis. *European Journal of Personality*, 33, 176–196. <https://doi.org/10.1002/per.2186>
- Stricker, J., Schneider, M., & Preckel, F. (2019b). School satisfaction differentially predicts multidimensional perfectionism one year later. *Personality and Individual Differences*, 143, 30–35. <https://doi.org/10.1016/j.paid.2019.02.014>
- Stricker, J., Buecker, S., Schneider, M., & Preckel, F. (2020). Intellectual giftedness and multidimensional perfectionism: A meta-analytic review. *Educational Psychology Review*, 32, 391–414. <https://doi.org/10.1007/s10648-019-09504-1>
- Wang, K. T., Yuen, M., & Slaney, R. B. (2009). Perfectionism, depression, loneliness, and life satisfaction: A study of high school students in Hong Kong. *The Counseling Psychologist*, 37, 249–274. <https://doi.org/10.1177/0011000008315975>