A Brief Version of the DIPSI Maladaptive Trait Measure for Children and Adolescents

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Abstract

The present study addresses the need for short and accessible maladaptive trait measures that cover all relevant aspects of developmental trait pathology, in order to comprehensively assess potential antecedents of personality pathology. From this perspective, we present a 98-item version of the well-established Dimensional Personality Symptom Item Pool (DIPSI) measure (DIPSI-B), that is fully age-neutral across the developmental stages of childhood and adolescence, and further includes those items from the original measure with the most optimal coverage of the latent traits. Relying on a large community-based sample of Flemish children and adolescents (N = 1873) randomly split and balanced in terms of age and gender, a precise selection of items was performed followed by an inspection of psychometric properties. The final item-set appears to be reliable, structurally stable, and invariant across both gender and age. We hope that its feasibility stimulates the integration of the DIPSI-B in ongoing prospective designs examining developmental antecedents of personality disorders.

Public Significance Statement

Increasing evidence suggests that adult personality pathology has significant developmental trait antecedents in youth. Early detection and intervention can therefore be essential for its prevention or alleviation. The present study contributes this research area by developing a brief but comprehensive measure of maladaptive traits for children and adolescents, which can be used to detect signs of trait vulnerabilities in a timely stage of development.

Keywords: personality disorder antecedents, maladaptive personality traits, child psychopathology, short-form adaptation

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There has been a remarkable lack of research on temperamental antecedents of personality pathology until the nineties (Cichetti & Crick, 2009; Crick et al., 2005). Instead, the scarce developmental literature on personality disorders (PDs) mainly studied antecedents through the lens of environmental conditions such as childhood trauma (Herman et al., 1989; Kroll, 1994). This neglected research focus can be understood from the traditional categorical conceptualization of PDs in established taxonomies, which defined personality disorders as distinct adult disorders, and discouraged the diagnosis of personality disorders before the age of 18 (DSM-IV; APA, 1994; DSM-5; APA, 2013). With the growing criticism on this categorical approach, dimensional models of personality pathology became increasingly valued as valid alternative operationalizations of personality disorders. Indeed, dimensional models of PD align with the nature of PDs, both at the phenotypic, neurobiological and genetic level (Kotov et al., 2017, Hopwood et al., 2018). As a result, traditional nosologies were forced to move toward more dimensional representations of personality disorders, as reflected for instance in the Alternative Model for Personality Disorders (AMPD; APA, 2013) represented in section C of DSM-5. The inclusion of this alternative framework, in turn, facilitated a substantial growth in research on the development of PDs (Sharan & Prakash, 2016; Shiner & Tackett, 2014), as the underlying five-dimensional trait structure of adult personality pathology appeared to be replicable in younger age groups (De Clercq et al., 2014; Fossati et al., 2017; Anderson et al., 2018).

One of the most widely recognized inventories for describing maladaptive traits in childhood and adolescence along this five-dimensional perspective is the Dimensional Personality Symptom Item Pool (DIPSI; De Clercq et al., 2006; Verbeke & De Clercq, 2014,

2017). The DIPSI was constructed by transforming indicators of childhood adaptive personality characteristics into their maladaptive counterparts at both ends of the dimensional continua (based on the childhood HiPIC FFM measure, Mervielde & De Fruyt, 1999), as well as by including item-content of adult personality pathology measures that was considered to be relevant in younger age groups. The main focus during the construction processes of the DIPSI was to obtain a comprehensive item-pool covering all relevant aspects of childhood maladaptive traits, that were subjected to rigorous empirical analyses. After the initial release of a four-dimensional trait measure, a fifth domain of childhood Oddity was developed and empirically integrated within the established model (Verbeke et al., 2014). The final item-pool resulted in a set of 194 items clustered in 31 facets which assess five broader dimensions and two higher-order domains. Although the DIPSI was developed from an age-specific child perspective on maladaptive traits, significant and meaningful associations were found with the DSM-5 trait measure of personality pathology in youth (De Clercq et al., 2014), indicating that the DIPSI may be a promising measure to represent developmental antecedents of DSM-5 traits as represented in the Alternative Model of Personality Pathology (AMPD; APA, 2013) from an age-sensitive approach. However, despite the established psychometric properties (De Clercq et al., 2006) and validity of the DIPSI measure (Sharp & De Clercq, 2020), the length of the DIPSI may limit the viability in clinical practice and research. Thus, the purpose of the current study is to develop a brief version of the DIPSI (DIPSI-B) that covers the need for a short assessment tool of maladaptive personality traits for children and adolescents. In constructing this short version, we prioritized the following criteria: (1) retaining the same number of facets as the original DIPSI version, represented by approximately half of the original version's items, (2) ensuring the structural validity of facets and (3) selecting age-neutral items that behaved similarly in terms of informative value

of the latent trait across childhood and adolescence. The relevance of each of these criteria will be shortly outlined, before addressing the actual development and validation strategies.

Coverage

As stated above, one of the main features of the DIPSI is its exhaustiveness. The DIPSI-B aims to preserve this extensive coverage as much as possible by keeping the original facets as captured in the DIPSI. In doing so, the DIPSI-B thus ensures *breadth* of coverage across facets, but not within facets, as the aim of the short version is to reduce the original number of items. However, the DIPSI-B will address *depth* of coverage within facets by selecting items more sensitive to the maladaptive end of the latent factors which model them. Hence, the first priority of the DIPSI-B is to ensure breadth of coverage *across* facets being measured, followed by depth of coverage *within* facets.

Structural validity

The second development criterion of the DIPSI-B is to ensure an adequate structural validity of the resulting facets. This interest is twofold. On the one hand, we aimed to avoid that facets would lose their original meaning if central items were dropped and only peripheral indicators were retained, which would compromise the convergence between the original and the brief version. On the other hand, in order to have an effective brief version while maintaining the same number of facets, the scales had to be robust enough to be used independently. If consistency of the facets is ensured, a more fine-grained use of the inventory by means of selecting only the particular scales of interest is possible. By allowing users to assess a selected set of facets, we ensure that the instrument is in fact brief and can be used in screening situations.

Age-neutrality

A third and final requirement is to obtain a short version that is capable of measuring maladaptive traits in both children and adolescents. Towards this end, items that behaved similar across age were preferred beyond items that were more sensitive to maladaptive manifestations of a specific age group. We confirmed age-neutrality by testing measurement invariance in the constructed facets of the DIPSI-B.

Along these outlined criteria, the present study thoroughly describes the development and validation phases of the DIPSI-B. Both phases were clearly separated by splitting a large sample (N=1879) in one group for running developmental analysis, followed by confirmatory tests in a validation sample. The development phase has been conducted relying on empirical and content-based criteria. In the validation phase, psychometric properties of the inventory were examined a posteriori using restrictive methods. The data used in this study has been anonymized and stored in an open-access repository, alongside the supplemental materials, the scripts used in the analysis, and the DIPSI-B items (https://osf.io/7mvkh/).

Method

Participants and Procedures

During three consecutive years, third year undergraduate psychology students of Ghent University collected maternal DIPSI ratings of 1873 children and adolescents of the general population in return for course credit. Students were asked to visit an elementary or secondary school in their home town and distributed requests for participation in classrooms across grades, by providing information letters to the parents. Primary and secondary education in Belgium is an open-access system, which ensures that all socio-economical levels of the general population were represented in the current sample. In addition, Ghent

University hosts students that originate from diverse hometowns across the Flemish part of Belgium, ensuring a representative demographic distribution of the sample. This convenience sampling method thus provided a community sample representative of a broad segment of the Flemish population of children and adolescents. Age of the subjects ranged from 7 to 18 (M = 12.28 years; SD = 2.77, 56% girls). All parents were informed about the purpose of the study, and were guaranteed that data would be treated confidentially. After parents provided written informed consent, the DIPSI measure was completed at home and returned to the student in a sealed envelope. Students were allowed to the secured platform to enter the raw data of their own subject without access to data of other students. All procedures formally addressed the general guidelines of the Ghent University Ethical Review Board.

Items measuring the dimension oddity (see Verbeke & De Clercq, 2017) were not administered from the beginning of the study as this item-set was developed and validated in a later stage of the data collection. In addition, this latter data collection wave solely involved children up to twelve years old, which means that the brief version of the facets measuring oddity could not be validated using an adolescent sample. In total, 1388 subjects filled out the original 4-dimensional DIPSI measure (without oddity) in the first wave, while 488 subjects completed the full DIPSI (including oddity) in the second data collection wave. In total, 4.43% data points were missing. Most of them were concentrated in 65 subjects who failed to respond to more than half of the DIPSI items. These subjects were removed from the dataset. Sample size after deletion was 1812 subjects (of whom 461 also completed the Oddity item-set). The remaining missing data points (2.02%) were scattered among different variables with no clear pattern of missingness; missingness at random was hence assumed.

The full dataset was divided in two sub-samples, balanced in terms of age and gender. The first subsample was used in the development phase, which comprised the selection of items and a progressive derivation of the measurement models. The second sub-sample was

used in the validation phase, which aimed to confirm the proposed measurement models and to explore the psychometric properties of the inventory. The purpose of this methodology was to clearly differentiate between the exploratory and confirmatory phases of the study.

Sample sizes of the development sample (1) and the validation sample (2) were not exactly equal ($N_{subsample1}$ = 907, $N_{subsample2}$ = 905, in the four-dimensional DIPSI itemset; $N_{subsample1}$ = 231, $N_{subsample2}$ = 230, including oddity) as we favored balancing demographic variables over getting exactly equal sample sizes. There were no age differences between the samples administered the four-dimensional DIPSI (t = -0.19 (1805.65), p = 0.85) nor in the DIPSI including oddity (t = 0.46 (455.96), p = 0.64). Gender percentages were equal in both subsamples (44% males, 56% females in the four-dimensional DIPSI; 50% males, 50% females including oddity). Balancing item's means was not an aim of our partition algorithm, therefore we expected a few random and small mean differences among the items of the two subsamples. Twelve items had significantly different means, although with negligible effect sizes (Cohen's d ranging between 0.09 and 0.11).

Measures

DIPSI (Dimensional Personality Symptom Item Pool; De Clercq et al., 2006)

The DIPSI is an age-specific inventory designed to assess maladaptive personality traits in childhood and adolescence. A comprehensive set of maladaptive traits items is empirically organized in 31 facets and structured in five broader high-order personality domains, representing Disagreeableness, Emotional Instability, Introversion, Compulsivity, and Oddity. The inventory consists of 194 single-stimuli items, including 22 items that were developed in a later module to cover the trait dimension Oddity (Verbeke & De Clercq, 2014). Items are rated on a 5-point Likert scale, ranging from 1 ('not characteristic') to 5

('highly characteristic') and can either be answered from an informant or from a self-report perspective. Evidence of good psychometric properties has been consistent across several studies in both Flemish and English-speaking samples (De Clercq et al., 2006; Decuyper et al., 2015; Tackett, et al., 2014).

Data Analytic Strategy

The analyses of the current study are structured in two phases, with a first phase describing the selection of items from the original DIPSI and the development of latent factor models for each of the short DIPSI-facets, relying on subsample 1. This scale development phase included four different steps. Step one focused on detecting Differential Item Functioning (DIF) across age. A Samejima Graded Response IRT Model (GRM) was fitted for each facet and participants were divided in two age categories (younger than 10 and older than 14). The middle age category (age 11 to 13) was omitted in order to obtain more sensitive DIF estimates. DIF was conducted with the *lordif* R package, which fits a set of nested proportional-odds logistic regression models with age groups as predictors of the participant's latent scores (Choi et al., 2011). Models including all items were compared with models extracting one item at a time, and differences in model fit were investigated to identify DIF. Significant χ^2 estimates and McFaden's pseudo R^2 greater than 0.013 were the criteria used to discard items based on DIF, as suggested by Zumbo (1999). Step two focused on the discrimination and difficulty parameters of the GRMs. Four items in each facet were selected based on higher discrimination and higher sensitivity towards the maladaptive end of the construct space. Higher sensitivity at the maladaptive end of the construct space was detected by higher ability levels in the transition between the 4th and 5th category of the rating scale, as indicated by the β4 parameter of the GRMs. Step three aimed to select three item-candidates per facet (out of the previous selection of four) according to content and

theoretical criteria evaluated by a panel of experts. These three items were the first candidates to be indicators of their respective facet models, the fourth item was listed in the queue as a possible substitute for the next step. In step four, a series of Confirmatory Factor Analyses (CFA) were performed on the items forming a facet. The initial models were essentially tau-equivalent (i.e. all factor loadings are constrained to be equal) in order to obtain non-saturated models and being able to assess their goodness of fit. CFAs were further adjusted by introducing modifications on misspecified parameters, following the procedure described in Saris and colleagues (2009). Possible modifications introduced in the initial models were, in this order: free one factor loading, add a correlated residual, and add a new indicator to the model. Modifications were added until model fit was satisfactory and no misspecified parameters were found in the modification indices. CFAs were fitted with *lavaan* (Rosseel, 2012) using Weighted Least Squares with adjusted Mean and Variance as estimator (*WLSMV*, Muthén et al., 2011) due to predominant floor effects in the item scores which compromised the assumption of continuity needed for Maximum Likelihood estimation (Rhemtulla et al., 2012; Viladrich et al., 2017).

The scale development phase was followed by a validation phase, using subsample 2. Reliability was tested with IRT's test information function, and with Cronbach's α and McDonald's ω estimators of internal consistency. Although α and ω are in line with Classical Test Theory (CTT) framework and not with IRT's, which was the main approach followed in this study, we opted to include CTT estimators for two reasons: First, because readers are more used to interpret the reliability of a scale using these coefficients; and second, because we are aware that the scales will be mostly used within a CTT framework by summing the indicator's scores. These indices also enable a quick comparison with the original DIPSI psychometrics. To control the bias introduced by the sum score procedure, we

calculated correlations at the scale level between the scores obtained in practical settings (using sum scores) and the scores obtained following our proposed models (θ scores).

Structural validity was tested by inspecting model fit for each facet via CFA. The best-fitting model of the development phase was used in the validation phase. In case the model fit was not satisfactory in the validation phase, further modifications were proposed, while advising on the lower empirical support of the structural validity of these facets. To further inspect the overarching structure of five dimensions, latent scores were extracted from the facets and were fitted in an ESEM model. Furthermore, the part-to-whole correlations between the original DIPSI and the DIPSI-B were calculated at the facet level with Spearman's ρ, in order to inspect the extent to which the DIPSI-B covered similar constructs as the original DIPSI.

Measurement invariance across gender and age (childhood and adolescence) was tested at the configural (same structure), metric (equal factor loadings) and scalar (equal thresholds / intercepts) level. A significant change in the LRT was the criterion to identify non-invariance. Changes in approximate fit indices (CFI and RMSEA) were also investigated (Chen, 2007). In cases where the LRT resulted in non-invariance, but the difference in goodness of fit was lower than ΔCFI -0.01 and ΔRMSEA 0.01, as suggested by Chen (2007), invariance was assumed. Whenever non-invariance was detected, we explored the source of non-invariance by comparing unstandardized factor loadings or thresholds / intercepts between the two groups. The estimator used was WLSMV, which treats the indicators as categorical and thus estimates thresholds for each category (for scalar invariance). By splitting the data in two groups, there can be cases in which empty cells are found in certain categories. In those cases, the WLSMV estimator cannot be applied and a robust Maximum

Likelihood estimator (MLR) was used instead[1]. Age measurement invariance could not be performed in the clusters measuring oddity as there were no adolescent data available.

Results

Phase 1: Scale development

IRT analysis

The first step in developing the short version of the DIPSI was to detect items that functioned differently in children and adolescents. 17 Items were discarded from further inclusion according to χ^2 and pseudo-R-squared values surpassing the pre-defined thresholds (suggested by Zumbo, 1999). Examples of items with significant DIF were "Only can be focused for a few moments" (Distractibility) or "Wants to have his/her parents always around" (Insecure attachment). In a second step, discrimination and difficulty parameters guided the selection of four items per facet. Items with higher sensitivity at the maladaptive end of the construct space and with higher discrimination between the categories were preferred. The IRT information table in the supplementary materials provides this information in extent.

Content-wise selection

The third step in the development phase was a content-wise selection of items, mainly focusing on discarding one item from the IRT derived set of four. Here we focused on the item's wording and its theoretical importance for the cluster which was intended to measure. Strong content overlaps between items resulted in discarding the less sensitive item to the

[1] Alternatively, measurement invariance tests were also conducted using MLR in all facets.

maladaptive end of the psychological construct. Repetition of words among items was a sign to flag models susceptible of including residual correlations in the following step.

Derivation of the measurement models

The last step in the development phase was to derive a robust measurement model for each of the facets. Items used as indicators were those selected in the previous step. The initial models were essentially tau-equivalent, which yielded 2 degrees of freedom. From these initial model-set, 8 models were not modified due to exact or close fit and absence of misspecified parameters (Saris et al., 2009). These essentially tau-equivalent models were included in the final set. From the remaining facet-models, 15 were modified by freeing one factor loading, 3 were modified by adding a correlated residual, and 5 were modified by including an extra item (as well as further releasing constraints). This means that we ended up having 26 facets formed with 3 items and 5 facets with 4 items (extreme achievement striving, withdrawn traits, submissiveness, lack of self-confidence, and distractibility). All models included in the derivation set met the desired properties: At least approximate model fit and absence of any misspecified parameter according to the epc-power ratio (Saris et al., 2009). Model fit indices of the restricted and the derivation models can be found in Table 1.

Table 1.

Model Fit Information of the Initial (most restricted) and Final Models in the Derivation Phase.

	Initial Model			Derived Model		
Facet	χ^2 (df)	*p*	RMSEA	χ^2 (df)	*p*	RMSEA
Disagreeableness						
Hyperexpressive traits	214.32(2)	0.000	0.340	0.66(1)	0.42	0
Hyperactive traits	21.98(2)	0.000	0.110	3.96(1)	0.05	0.06
Dominance–Egocentrism	7.09(2)	0.030	0.050	1.36(1)	0.24	0.02
Impulsivity	19.8(2)	0.000	0.100	3.87(1)	0.05	0.06
Irritable–Aggressive Traits	20.34(2)	0.000	0.100	6.89(1)	0.01	0.08
Disorderliness	15.91(2)	0.000	0.090	4.15(1)	0.04	0.06
Distraction	42.68(2)	0.000	0.150	1.21(2)	0.55	0
Risk Taking	3.33(2)	0.190	0.030	-	-	-
Narcissistic Traits	19.74(2)	0.000	0.100	2.98(1)	0.08	0.05
Affective Lability	15.87(2)	0.000	0.090	2.42(1)	0.12	0.04
Resistance	2.85(2)	0.240	0.020	-	-	-
Inflexibility	8.85(2)	0.010	0.060	1.58(1)	0.21	0.03
Emotional Instability						
Lack of Empathy	17.14(2)	0.000	0.090	-	-	-
Dependency	22.57(2)	0.000	0.110	-	-	-
Anxious Traits	13.89(2)	0.000	0.080	10.48(1)	0	0.1
Lack of Self-Confidence	48.17(2)	0.000	0.160	10.92(2)	0	0.07
Insecure Attachment	16.44(2)	0.000	0.090	1.67(1)	0.2	0.03
Submissiveness	86.2(2)	0.000	0.220	0.76(2)	0.69	0

Ineffective Coping	10.17(2)	0.010	0.070	-	-	-
Separation Anxiety	35.41(2)	0.000	0.140	5.45(1)	0.02	0.07
Depressive Traits	53.25(2)	0.000	0.170	6.9(1)	0.01	0.08
Introversion						
Shyness	24.79(2)	0.000	0.110	1.67(1)	0.2	0.03
Paranoid Traits	17.23(2)	0.000	0.090	0.05(1)	0.82	0
Withdrawn Traits	62.29(2)	0.000	0.180	17.23(3)	0	0.07
Compulsivity						
Perfectionism	72.15(2)	0.000	0.200	1.65(1)	0.2	0.03
Extreme Achievement Striving	24.98(2)	0.000	0.110	12.73(4)	0.01	0.05
Extreme Order	25.39(2)	0.000	0.110	4.94(1)	0.03	0.07
Oddity						
Oversensitivity to feelings	0.27(2)	0.870	0.000	-	-	-
Extreme fantasy	8.63(2)	0.010	0.120	0.05(1)	0.82	0
Daydreaming	1.03(2)	0.600	0.000	-	-	-
Odd thoughts and behavior	0.12(2)	0.940	0.000	-	-	-

Note. '-' in the derivation model columns = the derivation model is the restricted model.

Phase 2: Scale validation

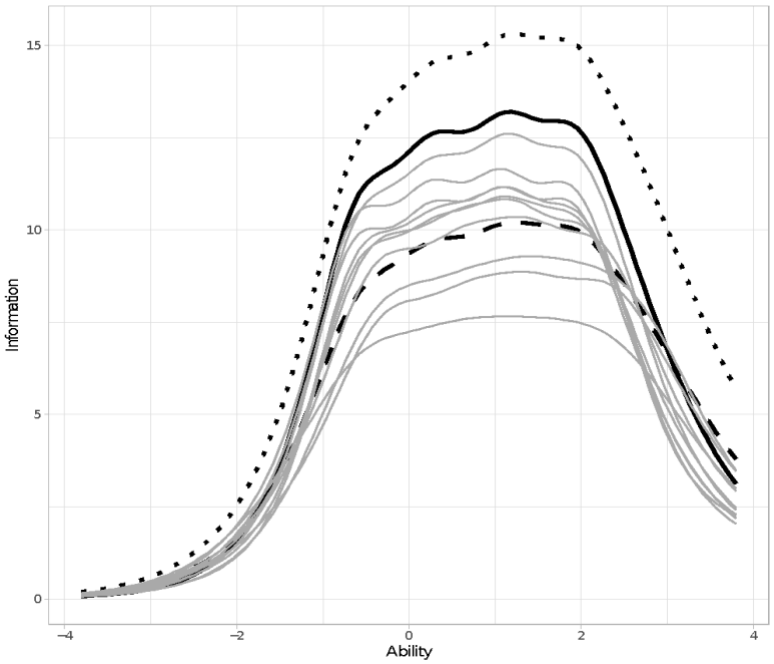
Test information function

The test information function (TIF) is a measure of reliability based in IRT which is conditional on levels of the ability parameter (θ). This function is a result of an additive combination of item's reliability, thus penalizing inventories with a smaller number of items. Consequently, the original version of the DIPSI yields higher information than the brief

version at every level of the ability parameter. An example can be found in Figure 1, where a TIF of the items that belong to the dimension compulsivity is presented for both the original DIPSI and the DIPSI-B. In addition, we have included a curve representing the original version but controlling for the number of items and ten curves for a random selection of 10 items- the number of items which cover this dimension in the DIPSI-B. We have included them in order to obtain a benchmark for comparing the short version with other same-length alternatives. It can be noted that the brief DIPSI outperforms this benchmark, specially at the mid and high levels of theθparameter. TIFs of the other four dimensions, as well as TIFs for each individual facet were not included here due to space limits but can be found in the supplementary materials.

Figure 1

Test Information Function of the Compulsivity dimension in DIPSI and DIPSI-B



Note. TIF of the original DIPSI (dotted line) and the DIPSI-B (solid line) items covering Compulsivity. The dashed line represents the original DIPSI's TIF times 0.66 -to control for the item reduction of the DIPSI-B. The grey lines are TIFs of random selections of 10 items.

Internal consistency

Internal consistency of the facets was tested by means of Cronbach's α and McDonald's ω. Cronbach's α is considered to be a biased estimator of internal consistency unless the scale meets certain assumptions (Unidimensionality and tau-equivalence, Viladrich et al., 2017). We have reported Cronbach's α here because some facets meet the required assumptions. All of the facet models are above ω = .73, and a majority is above ω = .80, hence representing adequate internal consistency (Cicchetti, 1993). Both estimators of α and ω for each facet can be found in Table 2.

Structural validity

The unidimensionality of each facet was tested using a CFA per facet. Twenty-four facet-models out of thirty-one had properties of exact fit. The remainder had properties of close fit according to goodness of fit indices (see Table 2). Two exceptions were Resistance and Separation Anxiety. Resistance was an essentially tau-equivalent model as suggested by the analysis performed with the development dataset. The factor model of Resistance did fit the validation dataset when one factor loading was freed ("Cheats all the time"), resulting in $\chi^2(df)$ = 0.10 (1), p = 0.91. Separation Anxiety was not an essentially tau-equivalent model and therefore it could not be further refined unless a saturated model was fitted. Model fit indices of Separation Anxiety with the validation dataset were CFI = 0.992, SRMR = 0.031 and 95% C.I. RMSEA = [0.099; 0.177]. Overall, tests performed with the validation database provided reasonable evidence on the unidimensionality and structural validity of the facets.

Table 2

Internal Consistency and Model Fit in the Validation Sample

Facet	α	ω	χ^2 (df)	*p*	CFI	RMSEA	SRMR
Disagreeableness							
Hyperexpressive traits	0.791	0.809	0.53(1)	0.469	1.000	0.000	0.008
Hyperactive traits	0.864	0.870	6.64(1)	0.010	0.999	0.079	0.020
Dominance–Egocentrism	0.807	0.813	1.72(1)	0.190	1.000	0.028	0.013
Impulsivity	0.862	0.866	4.22(1)	0.040	0.999	0.060	0.013
Irritable–Aggressive Traits	0.856	0.861	5.09(1)	0.024	0.999	0.067	0.018
Disorderliness	0.883	0.886	0.03(1)	0.866	1.000	0.000	0.001
Distraction	0.851	0.868	0.49(2)	0.783	1.000	0.000	0.005
Risk Taking	0.856	0.860	7.66(2)	0.022	0.999	0.056	0.020
Narcissistic Traits	0.852	0.855	0.5(1)	0.478	1.000	0.000	0.006
Affective Lability	0.887	0.888	0.07(1)	0.790	1.000	0.000	0.002
Resistance	0.725	0.736	23.94(2)	0.000	0.985	0.110	0.059
Inflexibility	0.746	0.751	0.08(1)	0.776	1.000	0.000	0.003
Emotional Instability							
Lack of Empathy	0.779	0.781	0.04(2)	0.980	1.000	0.000	0.002
Dependency	0.784	0.786	2.52(2)	0.283	1.000	0.017	0.013
Anxious Traits	0.820	0.824	2.32(1)	0.127	1.000	0.038	0.014
Lack of Self-Confidence	0.872	0.886	5.03(2)	0.081	1.000	0.041	0.010
Insecure Attachment	0.726	0.739	1.04(1)	0.307	1.000	0.007	0.010
Submissiveness	0.829	0.856	2.8(2)	0.247	1.000	0.021	0.014
Ineffective Coping	0.870	0.871	2.8(2)	0.246	1.000	0.021	0.011
Separation Anxiety	0.862	0.867	23.38(1)	0.000	0.996	0.157	0.039
Depressive Traits	0.765	0.781	0.66(1)	0.418	1.000	0.000	0.010
Introversion							

Shyness	0.836	0.838	0.25(1)	0.616	1.000	0.000	0.004
Paranoid Traits	0.801	0.807	0.13(1)	0.723	1.000	0.000	0.003
Withdrawn Traits	0.819	0.840	6.45(3)	0.091	0.999	0.036	0.021
Compulsivity							
Perfectionism	0.783	0.798	5.94(1)	0.015	0.998	0.074	0.025
Extreme Achievement Striving	0.863	0.882	8.36(4)	0.079	0.999	0.035	0.018
Extreme Order	0.741	0.752	0.03(1)	0.853	1.000	0.000	0.002
Oddity							
Oversensitivity to feelings	0.817	0.818	0.14(2)	0.931	1.000	0.000	0.006
Extreme fantasy	0.774	0.785	0.58(1)	0.446	1.000	0.000	0.016
Daydreaming	0.884	0.885	0.4(2)	0.819	1.000	0.000	0.008
Odd thoughts and behavior	0.858	0.859	0.57(2)	0.751	1.000	0.000	0.011

The adjustment of the facets to the big five overarching dimensions as proposed by Verbeke et al. (2017) was performed using an ESEM model, in order to allow secondary cross-loadings between the facets and all dimensions. The latent factor scores of the facets were used as indicators in the ESEM model. The model fit was very similar to what was reported by Verbeke et al. (2017) on the original DIPSI instrument, with a CFI of 0.89, a RMSEA of 0.9, and an SRMR of 0.03. The matrix of factor loadings as well as domain inter-correlations of the ESEM model can be found in the supplementary materials.

Part-to-whole correlations

In order to test the degree of congruence between the original DIPSI and the DIPSI-B, Spearman's pairwise correlations were calculated at the facet level. These correlations were performed using the latent factor scores of each of the facets in both instruments. Spearman's ρranged from 0.79 to 0.99, with a mean of 0.91.

Theta to sum-score correlations

A parametric approach was used in this project to retrieve the scores of the facets, based on the models derived in the development phase. These final scores are commonly denoted asθ, or latent factor scores, in IRT and structural equation modelling literature. However, in practice most instruments are used in paper-and-pencil applications and a simple sum-score (or mean-score) is performed to retrieve such scores. We inspected the bias that the sum-score approach may cause by neglecting the parameters involved in the estimation of the facets (McNeish et al., 2020). Spearman's ρ between the θscores and the sum scores ranged from 0.970 to 0.998 with a mean of 0.992, indicating that both scoring methods virtually retrieve the same information.

Measurement invariance

Most facets were scalar invariant across age (30 out of 31) and across gender (29 out of 31), as informed by a non-significant *p* value in the LRT. In those cases where the LRT was statistically significant, the change in model fit indicators was usually very modest, meaning that the size of non-invariance was small to negligible (ΔCFI < 0.01, $\Delta RMSEA$ < 0.01; Chen, 2007). The measurement invariance table in the supplementary materials summarizes the information of the measurement invariance procedure for all the facets. Next, we will discuss the three facets that were non-invariant in terms of age and gender.

Resistance was not scalar invariant across age, according to a significant change in the LRT (χ^2(df) of the difference = 17.66, p < 0.01) and the differences on -some- model fit indices (ΔCFI = -0.035, $\Delta RMSEA$ = 0.025). Two indicators of resistance had larger differences between each group's intercepts ("Breaks rules all the time, both at school and at home" and "Cheats all the time"). Both of them had higher intercepts for adolescents than for

children, although the size of the differences was not very substantial (1.48 to 1.35 and 1.36 to 1.29, unstandardized intercepts). These differences are also evident when comparing simple endorsement rates: “Breaks rules all the time, both at school and at home” had a mean of 1.48 in adolescents and a mean of 1.35 in children, while “Cheats all the time” had a mean of 1.38 in adolescents and a mean of 1.29 in children. Non-scalar invariance in Resistance means that a slight increase in this facet for older subjects will be expected, which aligns with the normative developmental trend of turmoil in adolescence.

Two facets were not metric invariant across gender: Paranoid Traits, with a significant change in the LRT (χ^2(df) of the difference = 9.41 (1), $p < 0.01$) and ΔCFI = -0.017, $\Delta RMSEA$ = 0.07); and Insecure Attachment (χ^2(df) of the difference = 17.05 (1), $p < 0.01$; and ΔCFI = -0.005, $\Delta RMSEA$ = 0.08). In Paranoid Traits, the indicator “distrusts most people” has a higher factor loading for boys than for girls, i.e. it has a more central role in defining paranoid traits in boys than in girls. In Insecure Attachment, the indicator “often clings to other people” loads higher on the latent factor in the group of girls than it does in the group of boys, potentially pointing to gender-specific manifestations of Insecure Attachment.

By indication of a reviewer, we have also conducted measurement invariance tests using MLR as estimator in all facet models. These results can be found in the supplementary materials. Overall, configural models estimated with MLR all showed acceptable goodness of fit levels. No differences were found with respect to metric invariance, while six extra facets became non-scalar invariant when using MLR. These differences with respect to scalar invariance are not surprising as MLR estimates intercepts of the indicators instead of thresholds between rating categories.

Discussion

The DIPSI-B has been developed in order to promote the inclusion of the alternative DSM-5 section III dimensional perspective on personality disorders (APA, 2013) in studies on developmental antecedents of personality disorders and early intervention programs. Whereas the PID-5 (Krueger et al., 2012) was empirically developed to describe these pathological personality traits in adult populations, the original DIPSI was conceived to study a similar but age-specific set of maladaptive traits in in children, hence opening avenues for investigating the development of personality pathology within a single conceptual framework from young age onwards. Although developmental aspects in phenotypic manifestations of maladaptive traits as well as differences in construction procedures between the DIPSI and the PID-5 have obviously resulted in facets and domains across these two measures that are not 1-to-1 equivalent, their empirical connection is significant and may form a starting base for the encouragement of research focusing on how developmental trajectories of early personality pathology connect across time and across measures.

Despite the major advantages of the original DIPSI, its extensiveness complicates application in projects where time resources are limited. As stated by the Global Alliance for Prevention and Early Intervention for Borderline Personality Disorder (GAP): "*further development and validation of brief and user-friendly assessment tools is needed to promote the systematic use of standardized evaluation in research and clinical settings*", both for borderline PD as well as for other PDs and their early signs (Chanen et al., 2017, p. 2016). Indeed, short but comprehensive instruments are needed to thoroughly monitor young individuals in the pursuit of emerging PDs, in order to implement adequate prevention and early intervention policies. The novel DIPSI-B is suitable to address this need and to significantly contribute to the field. Overall, the DIPSI-B has retained the same number of

facets with a rough 50% decrease in the number of items (from 194 to 98). The items selected to form the DIPSI-B maximized the sensitivity to detect differences in the maladaptive end of the construct space, which ensures that the screening tool is able to signal cases which would benefit more from an early intervention. Furthermore, each of the DIPSI-B facets has been carefully constructed to represent a robust unidimensional structure. This makes the DIPSI-B a screening tool that can also be used to cover specific needs of both clinicians and researchers, by only assessing those facets that are relevant to them. In addition, we considered possible threats of validity when using the DIPSI-B in practical settings. On the one hand, we precisely constructed the DIPSI-B facets taking into account the content of the indicators included. Therefore, not only an empirically driven bottom-up approach was used but also a theoretically driven top-down strategy was considered. This ensures a high degree of face-validity of the facets assessed by the DIPSI-B. On the other hand, we inspected a less commonly studied threat of validity by testing the bias introduced when computing sum-scores, instead of latent factor scores, in practical pen-and-paper applications (McNeish et al., 2020). A correlation of both scoring methods was computed in order to test their correspondence, obtaining an impressive mean of r = 0.99, and a minimum value of r = 0.97. This suggests that pen-and-paper applications yield virtually the same information when computing the construct's scores.

Psychometric Properties

The first evidence of the DIPSI-B's psychometric properties appears to be promising, both with regard to its reliability, structural validity, congruence with the original DIPSI, and invariance across gender and childhood vs adolescent age.

In terms of reliability, internal consistencies for each individual construct (McDonald's ω and Cronbach's α) were consistently above .70, and 70% of the facets had ω

values above .80, indicating good to very good internal consistencies. The TIF of the whole instrument, which computes reliability -or information- for each level of the underlying trait, suggests that the DIPSI-B is especially reliable when assessing subjects with an average-to-high degree of maladaptive traits, underscoring that the DIPSI-B is a reliable instrument with great screening potential of vulnerable children.

With regard to validity, the current findings suggest that the DIPSI-B is structurally robust. Out of the 31 latent factor models specified in the development phase of this study, only two were not supported in the validation sample (less than 7%). These two (Resistance and Separation Anxiety) were modified in a later stage, and need subsequent research to collect confirmatory evidence on its structural validity. From the remainder 29 factor models, 24 could not be rejected by the χ^2 test of model fit. Taking into account that the sample size used in the validation phase was extensive compared to the number of parameters being tested, there is strong evidence that these 24 factor models represent the actual data generating mechanism of the latent constructs. Five other latent factor models were rejected by the χ^2 test, but model fit indices (CFI, RMSEA and SRMR) suggest that the size of the misfit is small. It is important to bear in mind that most of the factor models were constructed by three reflective indicators, which means that, in order to have non-saturated models, some a priori restrictions had to be imposed (either fitting an essentially tau-equivalent model, or a model with only one factor loading allowed to differ from the other two, or a model with one correlated residual among two indicators). These restrictions further outline the good psychometric properties that were obtained, as restricted models quite commonly show, in practice, worse fit than non-restricted peers.

Regarding the higher order structure of the 31 facets in five overarching maladaptive trait dimensions, the findings on the validation sample suggest that model fit of the DIPSI-B is similar to what was found with the full DIPSI in Verbeke et al. (2017), underscoring that

the DIPSI-B has a similar fit to the maladaptive Big Five framework as the original DIPSI. Goodness-of-fit indices suggest, however, that the ESEM model only fitted marginally to our data. This finding indicates that despite the quality of the DIPSI facets, the overarching five-dimensional structure is not that robust compared to general trait structures in children (Mervielde et al. 1995), or compared to maladaptive trait structures in adults (Watson et al. 2013). However, this finding is not unique, as previous studies already pointed out that factor structures of maladaptive traits at a young age may be less differentiated because of developmental issues relating to trait crystallization (Soto et al., 2008). Nonetheless, our main focus during this adaptation has been to obtain robust and unidimensional facets, rather than adapting the DIPSI to optimally reflect five broader domains. Two factors are behind this motivation towards developing a strong set of narrower constructs. First, recent studies suggest that narrow constructs may yield superior predictive ability in contrast with broader domains (Mõttus et al., 2019). Second, we believe that from an applied perspective, professionals tend to find facets more informative of the specific maladaptive manifestations of their clients and that, furthermore, they will find the DIPSI-B more useful if it allows them to only administer the scales relevant to their case.

Furthermore, we investigated the congruence between each of the original DIPSI scales and the DIPSI-B scales. The resulting strong correlation coefficients underscore the high degree of congruence of the DIPSI-B with the original DIPSI, even though the item set has been reduced by almost a half. Unfortunately, in this study we did not include external instruments to test the construct validity of the DIPSI-B, however, given this high degree of congruence with the original version, the construct validity of the DIPSI-B is likely to be very close to its long-version counterpart.

Finally, this study also inspected the invariance of the DIPSI-B facets across gender and age. Obtaining an invariant instrument for children and adolescents was one of the

objectives of the derivation phase of this study and was confirmed with the validation sub-sample. The results of the validation sample show that most of the facets supported the most stringent level of measurement invariance (i.e. scalar invariance), in both children versus adolescents (30 out of 31 facets), and in boys versus girls (29 out of 31 facets). Furthermore, facets with no scalar invariance only demonstrated slight deviances between the group's parameters and thus, can be confidently applied to different age and gender populations. This underscores the ability of the DIPSI-B to be used in longitudinal designs, and its convenience as a screening tool applicable in all stages of the maturation process of pre-adult maladaptive personality traits. This ability of the novel DIPSI-B to invariantly assess maladaptive personality traits in childhood and adolescence is not trivial. Previous research in the precursors of PDs mainly focused on contextual determinants such as traumatic experiences or continuous exposure to destabilizing environments in the development of PDs (Herman et al., 1989; Kroll, 1994), thereby neglecting early temperamental precursors (Cichetti & Crick, 2009; Crick et al., 2005). A developmental-continua approach of PDs can compensate these shortcomings and unveil interactions between contextual determinants and temperamental precursors in the development and maintenance of PDs. Nonetheless, only if the instrument is able to maintain its psychometric robustness throughout the maturation stages, it will be useful in such endeavor. The DIPSI-B ensures this psychometric robustness across childhood and adolescence, thus enabling researchers to apply this instrument, or a selection of its facets, in longitudinal designs. Overall, we hope that the novel DIPSI-B becomes useful to many researchers and contributes to the further elaboration of a life-span perspective on the development of personality pathology.

Limitations and future directions

This study has some limitations that need to be taken into consideration. First, we

used a convenience sample which falls into the definition of a community sample. As such, the current findings should be further explored in referred samples where prevalence of psychopathology and personality difficulties is higher. Second, we only used informant ratings in the development of this short version. The usefulness of the DIPSI-B to be applied in self-reports remains unclear and is subject to forthcoming adaptations. Third, age neutrality has not been tested in the facets that belong to the domain oddity. Although we took great care in the selection of oddity items content-wise, we did not have sufficient age variability in our sample to test it empirically. Therefore, the age-neutrality of the oddity facets remains to be explored in subsequent research. Fourth, the original-Dutch version of the DIPSI was used to derive the DIPSI-B. The extent to which the DIPSI-B's psychometric properties are invariant with an English-speaking population remains unknown. Fifth, other forms of validity, such as congruent and discriminant validity as well as predictive validity, remain to be explored in future research projects.

Last, the degree to which the DIPSI-B facets converge to the overarching big five domains has not being excellent at the light of our data. Two methodological limitations may explain the marginal fit of the ESEM model: one potential cause is that some specific facet variance was not included in the model, as we used the latent factor scores as indicators of the five higher-order trait dimensions. A more flexible model would be a second order model, fitting facets in a first order and domains in a second order. However, this model is rather complex for the available data points, and should be subject to future research. Furthermore, the sample size available to run the ESEM may have been another limiting factor, as we could only fit the model with the complete dataset, i.e. with the participants who also filled out the oddity items. Future research relying on larger samples, may elucidate to what extent this less differentiated factor structure is actually a true feature of developmental trait pathology, or the result of methodological constraints.

A Broader Perspective on the Assessment of Developmental Trait Pathology

The current study empirically developed a brief but comprehensive version of an established youth maladaptive trait measure (De Clercq, 2006; De Clercq & Verbeke, 2014), to describe early Criterion B trait-pathology in a more feasible way. The broad coverage of the DIPSI-B directly addresses the developmental principle of equifinality (Cicchetti & Rogosch, 1996) that is applicable to the development of personality disorders (De Clercq, 2018). This empirically-based principle states that a wide range of early maladaptive trait manifestations may lead to similar configurations of adult personality pathology, thus pointing to the necessity of describing early trait vulnerabilities in a comprehensive manner. At the same time, the DIPSI-B items were selected for their quality in terms of depth in coverage, implying that this short DIPSI measure is actually able to detect the most vulnerable children at the extreme end of the maladaptive trait spectrum. As each of these maladaptive DIPSI traits can be linked to normative trait equivalents at a young age (Widiger, De Clercq, & De Fruyt, 2009) that are significantly involved in normative developmental tasks (De Fruyt, De Clercq, & De Bolle, 2017), it can thus be assumed that children flagged from the DIPSI-B are actually those children that fail normative developmental tasks and represent the subgroup of children in need for targeted intervention to prevent further development towards consolidated personality pathology. Indeed, as traits form the continuous core around which personality pathology develops across time, the actual onset of acute personality dysfunction as typically seen in adolescence (Sharp, 2020) may be held back by strengthening the underlying traits in an earlier stage of development. This suggestion can be framed from the fact that personality dysfunction, as represented by Criterion A in the DSM-5 AMPD, is strongly related to a substantial number of Criterion B traits (Widiger et al., 2019), mirrored in the DIPSI-B from a developmentally sensitive viewpoint. Given that these traits are already observable and measurable during childhood, as

opposed to specific Criterion A-manifestations, indicated prevention programs for personality pathology may benefit from assessment resources at the criterion B level in childhood. As it is our aspiration to promote research and assessment of developmental trait pathology already from this early age onwards, we hope to stimulate the field by providing open access to the DIPSI-B measure. The ultimate challenge lying ahead is to empirically define how childhood maladaptive trait facets connect with adult maladaptive trait facets in the process towards severe personality difficulties. Given its comprehensiveness but reduced length, its strong psychometric properties, its non-stigmatizing content, and availability in different languages, the DIPSI-B or a selected set of facets of interest may be a promising avenue for future research in the field of personality disorder development.

References

American Psychiatric Association. (1994). DSM-IV: *Diagnostic and statistical manual of mental disorders*.

American Psychiatric Association. (2013). DSM-5 Diagnostic Classification. In *Diagnostic and statistical manual of mental disorders*. doi: 10.1176/appi.books.9780890425596.x00diagnosticclassification

Anderson, J. L., Sellbom, M., Salekin, R. T. (2018). Utility of the Personality Inventory for DSM-5–Brief Form (PID-5-BF) in the measurement of maladaptive personality and psychopathology. *Assessment, 25(5), 596-607.* doi:10.1177/1073191116676889

Chanen, A., Sharp, C., & Hoffman, P. (2017). Prevention and early intervention for borderline personality disorder: a novel public health priority. *World Psychiatry*, *16*(2), 215–216. doi: 10.1002/wps.20429

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, *14*(3), 464–504. doi: 10.1080/10705510701301834

Choi, S. W., Gibbons, L. E., & Crane, P. K. (2011). Lordif: An R package for detecting differential item functioning using iterative hybrid ordinal logistic regression/item response theory and Monte Carlo simulations. *Journal of statistical software*, *39*(8), 1.

Cicchetti, D. V. (1993). Guidelines, Criteria , and Rules of Thumb for Evaluating Normed and. *Psychological Assessment*, *6*(4), 284–290. doi: 10.1037/1040-3590.6.4.284

Cicchetti, D., & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and psychopathology*, *8*(4), 597-600.

Cicchetti, D. V., Crick, N. (2009). Precursors and diverse pathways to personality disorder in children and adolescents. *Development and Psychopathology*, 21, 683-685. doi: 10.1017/S0954579409000388

Crick, N., Murray-Close, D., Woods, K. (2005). Borderline personality features in childhood: A short-term longitudinal study. *Development and Psychopathology*, 17, 1051-1070. doi: 10.1017/S0954579405050492

De Clercq, B., De Fruyt, F., Van Leeuwen, K., & Mervielde, I. (2006). The structure of maladaptive personality traits in childhood: A step toward an integrative developmental perspective for DSM-V. *Journal of Abnormal Psychology, 115*(4), 639–657. doi: 10.1037/0021-843X.115.4.639

De Clercq, B., De Fruyt, F., De Bolle, M., Van Hiel, A., Markon, K. E., & Krueger, R. F. (2014). The hierarchical structure and construct validity of the PID–5 trait measure in adolescence. *Journal of Personality*, 82, 158–169

De Clercq, B. (2018). Integrating developmental aspects in current thinking about personality pathology. *Current Opinions in Psychology, 21*, 69–73.

Decuyper, M., De Clercq, B., & Tackett, J. L. (2015). Assessing maladaptive traits in youth: An English-language version of the Dimensional Personality Symptom Itempool. *Personality Disorders: Theory, Research, and Treatment*, *6*(3), 239–250. doi: 10.1037/per0000114

De Fruyt, F., & De Clercq, B. (2012). Childhood Antecedents of Personality Disorders. In T. A. Widiger (Ed.), *The oxford handbook of personality disorders*. doi: 10.1093/oxfordhb/9780199735013.013.0008

De Fruyt, F., De Clercq, B., & De Bolle, M. (2017). The five-factor model of personality and consequential outcomes in childhood and adolescence. In T. Widiger (Ed.), *The Oxford Handbook of the five factor model* (pp. 507–520).

Fossati, A., Somma, A., Borroni, S., Markon, K. E., & Kruger, R. F. (2017). The Personality Inventory for DSM-5 Brief Form: Evidence for Reliability and construct validity in a sample of community-dwelling Italian adolescents. *Assessment*, 24(5), 615-631. doi:10.1177/1073191115621793

Herman, J. L., Perry, J. C., & Van Der Kolk, B. A. (1989). Childhood trauma in borderline personality disorder. *American Journal of Psychiatry*. doi: 10.1176/ajp.146.4.490

Hopwood, C. J., Kotov, R., Krueger, R. F., Watson, D., Widiger, T. A., Althoff, R. R., . . . Zimmermann, J. (2018). The time has come for dimensional personality disorder diagnosis. *Personality and Mental Health*. 12(1), 82-86. doi: 10.1002/pmh.1408

Kotov, R., Krueger, R. F., Watson, D., Achenbach, T. M., Althoff, R. R., Bagby, R. M., & … Zimmerman, M. (2017). The Hierarchical Taxonomy of Psychopathology (HiTOP): A dimensional alternative to traditional nosologies. *Journal of Abnormal Psychology*, 126(4), 454–477.

Kroll, J. (1994). PTSD/Borderlines In Therapy: Finding the Balance. *Journal of Clinical Psychopharmacology*. doi: 10.1097/00004714-199410000-00021

Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2012). Initial construction of a maladaptive personality trait model and inventory for DSM-5. *Psychological Medicine*. doi: 10.1017/S0033291711002674

Maples, J. L., Carter, N. T., Few, L. R., Crego, C., Gore, W. L., Samuel, D. B., … Miller, J. D. (2015). Testing whether the DSM-5 personality disorder trait model can be measured with a reduced set of items: An item response theory investigation of the personality inventory for DSM-5. *Psychological Assessment*, *27*(4), 1195–1210. doi: 10.1037/pas0000120

Markon, K. E., Quilty, L. C., Bagby, R. M., & Krueger, R. F. (2013). The Development and Psychometric Properties of an Informant-Report Form of the Personality Inventory for DSM-5 (PID-5). *Assessment*, *20*(3), 370–383. doi: 10.1177/1073191113486513

McNeish, D., & Wolf, M. G. (2020). Thinking twice about sum scores. *Behavior research methods*, 1-19.

Mervielde, I., Buyst, V., & De Fruyt, F. (1995). The validity of the Big-Five as a model for teachers' ratings of individual differences among children aged 4–12 years. *Personality and Individual Differences*, *18*(4), 525-534.

Mervielde, I., & De Fruyt, F. (1999). Construction of the hierarchical personality inventory for children (HiPIC). *Personality psychology in Europe, 7*, 107-127.

Mõttus, R., & Rozgonjuk, D. (2019). Development is in the details: Age differences in the Big Five domains, facets, and nuances. Journal of personality and social psychology.

Muthén, L. K., & Muthén, B. O. (1998-2011). Mplus User's Guide. Sixth Edition. Los Angeles, CA: Muthén & Muthén.

Rhemtulla, M., Brosseau-Liard, P. É., & Savalei, V. (2012). When can categorical variables be treated as continuous? A comparison of robust continuous and categorical SEM

estimation methods under suboptimal conditions. *Psychological Methods*, *17*(3), 354–373. doi: 10.1037/a0029315

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*. doi: 10.18637/jss.v048.i02

Saris, W. E., Satorra, A., & Veld, W. M. van der. (2009). Testing Structural Equation Models or Detection of Misspecifications? *Structural Equation Modeling: A Multidisciplinary Journal*, *16*(4), 561–582. doi: 10.1080/10705510903203433

Sharan, P., & Prakash, S. (2016). Childhood antecedents of personality disorders. In S. Malhotra & P. Santosh (Eds.), *Child and adolescent psychiatry*. doi: 10.1007/978-81-322-3619-1

Sharp, C. (2020). Adolescent personality pathology and the alternative model of personality disorders: Self development as nexus. *Psychopathology, 53,* 98-104

Sharp, C., & De Clercq, B. (2020). Personality pathology in youth. In C.J. Lejuez and K.C. Gratz (Eds.),*The Cambridge Handbook of Personality Disorders* (pp.74-90). Cambridge: Cambridge University Press.

Shiner, R. L., & Tackett, J. L. (2014). Personality disorders in children and adolescents. In E. J. Marsh & R. A. Barkley (Eds.), *Child psychopathology* (pp. 848–896). The Guilford Press.

Soto, C. J., John, O. P., Gosling, S. D., & Potter, J. (2008). The developmental psychometrics of big five self-reports: acquiescence, factor structure, coherence, and differentiation from ages 10 to 20. *Journal of personality and social psychology*, *94*(4), 718.

Tackett, J. L., Herzhoff, K., Reardon, K. W., De Clercq, B., & Sharp, C. (2014). The externalizing spectrum in youth: Incorporating personality pathology. *Journal of Adolescence*, *37*(5), 659–668. doi: 10.1016/j.adolescence.2013.10.009

Verbeke, L., De Caluwe, E., & De Clercq, B. (2017). A five-factor model of developmental personality pathology precursors. *Personality Disorders: Theory, Research, and Treatment*, *8*(2), 130–139. doi: 10.1037/per0000178

Verbeke, L., & De Clercq, B. D. (2014). Integrating Oddity traits in a dimensional model for personality pathology precursors. *Journal of Abnormal Psychology*, *123*(3), 598–612. doi: 10.1037/a0037166

Viladrich, C., Angulo-Brunet, A., & Doval, E. (2017). A journey around alpha and omega to estimate internal consistency reliability. *Anales de Psicologia*, *33*(3), 755–782. doi: 10.6018/analesps.33.3.268401

Watson, D., Stasik, S. M., Ro, E., & Clark, L. A. (2013). Integrating normal and pathological personality: Relating the DSM-5 trait-dimensional model to general traits of personality. *Assessment*, *20*(3), 312-326.

Widiger, T. A., De Clercq, B., & De Fruyt, F. (2009). Childhood antecedents of personality disorder: an alternative perspective. *Development and Psychopathology*, *21*(3), 771–791.

Widiger, T. A., Bach, B., Chmielewski, M., Clark, L. A., DeYoung, C., Hopwood, C. J., ... & Mullins-Sweatt, S. N. (2019). Criterion A of the AMPD in HiTOP. *Journal of Personality Assessment*, *101*(4), 345-355.

Zumbo, B. (1999). A handbook on the theory and methods of differential item functioning (DIF). *Ottawa: National Defense Headquarters*.

Annex 1. DIPSI-B

Facet label	Item
Extreme Achievement Striving	Always demands him/herself to be the best
	Makes too high demands for him/herself
	Wants to shine at everything
	Always plays hard to win, even when not necessary
Extreme Order	Controls surroundings by being neat all the time
	Feels an extreme need for an orderly environment
	Becomes very irritated when things are lying around
Perfectionism	Wants life to be perfectly organized
	Finds it important to do all things perfectly
	Loses a lot of time trying to be perfect
Affective Lability	Is often moody
	Has very unpredictable moods
	Has frequent mood changes from one extreme to the other
Disorderliness	Has no sense of order
	Is constantly leaving big messes
	Never takes care of his/her belongings
Distraction	Never finishes his/her work
	Can only be focused for a few moments
	Never persists until his/her goals are achieved

Facet label	Item
	Can never concentrate
Dominance–Egocentrism	Wants to assert him/herself all the time
	Manipulates other children repeatedly to have his/her way
	Always imposes his/her opinion
Hyperactivity	Can never sit still
	Needs action at all times
	Has too much energy
Hyperexpressivity	Exhibits his/her feelings at all occasions
	Always tries to impress
	Does all that is possible to draw attention
Impulsivity	Acts constantly without considering the consequences
	Always makes decisions in a very inconsiderate way
	Often acts without thinking
Inflexibility	Always sticks rigidly to the familiar way of doing things
	Feels forced to repeat the same routine over and over again
	Can not adjust to sudden changes in plans
Irritable–Aggressive Traits	Explodes at any little thing
	Gets frequently out of control when he/she is angry
	Loses his/her self-control too often
Narcissistic Traits	Considers him/herself more worthy than others
	Will do anything to be in the spotlight
	Frequently thinks that he/she is the best
Resistance	Cheats all the time
	Breaks rules all the time, both at school and at home
	Is frequently disobedient without reason
Risk Taking	Seeks adventure all the time
	Always seeks excitement

Facet label	Item
	Likes to take risks
Anxious Traits	Always expects the worst
	Often fears that everything will turn out badly
	Worries all the time
Dependency	Is extremely dependent on other people
	Only feels secure when others are around
	Can never undertake something without help
Depressive Traits	Often feels empty inside
	Regrets too often things that happened in the past
	Is often pessimistic
Ineffective Coping	Is easily upset in stressful situations
	Cannot think clearly when he/she is stressed
	Gets extremely nervous in a stressful situation
Insecure Attachment	Always tries to ensure somebody's help and concern
	Often clings to other people
	Is exceedingly attached to the home surrounding
Lack of Empathy	Does not care for other children
	Is never interested in problems of other children
	Shows no sympathy with other children
Lack of Self-Confidence	Always feels less worthy than other children
	Is extremely uncertain about him/herself
	Often thinks of him/herself as unable to manage things
	Always doubts about him/herself
Separation Anxiety	Often fears of being abandoned one day
	Often fears that his/her parents will desert him/her
	Constantly fears being on his/her own one day
Submissiveness	Others frequently take advantage of him/her

Facet label	Item
	Believes too easily what's being told
	He/she is easily persuaded
	He/she believes anything anyone says
Paranoid Traits	Distrusts most people
	Is very suspicious towards other children
	Thinks that other children want to cheat him/her
Shyness	Fears contact with other children
	Avoids contact with other children as much as possible
	Always feels uncomfortable when other children are around
Withdrawn Traits	Is very reserved towards others
	Always hides his/her feelings
	Keeps feelings and thoughts to him/herself
	Never tells something spontaneously
Daydreaming	His/her thoughts tend to stray at times
	Is often completely unaware of what is happening around him/her
	Misses parts of conversations because of daydreaming
Extreme fantasy	Gets lost in fantasy more than other kids his/her age
	Sometimes doesn't know if something is real or just imaginary
	At times, he/she cannot tell the difference between reality and fantasy
Odd thoughts and behavior	At times, says things that others find odd or strange
	His/her behavior is weird
	Has strange fantasies
Oversensitivity to feelings	Feels intensely upset when he/she sees something sad on television
	Is often absorbed by intense emotions

Facet label	Item
	Sometimes empathizes too strongly with others' feelings or experiences