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Childhood personality types: vulnerability and adaptation over time

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Abstract

Background—Substantial evidence suggests that a Five-Factor Model (Costa & McCrae, 1992) personality assessment generates a valid description of childhood individual differences and relates to a range of psychological outcomes. Less is known, however, about naturally occurring profiles of personality and their links to psychopathology. The current study explores whether childhood personality characteristics tend to cluster in particular personality profiles that show unique associations with psychopathology and quality of life across time.

Methods—Latent class analysis was conducted on maternal rated general personality of a Flemish childhood community sample ($N=477$; mean age 10.6 years). The associations of latent class membership probability with psychopathology and quality of life two years later were examined, using a multi-informant perspective.

Results—Four distinguishable latent classes were found, representing a Moderate, a Protected, an Undercontrolled and a Vulnerable childhood personality type. Each of these types showed unique associations with childhood outcomes across raters.

Conclusions—Four different personality types can be delineated at young age and have a significant value in understanding vulnerability and adaptation over time.

Keywords

child; personality; psychopathology; adaptation

Introduction

The construct of personality is slowly integrating into childhood psychiatry research and practice. Though the value of assessing general personality traits has been recurrently advocated for adult psychiatric purposes, such as for understanding the Axis II personality disorders (Widiger & Trull, 2007), its application in childhood dysfunction is slower to develop despite compelling evidence of strong trait-psychopathology connections at a young age (De Pauw & Mervielde, 2010; Tackett, 2006), and shared genetic underpinnings (Krueger & Tackett, 2003). As most traditional clinical instruments do not allow an individual to score better than “no problem” in a particular area, the measurement of general traits in the course of a clinical child assessment has the potential to provide a more comprehensive picture that includes both a child’s vulnerabilities as well as aspects of resiliency that can help a child to stay in emotional balance. This joint assessment of

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strengths and weaknesses may generate a more realistic and differentiated description of a child in terms of its available resources. Given their dimensional nature, personality traits provide an additional detailed quantitative description in contrast to simply categorizing children in terms of disordered or healthy.

A purely variable-centered approach on personality assessment, however, may not always be the most applicable perspective for clinicians, given that people present a configuration of traits that behave in a dynamic way. As an alternative, person-centered personality approaches consider the description of particular profiles that exist in populations and may more accurately reflect the manner in which different traits exist together. Beyond their ability to capture these higher-order trait-interactions, person-centered approaches provide relevant information on the frequency of personality configurations that naturally exist in the population of interest, and represent a within-individual focus that is directly linked to a practitioners' perspective in clinical decision making.

Over the years, a number of child personality types have been proposed. Block and Block (1980) described three typical childhood personality patterns consisting of an Undercontrolled, Overcontrolled and Resilient prototype. Each of these types was thought to reflect a unique combination of ego-control and ego-resiliency. Since then, other researchers have described related profiles from the perspective of other frameworks such as childhood temperamental theories (Rettew, Althoff, Dumenci, Ayer, & Hudziak, 2008) or the well-known Five-Factor Model of personality (Van Leeuwen, De Fruyt, & Mervielde, 2004). These various Five-Factor Model childhood personality types have shown their utility in predicting a number of outcomes including competency and school success (Asendorpf & Van Aken, 1999; Robins et al., 1996), psychopathology (Van Leeuwen, et al., 2004), and associations with external variables such as parenting (van den Akker, Dekovic, Prinzie, & Asscher, 2010).

The Five-Factor Model can be considered the most widely used trait model, with substantial evidence for its reliability and validity at a young age (for a review see De Clercq, De Fruyt, & Widiger, 2009). From a life-span perspective, the Five-Factor Model hence provides a comprehensive personality description across different developmental periods within a single framework. The current study attempts to derive empirically-based childhood personality types from this Five-Factor Model framework using latent class analysis (LCA). Whereas existing childhood personality types have been derived from procedures such as Q factor analysis and cluster analysis, two strategies with methodological limitations (Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2010), LCA has been used successfully in several psychiatric studies (for a recent overview see Althoff, Rettew, Boomsma, & Hudziak, 2009). The strategy creates unique opportunities to look for discrete, homogeneous groups of individuals that show a similar response pattern or behave in a similar manner. We hypothesized, based on previous research, that a relatively small number of classes would be found that would demonstrate significant associations to both positive and negative child outcomes, relying on an age-specific and comprehensive personality measure and using a multi-informant perspective.

Methods

Sample and Procedure

Data are derived from the Flemish Personality and Affect Longitudinal Study (PALS), with a similar sample as the one that was used in the study of De Clercq and colleagues (2009). This study has a prospective multi-wave longitudinal design, and was approved by the ethical board of Ghent University. Participants are volunteer families from the general population, who were assessed at three successive assessment points with a time interval of

one year. Children and their parents were initially recruited by trained graduate psychology students from Ghent University, who randomly selected subjects in their neighbourhood. The families were visited at home and both parents and child were asked to independently complete a set of questionnaires. Students provided detailed oral and written instructions on how to complete the questionnaires, but offered no further assistance to guarantee that the independent opinion of all participants was assessed. Voluntary written informed consent was obtained from all parents and children. Follow-up data were collected by mail, one (wave 2) and two (wave 3) years after the baseline assessment respectively. An invitation letter, informed consent form and a set of questionnaires for parents and child were sent to the participants at each follow-up moment, together with a reminder for returning the completed questionnaires within one month. The current research only reports on the wave 1 data (used for the construction of latent personality classes) and wave 3 data (outcome measures for each of the latent classes). The PALS-sample at baseline assessment consisted of 477 children, including 224 boys (47%) and 253 girls (53%) with a mean age of 127.99 months (ranging from 86 to 168 months, $SD=13.02$). The follow-up sample (wave 3) included 314 children, with overall minor differences between this continued group and the drop-out group. More specifically, we found no statistical differences between families who did not continue their participation ($n=163$) and the continued group ($n=314$) in terms of educational level of the child, educational level of both parents, and occupation of the fathers, though significant differences concerning child and maternal age, as well as occupation of the mothers were found. Mothers of the drop-out group were significantly younger than mothers of the continued group ($F=10.19$; $p<.01$), and had relatively younger children ($F=4.72$; $p<.05$). The distribution of mother's occupation also appeared to be significantly different ($\chi^2 = 14.20$; $p < .01$), with the drop-out mothers being relatively more self-employed (17.9%) compared with mothers of the continued group (7.7%). Detailed sample characteristics have been described in a previous study (see De Clercq, et al., 2009), demonstrating a large diversity in socio-demographic background variables and supporting the relative representativeness of the present sample. The current research does not report on all measures that were included in the PALS-study, and only focuses on the childhood general trait, psychopathology and quality of life measures, that were administered from a multi-informant perspective at each assessment point. Drop-out analyses on these constructs indicated no significant differences between continuers and non-continuers in terms of personality or psychopathology.

Measures

The Hierarchical Personality Inventory for Children (HiPIC)—All mothers filled out the Hierarchical Personality Inventory for Children (HiPIC; Mervielde & De Fruyt, 1999, 2002; Mervielde & De Fruyt, 2010). This instrument was designed from a large pool of parental personality descriptors of children aged 6 to 12. The HiPIC assesses five broad dimensional personality domains that closely resemble the dimensions of the FFM in adults, i.e. Emotional stability, Extraversion, Imagination, Benevolence, and Conscientiousness. Each of these broad domains comprises a number of lower-level personality facets. All facets are represented by 8 items that capture the broad range of adaptive individual differences throughout childhood age. Informants rate each item along a five-point Likert scale. Reliability and validity of the HiPIC as a comprehensive measure of general trait differences in childhood have been previously supported (De Fruyt, et al., 2006). In the current sample HiPIC Emotional stability scores ranged from 1 to 4.75 (mean= 2.51, $SD= .62$), Extraversion scores from 1.59 to 4.91 (mean= 3.51, $SD= .50$), Imagination scores from 1.92 to 4.92 (mean= 3.69, $SD=.61$), Benevolence scores from 2.13 to 4.95 (mean= 3.64, $SD= .51$), and Conscientiousness scores from 1.56 to 4.78 (mean= 3.28, $SD=.63$).

The Child Behavior Checklist (CBCL)—All mothers were administered the Dutch version of the Child Behavior Check List (Achenbach & Rescorla, 2001). The CBCL is one of the most widely studied child behavioural instruments and has been translated into over 80 languages. The empirically-based taxonomy distinguishes eight syndrome scales (Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior and Aggressive Behavior), and two broadband scales (Internalizing and Externalizing problems), aggregated in a Total Problem score. Excellent psychometric properties have been reported, with a large body of research demonstrating its reliability and validity in both clinical and community populations (Achenbach & Rescorla, 2001). Maternal CBCL ratings ranged from 0 to 29, with a mean score of 4.08 ($SD= 4.99$) for the Internalizing scale, and from 0 to 24 with a mean score of 3.88 ($SD=4.50$) for the Externalizing scale. Based upon a combination of CBCL items, Achenbach and Rescorla (2001) have proposed a number of empirically-based DSM-oriented scales that can be linked directly to DSM categories. Maternal ratings of these DSM-oriented scales ranged for the Affective problems scale from 0 to 17, with a mean score of 1.20 ($SD= 2.07$), for the Anxiety problems scale from 0 to 8, with a mean score of 1.19 ($SD= 1.40$), for the Somatic problems scale from 0 to 6, with a mean score of .66 ($SD= 1.11$), for the ADHD scale from 0 to 14, with a mean score of 2.05 ($SD= 2.44$), for the ODD scale from 0 to 8, with a mean score of 1.26 ($SD= 1.56$), and for the CD scale from 0 to 8, with a mean score of .69 ($SD= 1.29$).

The Childhood Depression Inventory (CDI)—All mothers and children completed the Dutch translation of the Childhood Depression Inventory (Timbremont & Braet, 2002), assessing the presence and severity of depressive symptoms in youth. The inventory comprises 23 items on a three-point Likert scale that are combined into a total depression score. Psychometric qualities and validity of the Dutch CDI have been convincingly supported (Timbremont, Braet, & Dreessen, 2004). In the current sample, child ratings for the total CDI score ranged from .00 to .93, with a mean of .24 ($SD= .17$), and mother ratings ranged from .00 to 1.07, with a mean of .17 ($SD= .17$).

The Pediatric Quality of Life Inventory (PedsQL)—Fathers completed the authorized Dutch version of the Pediatric QoL Inventory - 4.0 (Koot & Bastiaansen, 1998), a 23-item questionnaire developed to assess health-related quality of life in children. The PedsQL 4.0 Generic Core Scales include four quality of life subscales referring to Physical, Emotional, and Social functioning, and Functioning at school. Items are rated on a 5-point Likert Scale, and are reverse-scored and linearly transformed to a 0 to 100 scale, so that higher scores indicate better health-related QoL. Previous research demonstrated good reliability and validity of the PedsQL to assess health-related quality of life in different populations, including community samples (for an overview see Varni & Limbers, 2009). In the current sample, father ratings for the Total quality of life scale ranged from 43.28 to 100, with a mean score of 83.95 ($SD= 11.22$).

Analyses

Latent Class Analysis (LCA) was conducted using the Latent Gold 4.0 program (Vermunt & Magidson, 2000). The five HiPIC dimensions were entered as continuous variables with sex initially entered as a covariate. Model selection was based upon the Bayesian Information Criterion (BIC), with the smallest BIC value representing the best fitting model. Class assignment probabilities were constructed for each subject, with a most likely class assignment variable resulting from the highest membership probability across classes. Once the profiles were revealed, they were given names by consensus of the authors while taking into account previous research.

The class probability variables were used for all further analyses in terms of associations with developmental outcome measures of psychopathology and quality of life two years later. No gender differences were found for any of the outcome measures of psychopathology and quality of life. Small age differences were found for the CBCL Aggressive syndrome scale, with younger children displaying higher mean scores, and the PedsQL Emotional functioning, Social functioning and Total quality of life scale, with younger children displaying lower mean level scores. Because of these age differences, correlational analyses between class membership at time 1 and outcome measures at time 2 were controlled for age.

Results

Model fit

Model fit statistics suggested that a four-class model represented the best fitting solution, with a log likelihood value of -1804.04 (N parameters = 43). Sex was dropped as a covariate in this four-class model, because this significantly improved the model fit. The distinctiveness of the latent profiles can be understood from the average latent class probability, with a value of $.85$ ($SD = .15$) that exceeds the recommended value of $.80$ (Rettew, et al., 2008). Figure 1 represents the graphs of the resulting profiles in HiPIC deciles, and shows that three of the classes have roughly parallel profiles across the 5 dimensions. The most common class, which consists of 45% of the sample, has intermediate scores across all dimensions, and was labelled the Moderate Class. This group of children can be described as the modal children, displaying moderate levels of Extraversion, Imagination and Conscientiousness and a fair amount of Emotional stability and Agreeableness. The smallest (9%) Protective Class has high levels across all dimensions, and can be understood as children with a more exceptional trait configuration in terms of high Emotional Stability, Imagination, Agreeableness, and Conscientiousness, and a less pronounced but still high level of Extraversion. A sizable group (33%), we called the Vulnerable Class, shows markedly low scores on all dimensions, with in particular very low scores on Extraversion and Imagination, and low scores on Conscientiousness, Emotional stability and Agreeableness. These children seem to be introverted and closed-minded, are emotionally vulnerable and show a certain difficultness. The one group with a profile that crosses the others was labelled the Undercontrolled Class (12% of the sample) and is characterized by high Emotional Stability, Extraversion and Imagination scores, and low Agreeableness and Conscientiousness. These children tend to be emotionally stable, dominant and outgoing, but are harder to manage in daily life. We found no sex differences within classes, with 46%, 50%, 43%, and 49% boys for the Moderate, Vulnerable, Undercontrolled and Protective class respectively, suggesting that the way personality traits empirically cluster together is not a function of sex. In addition, no significant age effects on class assignment were identified.

Significance of Personality Types Across Time

Table 1 and 2 indicate that each class is meaningfully related to several developmental outcomes two years later, including internalizing and externalizing problem behaviour and quality of life, reported by different informants. Based upon maternal (CBCL and CDI) and self-ratings of child psychopathology (CDI), Table 1 suggests that neither the Protected nor the Moderate class are positively related to any kind of psychopathology. Indeed, associations were significantly negative between these two classes and multiple types of psychopathology with the exception of non-significant associations with Thought problems and Somatic complaints for the Moderate class (maternal CBCL ratings). By contrast, both the Undercontrolled and Vulnerable group show positive associations with problem behaviour. More specifically, the Undercontrolled type demonstrated primarily significant

correlations with more externalizing manifestations of psychopathology, including rule-breaking behaviour, aggression, and attention problems (maternal CBCL ratings). The Vulnerable group shows associations with a broader array of psychopathology that encompasses both internalizing problems such as anxious/depressed problems (maternal CBCL and child CDI ratings) and withdrawn behaviour (maternal CBCL ratings), as well as externalizing problems (maternal CBCL ratings). From an impairment perspective, father ratings of quality of life (see Table 2) suggest that children with a Vulnerable group membership have a higher chance to experience an overall impaired quality of life two years later with significant associations at both the physical, emotional, social and school level of functioning, whereas the impaired quality of life for Undercontrolled group membership is restricted to their school functioning. Protected group membership showed the strongest positive association with school functioning.

Forty-one children (13.06%) were rated in the borderline clinical range of one or more DSM-IV oriented scales of the ASEBA system, relying on the gender- and age-specific cutoff of T-score65 (Achenbach & Rescorla, 2001). Table 3 represents the distribution of these children by latent class and demonstrates that across disorders the majority of identified children was assigned to the Vulnerable class two years earlier, thereby underscoring the relatively more maladaptive outcome over time for children that are characterized by a general trait configuration of low scores on all Five-Factor model trait dimensions. In contrast, Protected class membership was overall not indicative for later diagnoses, with none of the children within the borderline clinical range displaying a Protected trait profile two years earlier in life.

Discussion

The current study attempted to delineate naturally occurring personality profiles in childhood from a Five-Factor Model general trait perspective. This person-centered orientation may be in particular relevant for clinicians, because it focuses on a child's overall personality configuration, considering interactions among Emotional stability, Extraversion, Imagination, Agreeableness and Conscientiousness. Our findings suggest that the childhood variability in personality configuration can be understood in terms of four different latent classes that were labelled as the Moderate, Protected, Vulnerable, and Undercontrolled class. Apparently, the first three classes showed a rather similar profile in terms of shape with significant differences in mean scores on each of the trait dimensions. This finding points towards similar inter-relationships among basic trait constructs across latent groups, suggesting that the make-up of personality profiles at childhood age is quite comparable and in essence dimensional. Notwithstanding this, their significant differences in mean scores, may indicate that each of these parallel profiles can be considered conceptually and clinically meaningful. Indeed, the four latent classes showed unique associations over time and across informants with measures of psychopathology and quality of life, generally indicating that children with a Moderate or Protected trait profile are characterized by an adaptive way of functioning. There are subtle differences between these two adaptive classes, however, reflected in an overall higher mean-level trait pattern for the Protected class with the largest difference for the Conscientiousness trait domain. This latter discrepancy may be reflected in the finding that Protected class membership is more positively related to a child's experienced quality of life at school. Membership of the Vulnerable and Undercontrolled class tends to be associated with a higher risk for developing psychopathology and experiencing an impaired quality of life, with Vulnerable children displaying a risk for a wider range of problems compared to the Undercontrolled group. More specifically, an Undercontrolled profile seems to be associated exclusively with externalizing problems, whereas a Vulnerable trait profile is related to psychopathology within both the internalizing and the externalizing spectrum. Accordingly, the Vulnerable

class membership appeared to be the most at-risk condition for developing an overall impaired quality of life.

Conceptually, these latent classes are partly similar to earlier findings on childhood personality types. More specifically, the large moderate group with overall mean levels on all trait dimensions corresponds closely to the findings of Rettew and colleagues (2008) who proposed a Moderate group resulting from latent class analysis on the Junior Temperament and Character Inventory (Luby, Svrakic, McCallum, Przybeck, & Cloninger, 1999). Relatedly, the Protected class is comparable to the traditional Resilient childhood personality type, as suggested from different person-centered studies that applied other data-analytical strategies (Van Leeuwen, et al., 2004, Klimstra, et al., 2010). Likewise, the current Undercontrolled class shows a strong resemblance with previous proposals on the Undercontrolled (Van Leeuwen, et al., 2004) or Disengaged type (Rettew, et al., 2008), although this group may exhibit a more explicit Emotional stability in the current study. Somewhat in contrast with earlier proposals, we did not find a clear Overcontrolled class (but see Van Leeuwen and colleagues (2004) for a similar absence of a clear Overcontrolled class), but rather a mixed Over- and Undercontrolled group that was labelled the Vulnerable group. This latter finding is consistent with the finding of Barbaranelli (2002), who suggested a non-desirable group that combined the aspects of both Over- and Undercontrollers. From a categorically-oriented diagnostic perspective, the present study also underscores the developmental principle of multifinality (Cicchetti & Rogosch, 1996), suggesting that a similar trait profile may develop into diverse outcomes as specified by the finding that children from the same latent trait class met the threshold for diverse DSM-IV related disorders two years later, or no disorder at all.

The present findings make the case for administering a trait measure in the general diagnostic process of psychopathology at a young age. A general trait description may distinguish more explicitly between children that score below the cutoff of a traditional psychopathology measure and are consequently all considered as “healthy”. Among these healthy children, however, there are significant differences in personality as reflected in the different latent trait groups that are presently proposed. These individual differences are meaningfully related to long-term adaptation, but are not necessarily tapped by common measures of psychopathology. A trait measure may hence be sensitive to screen for at-risk children that are not automatically flagged by established psychopathology measures, and may therefore be a valuable way to obtain a more comprehensive understanding of a child’s vulnerabilities. In this regard, the rather non-specific, but overall maladaptive outcome for the Vulnerable group empirically underscores that trait profiling has -without the necessity of making a formal diagnosis- the potential to screen for a number of children that is at risk for long-term maladjustment based upon a measure that describes individual differences between children from an adaptive and age-specific viewpoint. The present results hence indicate that these mathematically constructed childhood personality configurations have real-world significance and are prospectively related to differential developmental trajectories of (mal)adaptation. Beyond the value of scores on individual dimensions, the merit of an additional focus on types lies in its holistic approach of human functioning that connects closely with how practitioners approach individuals during their diagnostic procedures and treatment.

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Key Points

- Building upon evidence on the validity of Five-Factor Model childhood personality types, the present study uses a more recent and sophisticated methodology to delineate naturally occurring childhood personality types.
- The results suggest four distinct types that are uniquely related to psycho-social outcomes, indicating that children with a Vulnerable or Undercontrolled trait configuration are at higher risk for maladjustment.
- Beyond the value of dimensional traits, this typological approach is clinically useful, because it provides an integrative view on a child's functioning from a within-individual focus that closely connects with how practitioners approach their patients.
- Without the necessity of making a formal diagnosis, a trait assessment makes it possible to screen for children with an at-risk personality configuration.

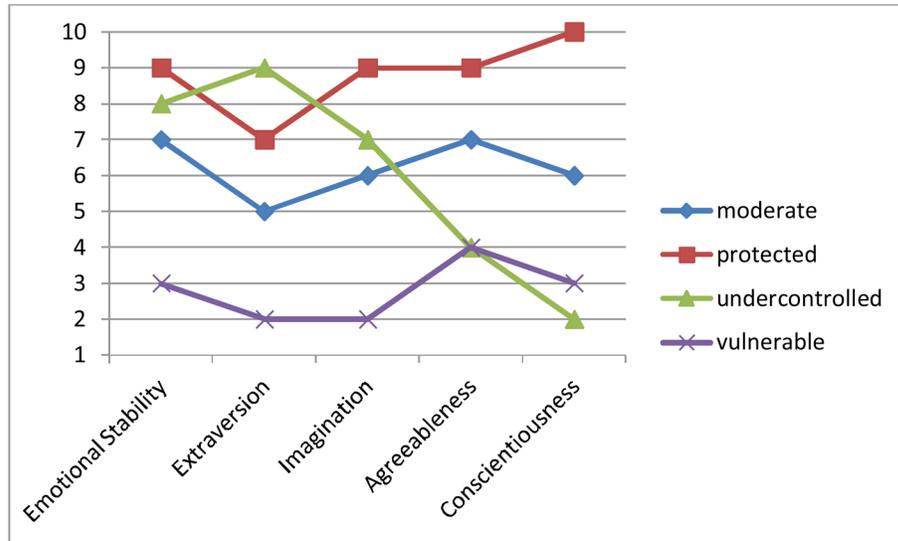


Figure 1.
Graphical representation of the Five-Factor Model childhood personality types

Table 1

Associations of latent class membership probabilities with childhood general psychopathology (mother and child ratings) two years later, controlling for age

	Latent personality classes			
	Moderate	Protected	Undercontrolled	Vulnerable
CBCL syndromes (mother)				
Withdrawn behavior	-.30 ***	-.17 **	-.10	.48 ***
Somatic complaints	-.07	-.12 *	.03	.13 *
Anxious/depressed	-.28 ***	-.10	-.03	.36 ***
Social problems	-.32 ***	-.16 **	.07	.38 ***
Thought problems	-.10	-.09	.01	.15 **
Attention problems	-.30 ***	-.26 **	.25 ***	.31 ***
Delinquent behavior	-.24 ***	-.10	.21 ***	.17 **
Aggressive behavior	-.28 ***	-.15 **	.24 ***	.22 ***
CBCL Internalizing	-.29 ***	-.15 **	-.04	.41 ***
CBCL Externalizing	-.29 ***	-.16 **	.26 ***	.22 ***
CBCL Total	-.33 ***	-.21 ***	.15 **	.37 ***
CDI Total (mother)	-.28 ***	-.20 ***	.00	.41 ***
CDI Total (child)	-.18 ***	-.11	.08	.21 ***

Note.

* p<.05,

** p<.01,

*** p<.001.

Table 2

Associations of latent class membership probabilities with childhood quality of life (father ratings) two years later, controlling for age

	Latent personality classes			
	Moderate	Protected	Undercontrolled	Vulnerable
PedsQL (father)				
Physical functioning	.05	.13*	.02	-.15**
Emotional functioning	.16**	.14*	.01	-.26***
Social functioning	.17**	.14*	-.04	-.25***
School functioning	.17**	.30***	-.23***	-.23***
Total quality of life	.18**	.23***	-.08	-.29***

Note.

*
p <.05,

**
p <.01,

p <.001

Table 3

Distribution of children with T-score >65 for one or more of the DSM-IV ASEBA diagnoses (Time 2) by latent class (Time 1)

	N identified children (N=41)			
	Moderate (n=6)	Protected (n=0)	Under-ontrolled (n=10)	Vulnerable (n=25)
N identified diagnoses (N = 78)				
Affective Problems (n=19)	4	0	2	13
Anxiety Problems (n=27)	4	0	3	20
Somatic Problems (n=5)	3	0	0	2
ODD (n=6)	0	0	1	5
CD (n=5)	0	0	1	4
ADHD (n=16)	0	0	8	8
N overall diagnoses within class	11	0	15	52
N children >1 diagnosis within class	2	0	3	12