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The role of the clinician: three-year predictive value of parents', teachers', and clinicians' judgment of childhood psychopathology

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Background: The present study investigated the differential predictive value of parents', teachers', and clinicians' reports of psychopathology for poor outcome in children referred to a child psychiatric outpatient clinic. **Method:** A referred sample ($N = 96$), aged 6 to 12 years at initial assessment, was followed up after a mean interval of 3.2 years. Data on parent- and teacher-reported problem behavior (Child Behavior Checklist and Teacher's Report Form), and clinician-reported observations and self-reports during a semi-structured clinical interview (SCICA), were linked to outcome measures assessed with a parent questionnaire, including outpatient and inpatient treatment at Time 2, parent's wish for professional help for the child, school problems, and police/judicial contacts. **Results:** Information from all three informants (clinicians, parents, and teachers) predicted measures of poor outcome after three years. Clinicians' ratings on the SCICA predicted all five outcome measures. Independent of CBCL and TRF scores, SCICA scores predicted parental wish for help and inpatient treatment. **Conclusions:** The present study was the first to report that clinician's ratings of self-reported and observed behaviors in a semi-structured interview (SCICA) make an important unique contribution to the multi-axial assessment of problem behaviors. **Keywords:** Assessment, Child Behavior Checklist, interviewing, prognosis.

To assess psychopathology in children and adolescents, information needs to be obtained from multiple informants: children or adolescents themselves, parents, teachers, and clinicians. It is well known that agreement between informants is low. In their meta-analysis of cross-informant agreement on childhood emotional and behavioral problems, Achenbach, McConaughy, and Howell (1987) found a mean correlation of .28 between scores reflecting behavioral and emotional problems obtained via different types of informants.

Given the considerable cross-informant differences, the question arises as to whose information carries the most weight. For instance: how important is information obtained from parents, compared to that obtained from clinicians, or how should we deal with discrepancies between information obtained from parents versus teachers?

To explore the validity of information obtained from different sources, we can compare the power of ratings of child behavioral and emotional problems obtained from different informants, to predict indices of psychopathology. This approach can yield information regarding informant specificity of information (does a specific informant provide information that is not provided by other informants?), and about ways to combine information from different informants (how should information from different informants be combined to obtain a comprehensive picture of the child's functioning?). Several studies applied a

longitudinal design to assess informant issues. Verhulst, Koot, and van der Ende (1994) studied the power of parents' and teachers' reports of children's problem behavior to predict poor outcome after six years in a Dutch general population sample of 946 children aged 4 to 11 years. Parent reports were obtained with the Child Behavior Checklist (CBCL; Achenbach, 1991b), while teacher reports were obtained with the teacher version of the CBCL, the Teacher's Report Form (TRF; Achenbach, 1991c). Poor outcome was defined as having academic problems, school behavior problems, receipt of mental health services, child's need for professional help, suicidal behavior, and police contacts. They found that a CBCL or TRF Total Problem score above the 85th percentile (P85) significantly predicted the occurrence of at least one poor outcome variable (odds ratio = 2.9 and 3.5 respectively). Furthermore, 7% of the girls with a CBCL and TRF Total Problem score below P85 showed at least one poor outcome variable after six years, compared to 16% in case of a deviant CBCL or TRF Total Problem score, and 56% if both CBCL and TRF Total Problem scores were above P85. These percentages were 13%, 26%, and 36% in boys respectively. Hence, combination of parent and teacher information yielded an improvement of predictive power, or, in other words, individuals with poor prognosis were more likely to be accurately identified if data from two informants were combined, instead of relying solely on one informant.

In another study performed within the same epidemiological sample ($n = 353$, age 11–14), Verhulst, Dekker, and van der Ende (1997a) compared the power of scores on the CBCL, TRF, and YSR (Youth Self-Report; Achenbach, 1991d) to predict poor outcome across a 4-year interval. After dichotomizing CBCL, TRF, and YSR syndrome scores into deviant (above the 95.5th percentile) or non-deviant (below the 95.5th percentile), they entered the scores of the three questionnaires in one analysis. Their findings indicated that each informant made a unique contribution to the prediction of signs of maladjustment. For instance, they found that parental scores on the CBCL scale Delinquent Behavior ($OR = 29.4$), and teacher reports on the Thought Problems scale of the TRF ($OR = 41.3$), predicted referral to mental health services, while self-report scores on the YSR did not predict referral. This indicates that referral to mental health services could be predicted by parental and teacher reports on children's behavior/emotional problems, but not by reports of children themselves. Similarly, high scores on the CBCL and YSR Anxious/Depressed scale had the strongest predictive power for need for help for the child's behavioral/emotional problems, indicated by the parents ($OR = 9.5$ and 5.6 respectively), while TRF scores did not predict this sign of maladjustment. These results show that specific poor outcome measures were predicted by behavior ratings from specific informants.

Achenbach, Howell, McConaughy, and Stanger (1998) investigated the predictive power of ratings of psychopathology to predict signs of disturbance in young adulthood across a six-year period. They assessed a general population sample of 743 American adolescents aged 13–16 at initial assessment. Although informant comparison was not their main focus, the authors reported a difference between the predictability of drug use by parent reports on the CBCL (effect size = 22%) and self-reports on the YSR (effect size = 49%) for females. Apparently, to identify at an early stage those individuals who were at risk for drug use during young adulthood, information from individuals themselves probably carries more weight than information from their parents. These findings showed that a longitudinal design may be helpful to determine the value of information obtained from different sources.

Although the studies summarized above provide valuable information, they lack one important informant on psychopathology: the clinician. Direct assessment of the child is part of routine assessment in many clinics. Comparison of the predictive validity of ratings of behaviors and emotions by clinicians versus other informants – in other words, the concurrent predictive validity – could yield information on the degree to which direct assessment of the child is important, compared to data obtained from parents or teachers. To our knowledge, studies concerning multi-informant prediction of poor outcome

that include clinician ratings are not available. It may be argued that it is self-evident that information from the clinician is crucial. However, it is important to realize that most clinicians rely heavily on interviews with parents and teachers, especially in younger children. An important question is what the value of information from the clinician obtained from assessment of the child would be, without information from parents or teachers. The aim of the present study was to determine the differential predictive value of parents', teachers', and clinicians' reports of childhood psychopathology. To this end we examined the prospective relations between parent, teacher and clinician ratings of child psychopathology and poor outcome (school problems, service use, police/judicial contacts) across a three-year interval, for children who were 6 to 12 years at their initial visit to a child psychiatric outpatient clinic.

Materials and methods

Participants

At the first assessment (Time 1), between April 1992 and April 1994, 246 children and adolescents aged 6 to 16 years, who had been consecutively referred to the outpatient department of Child and Adolescent Psychiatry of Sophia Children's Academic Hospital in Rotterdam, and their parents, were asked to participate in a study aimed at the validation of a semi-structured clinical interview (SCICA; McConaughy & Achenbach, 1994). One hundred and sixty-nine (68.7%) participants and their parents participated in the study. (Further details of this sample are described by Kasius (1997)). To assess the representativeness of her sample, she compared results found for her sample with those of a Dutch referred sample of 2,004 children and adolescents. This sample, which was derived from a large number of Dutch mental health agencies, has been described in detail by Verhulst et al. (1996) in the manual for the Dutch CBCL/4-18. Kasius found that referred 4- to 11-year-old boys in her study sample were scored significantly higher on the following CBCL scales: Somatic Complaints ($t = 2.38$, $p < .05$), Anxious/Depressed ($t = 2.32$, $p < .05$), Social Problems ($t = 2.75$, $p < .01$), Thought Problems ($t = 5.56$, $p < .001$), Attention Problems ($t = 2.36$, $p < .05$), and Delinquent Behavior ($t = 2.35$, $p < .05$). CBCL problem scale scores of girls from her sample in the same age range did not differ from scores of girls from the large clinical sample. Hence, the present study's sample does probably contain boys with higher problem levels than in general mental health care settings. This might be explained by the fact that the sample originates from an academic clinic, with referrals of rather complex and severe cases that have often been unsuccessfully treated before in other mental health agencies. The Time 1 target sample scored as follows on a 6-point scale of parental occupation (1 = lowest SES, 6 = highest SES; Van Westerlaak, Kropman, & Collaris, 1975): 1–16%, 2–19.5%, 3–25.4%, 4–9.2%, 5–9.7%, 6–20.0%. At Time 1, there was no significant difference in mean SES between responders versus those who refused ($t = 1.36$, $p > .05$).

In the present study, we report on 132 children who were aged 6 to 12 years at Time 1 (37 of 169 were >12 years old). These individuals were followed up across time (mean interval = 3.2 years; $sd = .62$ years; range = 1.8–4.5 years). At Time 2, 96 (72.7%; 63 boys and 33 girls) cooperated. Follow-up data were obtained from a larger follow-up study (Heijmens Visser, van der Ende, Koot, & Verhulst, 1999).

To assess selective attrition we compared those who remained at Time 2 and those who had dropped out with respect to age (mean age = 9.5 vs. 10.4 years; $t = 2.74$; $p < .01$), sex ($\chi^2 = .602$; $p = n.s.$), and mean socioeconomic status on a six-step scale of parental occupation (3.33 vs. 3.42; $t = .251$; $p = n.s.$). There were no significant differences for T1 CBCL syndrome scores and Total Problems scores.

Of the 96 individuals, 68 lived with their biological parents, 25 lived with their biological mother, with (10) or without (15) a partner. Three children who were adopted lived with non-biological parents. In 95% of the cases, the mother of the child filled out the CBCL. Ninety-one children (95%) were born in the Netherlands and had Dutch nationality. At Time 1, 53.3% of the children who cooperated again at Time 2 fulfilled DSM-III-R criteria of at least one anxiety disorder, 23.3% of at least one mood disorder, and 45.6% of at least one disruptive disorder (ADDH, oppositional disorder, conduct disorder), assessed with the parent version of the DISC-2.3 (Shaffer et al. 1993).

At Time 1, most children (95%) received some kind of treatment. Seventy-nine children received outpatient treatment, 67 (85%) of whom were treated at our outpatient department. Ninety percent of them received individual psychotherapy. Thirteen percent of the children received medication. Mean duration of treatment was 15.6 months ($sd = 15.2$ months; range 1 to 89 months). In 61% of the cases there were more than 10 therapeutic sessions. Seventy-seven percent of the parents received parental counseling. In 15 cases treatment was day treatment or inpatient treatment. Five percent did not receive any treatment between Time 1 and Time 2, for different reasons (parents refused; referral to special education; absence of psychopathology).

Measures

The Child Behavior Checklist (CBCL; Achenbach, 1991b) is a parent questionnaire for assessing problems in 4- to 18-year-olds. It consists of 20 competence items and 120 items on behavioral or emotional problems during the past 6 months. Only findings from the problem section will be reported here. The response format is 0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true. The good reliability and validity of the CBCL (Achenbach, 1991b) were confirmed for the Dutch translation. The 14-day test-retest correlations for CBCL scale scores and total scores ranged between $r = .74$ and $r = .91$. Cronbach's alphas were $>.70$ for all scales, except for the Thought Problems scale (Verhulst et al. 1996). Kasius, Ferdinand, van de Berg, and Verhulst (1997) found significant associations between CBCL scale scores and DSM-III-R diagnoses derived from the DISC 2.3 (Shaffer et al., 1993) in a sample of Dutch outpatients. De Groot,

Koot, and Verhulst (1994) confirmed the applicability of the factor structure found in American samples by Achenbach (1991b) to Dutch children.

The Teacher's Report Form (TRF; Achenbach, 1991c) was used to obtain standardized teacher reports on children's behavioral/emotional problems. The TRF is the teacher version of the CBCL. The TRF has 120 problem items, including 95 of the same problem items as the CBCL. The good reliability and validity of the TRF (Achenbach, 1991c) were confirmed for the Dutch translation. De Groot et al. (1994) confirmed the applicability of Achenbach's American factor structure to Dutch children and adolescents. Verhulst, van der Ende, and Koot (1997b) found an average 6-week test-retest reliability for the TRF scales of $r = .83$. All correlations were above $.75$, except for the Somatic Complaints scale ($r = .56$). These authors also supported the criterion-related validity; they found that TRF syndrome scores were much higher for referred individuals than for non-referred individuals.

Achenbach (1991a) constructed eight 'cross-informant' syndromes that can be scored on the parent-, teacher-, and self-report (YSR) versions of the CBCL: 'Withdrawn', 'Somatic Complaints', 'Anxious/Depressed', 'Social Problems', 'Thought Problems', 'Attention Problems', 'Delinquent Behavior', and 'Aggressive Behavior'. In the present study, CBCL and TRF ratings were scored on these cross-informant syndromes.

The Semi-structured Clinical Interview for Children and Adolescents (SCICA; McConaughy & Achenbach, 1994) is a standardized semi-structured clinical interview – with the child – for ages 6–18. The interview protocol covers the following areas: 1. Activities, school, job; 2. Friends; 3. Family relations; 4. Fantasies; 5. Self-perception, feelings; 6. Parent/teacher-reported problems; 7. Achievement test; 8. Screen for fine and gross motor abnormalities; 9. Somatic complaints, alcohol, drugs, trouble with the law. The SCICA is scored quantitatively on structured Observation and Self-Report forms. These forms contain items that were adapted from CBCL and TRF items, and items that were specifically designed for the SCICA. The CBCL yielded 50 of the 121 items of the Observation form and 81 of the 107 Self-Report items. Scores from clinically referred individuals were used to derive SCICA syndromes. There are five Observation scales, 'Resistant', 'Strange', 'Attention Problems', 'Withdrawn', and 'Anxious', and three Self-Report scales, 'Aggressive Behavior', 'Family Problems', and 'Anxious/Depressed'. The good reliability and validity of the SCICA (McConaughy & Achenbach, 1994) were replicated in a Dutch referred sample (Kasius, 1997). For SCICA syndrome scales Kasius found average test-retest reliability of $r = .80$, and average internal consistency (Cronbach's alpha) of $.79$. She also found several significant associations between SCICA scale scores and DSM-III-R diagnoses. The SCICA was designed to obtain dimensional ratings of empirically derived constructs from clinicians, regarding clinical observations and self-reports. An individual's scores from the SCICA can easily be compared to scores on comparable tests on the CBCL and TRF. SCICA data from the general population are not available for comparison to normative data. However, SCICA T scores were derived from clinical samples, and

in this way represent clinical norms. Comparison of scores of referred children with clinical norms can be informative because they give us information on the position of an individual's scores relative to scores of individuals of the same sex and age group who were referred.

The SCICA was administered by a medical doctor, who had been trained by the authors (McConaughy and Achenbach) to administer and score the SCICA, and by a psychologist. These researchers were not acquainted with clinical diagnoses and other clinical data, nor with CBCL or TRF data. Hence, in the present study, CBCL, TRF, and SCICA information was obtained independently. SCICA ratings by the clinician were made without knowledge of parent or teacher information.

Outcome measures were assessed with a parent questionnaire that contained items on 1) receiving outpatient or inpatient mental health services at Time 2, 2) parents' wish for professional help regarding problems of the child at Time 2 (in case the child was still in treatment we took into consideration the parents' wish for more or alternative treatment), 3) school problems during follow-up (defined as problems relating to school other than learning problems, e.g., being suspended or expelled from school, truancy, violent behavior, misbehavior, and social problems), and 4) police/judicial contacts during the follow-up period. Each outcome variable was scored 0 if absent and 1 if present.

Statistics

Correlations between Time 1 SCICA and CBCL/TRF scale scores were computed.

To examine which behavioral and emotional problems, reported by different raters (parents, teachers, and clinicians), were predictive of poor outcome, logistic regression analyses were conducted. Raw scores of SCICA, CBCL, and TRF syndrome scales were used in the analyses (instead of dichotomized scores), in order to study the quantitative effect of syndrome scale scores on poor outcome.

Then, univariate logistic regressions were performed, in which Time 1 scores on SCICA syndrome scales, as well as age and sex, were entered as separate predictors, with poor outcome measures as dependent variables.

Subsequently, a second set, of forward stepwise analyses (using a significance criterion of $p < .05$), was performed, in which all candidate predictors from the first set of analyses that contributed significantly to the prediction of poor outcome were entered. The order of entry was based on the amount of variance found for each candidate predictor in the first set of analyses. In this way, we were able to identify predictors that predicted a poor outcome variable, independently of other predictors.

These two steps were repeated for CBCL and TRF syndrome scales, respectively.

Finally, all SCICA, CBCL, and TRF syndrome scales that remained significant in the second set of analyses were entered in one forward stepwise logistic regression analysis. In this way, we determined which scale scores, scored by which informant, were the most important predictors of a poor outcome variable, independently of scores on other scales.

Ethics

Each assessment phase of this study was approved by the Committee for Medical Ethics, Sophia Children's Hospital/Erasmus University Rotterdam. At each phase, informed consent was obtained from all individuals.

Results

Table 1 shows mean syndrome scores for parents (CBCL) and teachers (TRF), as well as percentages of children with CBCL or TRF problem scale scores above the 95th percentile of general population norms. Cutoffs were determined for each sex separately and were based on Dutch normative data (Verhulst et al., 1996, 1997b). Frequencies of poor outcome variables in the 96 children that were studied are shown in Table 2. Table 3 shows correlations between Time 1 SCICA and CBCL/TRF scale scores.

Table 4 shows the results of univariate logistic regression analyses, assessing the predictive value of each scale (as well as age and sex) separately.

Results in bold indicate predictors that remained significant in the second set of analyses. For instance, univariate analyses indicated that the SCICA syndrome scales Aggressive and Resistant significantly predicted parental wish for professional help at Time 2. In multivariate analyses, only Aggressive remained a significant predictor, with none of the other SCICA scales significantly adding to the contribution of the Aggressive scale to the prediction of wish for help.

Table 1 Mean CBCL, and TRF syndrome scores and percentages of children (total $n = 96$) with CBCL or TRF scores above the 95th percentile (deviant) at Time 1

Syndrome scale	CBCL		TRF	
	Mean	% deviant	Mean	% deviant
Withdrawn	5.5	46.9	4.2	17.7
Somatic Complaints	2.9	37.5	1.0	12.7
Anxious/Depressed	8.9	51.0	6.9	21.5
Social Problems	5.6	54.2	5.8	30.4
Thought Problems	3.1	49.0	2.1	34.2
Attention Problems	9.6	54.2	14.9	36.7
Delinquent Behavior	3.4	38.5	2.3	25.3
Aggressive Behavior	15.6	49.0	14.3	35.4

Table 2 Number of children (%) with poor outcome variables at Time 2 (total $n = 96$)

School problems	32	(33.3)
Police/judicial contact	6	(6.3)
Parent's wish for help	39	(40.6)
Outpatient treatment	34	(35.4)
Inpatient treatment	11	(11.5)

Table 3 Pearson correlations between SCICA and CBCL/TRF scale scores

SCICA scale	CBCL/TRF scales															
	Withdrawn		Somatic complaints		Anxious/depressed		Social problems		Thought problems		Attention problems		Delinquent behavior		Aggressive behavior	
	CBCL	TRF	CBCL	TRF	CBCL	TRF	CBCL	TRF	CBCL	TRF	CBCL	TRF	CBCL	TRF	CBCL	TRF
Anxious/depressed	-.06	-.06	-.11	.33**	.23*	.06	.29*	.20	.22*	.01	.14	.12	-.03	.11	.08	.12
Anxious	.02	.11	.04	.04	-.03	.19	.09	-.02	.09	.13	-.06	.10	.20	-.14	.28*	-.06
Family Problems	.11	-.09	.15	-.04	.24*	.04	.10	.10	.13	.05	.06	-.01	-.23*	.00	.17	.03
Withdrawn	.19	.14	.02	-.04	-.04	.09	.02	.00	-.05	-.03	-.09	-.16	-.12	-.07	-.10	-.09
Aggressive Behavior	-.02	-.11	-.05	.13	.12	.03	.25*	.26*	.20	.18	.28*	.34**	.55*	.36**	.38*	.39**
Attention Problems	-.04	.12	-.14	.08	-.08	.19	.15	.37**	.10	.21	.23*	.44**	.08	.17	.15	.35**
Strange	.01	.10	-.14	-.08	.01	.19	.09	.37**	.17	.29**	.18	.36**	.19	.29**	.16	.35**
Resistant	-.10	.03	-.04	.14	-.06	.14	.07	.42**	.14	.21	.17	.42**	.37**	.34**	.25*	.47**

Note: Significant correlations are denoted with * ($p < .05$) or ** ($p < .01$).

Table 4 Results of univariate logistic regression analyses of each scale (as well as age and sex) separately as predictor variable (all entries), and **multivariate** analyses (data in bold typeface) of scores within SCICA, CBCL, and TRF separately

Poor outcome	SCICA syndrome ^a	OR (95% CI) ^c	CBCL syndrome	OR (95% CI) ^c	TRF syndrome	OR (95% CI) ^c
Outpatient treatment ^b	Attention Problems (OB) Resistant (OB)	1.10 (1.02-1.18)* 1.05 (1.00-1.10)*	Social Problems Attention Problems Delinquent Behavior Aggressive Behavior	1.20 (1.05-1.37)** 1.11 (1.02-1.21)* 1.15 (1.01-1.32)* 1.06 (1.01-1.11)*	Aggressive Behavior Social Problems	1.05 (1.01-1.09)* 1.11 (1.00-1.24)*
Inpatient treatment	Attention Problems (OB)	1.13 (1.01-1.26)*	Social Problems Attention Problems	1.29 (1.05-1.58)* 1.16 (1.01-1.32)*		
Parent's wish for help	Aggressive (SR) Resistant (OB)	1.19 (1.07-1.32)** 1.06 (1.01-1.11)*	Delinquent Behavior Social Problems	1.21 (1.05-1.39)** 1.14 (1.00-1.30)*		
School problems	Resistant (OB)	1.06 (1.01-1.11)*	Delinquent Behavior	1.20 (1.04-1.38)**	Aggressive Behavior Delinquent Behavior	1.07 (1.02-1.11)** 1.20 (1.00-1.44)*
Police/judicial contacts	Anxious/Depressed (SR)	1.16 (1.01-1.34)*	Aggressive Behavior	1.10 (1.00-1.22)*	Social Problems	1.23 (1.00-1.51)*

Odds ratios (ORs) of univariate ($df = 1$) models are shown. ^aOB = SCICA Observation Scale; SR = SCICA Self-Report Scale. ^bMale sex predicted outpatient treatment; OR = 2.77; 95% confidence interval = 1.05-7.36. ^c95% CI = 95% confidence interval. Age did not contribute significantly in any analysis. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 5 Multivariate logistic regression analyses of SCICA, CBCL, and TRF syndrome scores as predictor variables

Poor outcome variable	Syndrome scales	Odds ratios (95% confidence interval)
Outpatient treatment T2	CBCL Social Problems	1.21* (1.03–1.41)
	TRF Aggressive Behavior	1.05* (1.01–1.10)
Inpatient treatment T2	SCICA Attention Problems (OB)	1.13* (1.01–1.27)
	CBCL Social Problems	1.29* (1.04–1.61)
Wish for help T2	SCICA Aggressive (SR)	1.19** (1.07–1.32)
School problems T2	TRF Aggressive Behavior	1.07** (1.02–1.11)
Police/judicial contacts T2	TRF Social Problems	1.23* (1.01–1.51)

Odds ratios are shown for multivariate models.

* $p < .05$; ** $p < .01$.

Results of the final multivariate analyses, in which syndrome scale scores that remained significant in the second set of analyses were entered, are shown in Table 5.

For example, the SCICA Resistant, CBCL Delinquent Behavior, and TRF Aggressive Behavior scales were entered in the final analysis for the prediction of school problems. The TRF Aggressive Behavior scale emerged as the only independent predictor. On the other hand, both predictors of inpatient treatment at Time 2 derived from the second sets of analyses (SCICA Attention Problems and CBCL Social Problems) remained significant predictors in the final analysis. Hence, they both contributed to the prediction of inpatient treatment independently.

Sex and age effects were not found, and are therefore not reported in the tables.

Discussion

The present study investigated the differential predictive value of parents', teachers', and clinicians' reports of childhood psychopathology for poor outcome across a 3-year interval in 96 six- to twelve-year-olds who visited a child psychiatric outpatient clinic. The value of the study is limited by the small sample size, which may possibly limit the generalizability of the study's findings, and by the fact that individuals were selected from one outpatient clinic, which will probably have resulted in referral bias. For instance, as described in the methods section, the study sample of children who had been referred to an academic outpatient clinic consisted of children with higher levels of psychopathology than in average mental health settings. However, despite these limitations, this study yields information on the value of clinicians' judgments of behavioral and emotional problems, compared to information from parents and teachers, and is the first to our knowledge that compared the validity of judgments of these informants using longitudinal data. Previous studies that assessed the validity of clinical observation versus verbal reports of a child during clinical interview in a longitudinal fashion are not available to our knowledge. Furthermore, findings regarding the differential predictive value of information from different informants were not limited by sample size,

because the power of the study was identical for parent, teacher, and clinician ratings.

It may be argued that sole reliance on parental information on outcome measures, instead of also gathering information from individuals themselves, may have yielded less valid information, because parents may not have been optimally acquainted with their child's functioning outside the family. However, Achenbach, Howell, and McConaughy (1995) conducted a follow-up study of a national sample across a 3-year period, with the aim of identifying predictors of poor outcome, as in the present study. They found that a combination of initial CBCL and YSR syndrome scores of children aged 11 to 15 years at initial assessment predicted poor outcome almost as well as CBCL syndrome scores alone. This shows that parents are valuable informants regarding at least part of behaviors that are associated with poor outcome. Hence, addition of self-report information would not change the results of the present study dramatically, although parent-child agreement reflected by concordance between CBCL and YSR scores in the Achenbach study does not rule out discrepancies regarding the prediction of poor outcome variables in the present study.

Reasons for informant differences

Several factors may be responsible for differences between CBCL, TRF, and SCICA scores. First, different observers may interpret and report similar behaviors in different ways, and second, children may display different behaviors in different situations (van der Ende, 1999). Third, differences in factor structure may result in differences between scale scores. CBCL and TRF factor structure are almost identical, so only two factors, informant differences or situation specificity of problems, can be responsible for CBCL-TRF discrepancies. However, although the factor structure of the SCICA is quite similar to the CBCL/TRF factor structures, even syndromes with the same name across instruments differ with respect to item content. For instance, although the Aggressive Behavior scale of the SCICA has nine items in common with its CBCL counterpart, five of its items are specific for the SCICA scale. Method variance is a fourth factor that may influence correlations between SCICA and CBCL/TRF scales.

The CBCL and TRF are structured questionnaires which are filled out by informants in a fixed order. In contrast, the SCICA is a semi-structured clinical interview, aimed at assessing problems in different important areas, such as school, family, and emotions. The interviewer may determine the order of questions and is allowed to add in extra questions, to clarify problems. After finishing the interview, the interviewer completes the scoring form, which contains items regarding reports and observations in a fixed format. Although it can be expected that information will be gathered on a number of important topics, not all individual items that should be scored afterwards should necessarily be asked during the interview. Despite this semi-structured approach, the SCICA is a reliable interview. However, it can be imagined that this method of data gathering, which differs to a great extent from the way CBCL and TRF information is gathered, may have yielded discrepancies between interview and questionnaire results.

Cross-sectional SCICA – CBCL/TRF correlations

Most cross-sectional correlations between SCICA scale scores and CBCL/TRF scale scores were low, or moderate. Most correlations did not even exceed the threshold for statistical significance, while only one correlation was high ($>.50$), according to Cohen (1988). More significant correlations were found for externalizing than for internalizing scales, which may indicate that differences between the judgment of the clinician and that of other informants exist, especially in the field of internalizing problems.

Generally, for externalizing problems, higher agreement was found between clinician and teacher than between clinician and parent. This may indicate that parents tend to judge externalizing problems in a different way, while clinicians and teachers may more often share their view of a particular child. Clinicians and teachers see many more children than parents do and, therefore, may develop their own 'internal norms' for judging the pattern and severity of an individual child's problems. This may be a reason why there may be more agreement between clinicians and teachers than between clinicians and parents.

Parent/teacher information may be more important than clinical judgment

Results of multivariate analyses (Table 5) indicate that SCICA scores were important predictors of inpatient treatment and parents' wish for help. However, information from parents and teachers was superior to clinical judgment regarding the prediction of prolonged outpatient treatment, school problems, and police/judicial problems. This indicates that no one single informant, not even a trained clinician, is superior to all others. On the contrary, parents and teachers, who are not trained in evalu-

ating psychopathology, may be more important informants in certain areas than a clinician (school problems, antisocial behavior). The findings tell us that clinical assessment should always be supplemented with information from parents and teachers.

Observation versus self-, teacher, and parent reports

In contrast to highly standardized DSM interviews, like the DISC (Shaffer et al. 1993), the SCICA was developed to obtain information regarding self-reports from the child during the interview, but also regarding observations made by the interviewer. The present study enabled us to investigate whether clinical observations are needed to obtain a better judgment of the child's functioning. Two of the five Observation scales of the SCICA predicted later functioning. The Resistant scale predicted outpatient treatment, parents' wish for help, and police/judicial contacts (Table 4). However, the Resistant scale did not show up in multivariate analyses of SCICA, CBCL, and TRF scores as an independent predictor (Table 5), which means that it did not add to information derived from other SCICA scales, or from parents or teachers. However, the Attention Problems Observation scale of the SCICA was needed to obtain an optimal estimation of the prognosis, even in the presence of self-reports during the SCICA interview, and information from teachers and parents. Apparently, observations of hyperactive behaviors during the interview were indicative of poor prognosis: insufficiency of outpatient treatment, and need for inpatient treatment.

Outpatient treatment

Clinicians' ratings on the SCICA, based on a clinical interview with a duration of about one hour, predicted all five outcome measures in the univariate analyses. SCICA scores on the Observation Scales Attention Problems and Resistant predicted usage of outpatient treatment at Time 2. A possible explanation for these findings is that children showing resistant behavior and/or inattention are more difficult to treat, not only because of the type of these problems, but also because of their unwillingness to be treated. SCICA scores, however, failed to be independent predictors in the final – multivariate – analyses in which all three informants were included, which reflects their association with behaviors reported by other informants, as can also be seen in Table 3.

Inpatient treatment

Usage of inpatient mental health services at Time 2 was predicted by both clinicians' (SCICA) and parents' (CBCL) reports on Attention Problems in the univariate analyses. Attention Problems observed by

the clinician resulted as an independent predictor in the final, multivariate, analysis. The observation of attention problems (e.g., 'doesn't concentrate or pay attention', 'doesn't sit still', 'fidgets') during the clinical interview appeared to be an important indicator of this serious outcome after three years. This is striking given the short observation period of these problems during a one-hour interview compared with the much longer exposure to these problems by parents. As described earlier, the SCICA was administered by clinicians who were not involved in the diagnostic and treatment process, which rules out direct influence of clinicians' observations on decisions about inpatient treatment. Apparently, the inability to comply with a clinical interview, and being unable to answer questions quietly and remain seated, is an important sign of treatment resistance. Hypothetically, extreme hyperactive behaviors, which can be observed even in a structured and orderly situation with only one other person present, may prevent the child from listening to the remarks of therapists or others during behavior therapy, or may be indicative of very severe attention problems that may hamper the child even more in complex situations.

Parent's wish for help

Parental wish for professional help for their child at Time 2 was independently predicted by clinician's ratings of self-reported aggressive behavior on the SCICA in multivariate analyses. The scale designated as Aggressive contains items such as 'reports attacking people', 'reports lacking guilt', and 'reports disobedience at home/at school'. Apparently clinicians' judgments of these behaviors are important, despite the short period on which observations are based, compared to parents' and teachers' judgments.

School problems

Teacher scores on the Aggressive Behavior scale were the only independent predictor of school problems in multivariate analyses. Despite sharing more than half the items of the TRF Aggressive Behavior scale, the SCICA self-report scale designated as Aggressive did not predict school problems. It may be hypothesized that children showing aggressive behaviors in school and who have school problems at follow-up might be reluctant to report such behavior during clinical interview. In other words, the present study suggests that, with respect to the prediction of later school problems, teachers are more important informants on aggressive behaviors than individuals themselves during clinical interview. This is supported by the results of a study of aggression in a middle-school sample of 139 children with a mean age of 12.8 years (Pellegrini & Bartini, 2000). Direct observations of youngsters' aggression were compared with indirect, diary measures of the same

behaviors kept by youngsters as well as with teachers' ratings of aggression. They found that the direct observations were related to teacher measures, while there was no relation between the self-report measures and observed aggression.

Because Table 3 shows a correlation of .39 between SCICA and TRF Aggressive Behavior scales, which is in accordance with a correlation of .44 found by McConaughy and Achenbach (1994) in their sample, it may also be argued that the lack of prediction of school problems by the SCICA scale Aggressive Behavior in the multivariate analysis is due to an overlap in variance of the SCICA and TRF scales. However, because a correlation of .39 indicates a shared variance of only 15%, this phenomenon is probably not solely responsible for our finding. According to Cohen (1988), a shared variance of 15% indicates a medium effect.

Police/judicial contacts

Police/judicial contacts were predicted by the CBCL Aggressive Behavior and the TRF Social Problems scales in univariate analyses. Remarkably (Table 4), the SCICA Anxious/Depressed Self-report scale also predicted this outcome. Apparently, the subgroup of 6- to 12-year-old children who were at risk for future police/judicial contacts tended to not report externalizing or social problems during a clinical interview, while they were capable of expressing their – seemingly concomitant – feelings of anxiety or depression, indicated by high scores on the SCICA Anxious/Depressed Self-report scale.

Outcome of internalizing versus externalizing problems

Whereas univariate analyses (Table 4) indicated that parental ratings – and for the outcomes of outpatient treatment and school problems also teachers' ratings – of externalizing behavior (Attention Problems, Aggressive Behavior, and/or Delinquent Behavior) predicted poor outcome, internalizing scales (Withdrawn, Somatic Complaints, Anxious/Depressed) of the CBCL and TRF did not predict any of the five outcome measures. This could mean that these internalizing problems are less persistent in a clinical sample over a three-year period or have fewer consequences for the child's overall functioning than externalizing problems. This is consistent with findings in other clinical samples (e.g., Stanger, MacDonald, McConaughy, & Achenbach, 1996). Heijmens Visser, van der Ende, Koot, and Verhulst (submitted) studied the change in levels of psychopathology, measured by standardized information from parents (CBCL), teachers (TRF), and youngsters themselves (YSR), in 1,652 4- to 18-year-olds referred to mental health services. They found highest stability for Delinquent Behavior for all three informants, with children displaying both delinquent

and aggressive behaviors at intake being at an increased risk of high levels of delinquent behavior after a mean interval of 6.2 years. An explanation for the lack of a relation between internalizing problems and later wish for help may be found in the fact that externalizing problems cause more distress to parents than internalizing problems, resulting in their continuing wish for help.

The general failure of internalizing syndromes to predict the outcomes that were assessed in the present study does not necessarily mean that internalizing problems have fewer consequences. They might predict other types of outcomes not assessed in this study, such as suicidal ideation, or social isolation. This is, for instance, supported by the findings of Ferdinand and Verhulst (1995), who found that high scores on the Withdrawn syndrome of the CBCL in a general population sample of Dutch adolescents predicted suicide attempts across an eight-year period.

Scores on the CBCL Social Problems scale, which contains items such as 'acts too young', 'does not get along with peers', 'clumsy', and 'teased', independently predicted outpatient as well as inpatient treatment after three years. High scores on the Social Problems scale of the CBCL might indicate more complex and difficult-to-treat psychiatric disorders, especially reflecting externalizing problems, given the predictive values of externalizing scales of the CBCL in univariate analyses. Parent-reported Attention Problems, Delinquent Behavior, and Aggressive Behavior, all significant predictors in univariate analyses, did not add significantly to the contribution of the Social Problems scale to the prediction of outpatient treatment after three years, indicating a relation between these externalizing scales and social problems. As noted above, it is known that externalizing problems tend to persist. The present findings suggest that this is especially true for those externalizing problems that are accompanied by problems in social functioning.

Conclusions

Information of all three informants considered (clinicians, parents, and teachers) predicted measures of poor outcome after three years, indicating that the judgments of all these informants are needed to obtain a comprehensive view on psychopathology.

The present study was the first that found that clinician's ratings of self-reported and observed behaviors in a semi-structured interview (SCICA) make an important and unique contribution to the multi-axial assessment of problem behaviors, based on longitudinal data.

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