Parent-adolescent disagreement regarding psychopathology in adolescents from the general population as a risk factor for adverse outcome

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ABSTRACT

This study investigated whether parent–adolescent disagreement regarding adolescents' behavioral and emotional problems predicted adverse outcome. A Dutch sample of 15- to 18-year-olds was prospectively followed across a 4-year interval. The Child Behavior Checklist (CBCL; Achenbach, 1991b) and Youth Self-Report (YSR; Achenbach, 1991d) were administered at initial assessment, and the following signs of poor outcome were assessed 4 years later: police/judicial contacts, expulsion from school/job, suicidal ideation, unwanted pregnancy, suicide attempts, deliberate self-harm, referral to mental health services, report of having a behavioral or emotional problem, and feeling the need for professional help without actually receiving help. Twenty CBCL syndrome scores, 23 YSR syndrome scores, and 16 discrepancy scores were significant predictors of poor outcome. It was concluded that to determine the prognosis of psychopathology in adolescents, discrepancies between informants may be important.

INTRODUCTION

Low agreement between different informants regarding psychopathology in children and adolescents is the rule, rather than the exception. It is widely acknowledged that multiple informants - parents, children themselves, and teachers - are needed to obtain a comprehensive view on psychopathology in children and adolescents. In their meta-analysis of 269 samples in 119 studies aimed at cross-informant agreement on childhood emotional and behavioral problems, Achenbach, McConaughy, and Howell (1987) found a mean correlation of .28 between scale scores reflecting behavioral and emotional problem scores obtained from different types of informants (e.g., parents vs. teachers), and of .22 between subjects and other informants. Since then, studies on inpatient, outpatient, and general population samples have confirmed these results (Cantwell, Lewinsohn, Rohde, & Seeley, 1997; Molina, Pelham, Blumenthal, & Galiszewski, 1998; Plück et al., 1997; Sawyer, Baghurst, & Clark, 1992; Sourander & Piha, 1997; Stanger & Lewis, 1993; Thurber & Snow, 1990).

Several authors have investigated which factors are associated with discrepancies between informants. Family factors, such as high family stress and high family conflict seem to be associated with higher parent-child disagreement (Grills & Ollendick, 2003; Kolko & Kazdin, 1993). Hypothetically, these factors might change the way parents perceive their child's behaviors/emotions. Other studies found that parental factors, such as low child acceptance and parental dysfunction (Kolko & Kazdin, 1993), and maternal depression and/or anxiety (Briggs-Gowan, Carter, & Schwab-Stone, 1996; Youngstrom, Loeber, & Stouthamer-Loeber, 2000) were associated with disagreement, whereas some, but not all, studies suggested that depression in mothers was associated with higher parent-child agreement (Richters, 1992). Factors within the child have also been investigated. Higher parent-child disagreement seems to be associated with older age (Handwerk, Larzelere, Soper, & Friman, 1999; Kolko & Kazdin, 1993), female gender (e.g., Kazdin, Esveldt-Dawson, Unis, & Rancurello, 1983; Sourander, Helstelä, & Helenius, 1999), and higher IQ (Kazdin et al., 1983). Furthermore, some authors found that compared with externalizing problems, internalizing problems were recognized poorly by parents (e.g., Kolko & Kazdin, 1993; Sourander et al., 1999), which confirmed results of the meta-analyses performed by Achenbach et al. (1987), who found that correlations between ratings from different informants were higher for "undercontrolled versus overcontrolled problems," although the differences were not large.

Although studies reporting associations between family, parent, and child factors, and parent-child disagreement regarding the presence or extent of psychopathology in the child are valuable, they are not informative about the way information from different informants should be weighed. Discrepancies between informants do not necessarily indicate that information from one or both is invalid (Achenbach et al., 1987). It probably

would be more logical to conclude that each type of informant provides specific information that may be valid in itself. Children may behave differently in different situations, but parents, children themselves, and teachers may also interpret similar behaviors in different ways. Furthermore, parents and teachers may be unaware of certain emotions the child feels but does not express. If parents and teachers are not aware of the child's behaviors or emotions, this does not necessarily indicate that information from parents and teachers is worthless or invalid. If parents or teachers are unaware, this may result in discrepancies that may reflect important information about the extent to which the child is able to obtain social support for emotional problems.

To date, several methods have been used to cope with differences in information from multiple informants. Mostly, a procedure is followed by which information from multiple informants is aggregated into one specific diagnosis. Because informants often disagree, this implies that information from some informants should be ignored. Often, to derive a specific diagnosis, a method is followed to weigh information from different informants, and to discard information from one informant in a well-considered way. Some authors have tried to determine superiority of one informant above another. For instance, Loeber, Green, Lahey, and Stouthamer-Loeber (1989, 1991) investigated boys with behavioral problems and concluded that parents and teachers provided better information on hyperactivity than children did themselves, whereas for conduct problems, teachers were less valuable informants than parents or children. Other authors have suggested that clinical judgment should be used to determine which information from which informant should be disregarded. For instance, the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL; Kaufman et al., 1997), requires that the interviewer decide whether a symptom is present or absent, even if parents and children disagree.

The approaches described above all have in common that information from multiple informants is aggregated in some way. However, few researchers have considered the possibility that differences between informants may reflect important information. In fact, clinicians tend to assign only one diagnosis, on the basis of information from different informants. The propensity of clinicians for reducing information was demonstrated by Jensen and Weisz (2002), who found that clinicians were likely to assign only one diagnosis to a child, even if standardized assessment procedures indicated the absence of a diagnosis, or the presence of more than one diagnosis. In current clinical practice, disagreement among informants is often considered a nasty problem, which needs to be resolved in a way that categorical diagnoses can be derived, regardless of the situation.

The usefulness of indices of informant disagreement has gotten little attention thus far. It can be hypothesized that disagreement between parents and children regarding the presence of psychopathology in the child may have clinical significance. As an example, in their book on empirically based assessment, Achenbach and McConaughy (1997)

mentioned that aggressive behavior reported by the teacher, and not by other informants, deserves a different treatment strategy than aggression reported by all informants. They did not provide empirical evidence for this hypothesis. The extent to which parents and children agree on the presence and type of problems might indeed affect their ability to pursue treatment goals together. Also, disagreement between parents and children on the presence of problems may be associated with family conflicts in general. This was supported by Grills and Ollendick (2003), who assessed 165 referred 7-to 17-year-olds with a semi-structured interview for a broad range of internalizing and externalizing DSM-IV (American Psychiatric Association, 1994) diagnoses. They found that higher disagreement regarding most types of psychopathology was associated with more family conflicts.

Another study by Yeh and Weisz (2001), on 361 referred 7-to 18-year-olds demonstrated that if parents reported an internalizing problem as the reason for referral, the probability of disagreement between parents and children regarding the reason for referral increased. Less disagreement between parents and children regarding referral reason was found if children themselves reported externalizing problems as the reason for referral. Hence, disagreement between parents and children regarding the severity of problems seemed to occur more often for internalizing versus externalizing problems. Yeh and Weisz (2001) stated the following:

"These findings suggest that consulting with the child may yield a better sense of shared parent-child goals for treatment than would asking the parents. (. . .) This finding is reminiscent of findings on behavior/emotion endorsement, where children have been viewed as better informants than parents." (Yeh & Weisz, 2001, p. 1024)

Although the study by Yeh and Weisz (2001) indicated that disagreement between parents and children may be associated with psychopathology type, in our opinion, it did not prove that children are better informants than their parents. Although diagnostic systems - or, parent and child information - may converge strongly, this still does not provide an absolute guarantee that these systems provide valid information, because both systems might be invalid. Similarly, although parents and children disagree on the presence of problems, this does not provide evidence that one informant is superior to the other. Despite disagreement, the information from both informants may be important, and even the degree of disagreement may have clinical validity in itself. To find out whether disagreement between informants has clinical validity, that is, is it important for determining prognosis or treatment choice, the predictive validity of information regarding disagreement between informants needs to be assessed. Hence, a longitudinal approach is needed.

One study found evidence regarding the predictive validity of parent-child disagreement regarding level of psychopathology. Kendall, Panichelli-Mindel, Sugarman, and Callahan (1997) reported that parent-child disagreement on anxiety, assessed with a structured interview, was associated with slower improvement during treatment for

anxiety disorder. This study, which was limited to children with anxiety disorders, was the first to provide information on the predictive validity of informant disagreement. To assess predictive validity, researchers often investigate whether diagnostic information predicts future signs of disturbance. For instance, Ferdinand and Verhulst (1995) found that high scores on the Child Behavior Checklist (CBCL) Anxious/Depressed scale (Achenbach, 1991b) among adolescents from the Dutch general population predicted referral for mental health services in young adulthood. The predictive validity of indices of parent-child disagreement might be assessed in a similar way. Studies that used this approach are, to our knowledge, not available.

Different discrepancies between informants might be predictive of different outcomes. First, parents may report more problems than children. This may indicate that the child denies, or does not recognize, certain problems, which may hamper parents and children in jointly searching for solutions. Second, children may indicate more problems than their parents. This may reflect parent-child combinations in which the child suffers from psychopathology while the parent is unaware of the problems, or judges the problems to be less severe than the child does. In the case of internalizing symptoms, if problems are indicated by the child but not by the parents, this may indicate that the child is not being supported adequately by his or her parents, which may be associated with a poor prognosis. Unawareness of parents of severe externalizing problems may reflect factors such as poor parental control or underestimation by parents, which may result in persistence of problems.

The aim of the present study was to assess the predictive validity of indices of parent-child disagreement regarding the presence of psychopathology. Only one type of predictive validity was assessed: the association between diagnostic information and prognosis. Information regarding informant disagreement was assessed in 15- to 18-year-olds from the Dutch general population and their parents with the Youth Self-Report (YSR) and CBCL. Subsequently, this information was used to predict future malfunctioning, indicated by signs of maladjustment.

METHOD

Ethics

Each assessment phase of this study was approved by the Committee for Medical Ethics, Sophia Children's Hospital and Erasmus University, Rotterdam, the Netherlands. At each phase, informed consent was obtained from all subjects who completed a questionnaire (parents and youths), after the procedure had been explained.

Sample

The original sample of 2,600 children aged 4-16 years, was randomly drawn from the Dutch province of Zuid, Holland in 1983 (Time 1). This sample was followed up at 2-year intervals across an 8-year period, in 1985 (Time 2), 1987 (Time 3), 1989 (Time 4), and 1991 (Time 5). The aim of the present study is to predict poor outcome variables from earlier psychopathology ratings by parents and youths. Psychopathology was assessed with the CBCL and the YSR (Achenbach, 1991d). For the present study, the Time 3 CBCL and YSR data of 15- to 18-year-olds were linked with data on poor outcome at Time 5, when subjects were 19-22 years of age. For those who were 15-18 years old at Time 3, and, thus, 19-22 years old at Time 5, Time 3 CBCL, Time 3 YSR, and Time 5 poor outcome data were available. Hence, these subjects and data were used for the present study. For other age groups, because of the design of the study, Time 3 CBCL data (for those who were > 18 years old at Time 3), Time 3 YSR data (for those who were < 11 years old at Time 3) or Time 5 poor outcome data (for those who were < 19 years old at Time 5) were not available. Only Time 3 CBCL and YSR data were used as predictors in the present study because at Time 1 and Time 2 (before 1987), a Dutch version of the YSR was not available. At Time 5, poor outcome variables were assessed with the Young Adult Self-Report (YASR), a self-report questionnaire for young adults, which was modeled on the YSR (Achenbach, 1997). Furthermore, indices of poor outcome were assessed via interview. For details on data collection, see Verhulst, Akkerhuis, and Althaus (1985), Verhulst, Berden, and Sanders-Woudstra (1985), and Ferdinand and Verhulst (1994).

The subsample used in the present study consisted of those who were 19-22 years old at Time 5, and, consequently, 11-14 years old at Time 1.

At Time 1, parents of 636 11- to 14-year-olds completed the CBCL (307 boys, 329 girls; numbers of 11-, 12-, 13-, and 14-year-olds: 160, 159, 159, 158, respectively). For these 636 subjects, 431 CBCLs (67.8%) and 433 YSRs (68.1%) were obtained at Time 3, and 483 YASRs (75.9%) were obtained at Time 5. To investigate whether the sample used in the present study was representative, a forward stepwise logistic regression analysis was conducted, with completion versus attrition as outcome, in which age, sex, and time CBCL internalizing and externalizing problems scores were entered simultaneously. For these analyses, we used only the data of Time 1 (in 1983) 11- to 14-year-olds, because other age groups were not used for the present study. This analysis indicated somewhat lower Time 1 CBCL externalizing problems scores (odds ratio = .95, $p < .001$) among those who completed the Time 3 and Time 5 measures (Time 3 CBCL and YSR, and Time 5 YASR completed, $n = 352$) versus those for whom not all questionnaires were available, whereas no differences were found in Time 1 CBCL internalizing scores. This indicated that the present study's sample was slightly less problematic than the initial sample.

Instruments

The CBCL. The CBCL is a parent questionnaire for assessing problems in 4- to 18-year-olds. The part of the CBCL that was used in the present study contains 120 items on behavioral or emotional problems experienced during the past 6 months. The response format is the following: 0 = *not true*, 1 = *somewhat or sometimes true*, and 2 = *very true or often true*. Summing the responses to each problem item derives the total problem score. The good reliability and validity of the CBCL were confirmed for the Dutch translation by Verhulst, Van der Ende, and Koot (1996). Across all CBCL narrow-band syndromes (see below) they reported average Cronbach's alphas for 12- to 18-year-old boys (n = 440, α = .65) and girls (*n* = 456, α = .65) who had been drawn randomly from the Dutch general population, and for 12- to 18-year-old boys (*n* = 328, α = .76) and girls (*n* = 254, α = .76) from an outpatient sample. They also reported large effect sizes (across all syndromes: *M* = 20) for analyses of variance (ANOVAs) that compared scores of referred and non-referred individuals. Kasius, Ferdinand, van den Berg, and Verhulst (1997) reported strong associations between CBCL syndrome scores and DSM–IV diagnoses, which were derived via standardized diagnostic interview in a Dutch outpatient sample of 6- to 16-year-olds (*n* = 261).

The YSR. The YSR was modeled on the CBCL and can be used to derive self-report ratings of behavioral and emotional problems. The YSR can be used for ages 11 and up, and is worded in the first person. Eighty-nine of the CBCL and YSR problem items are identical. Achenbach omitted from the YSR a few CBCL items on which others can better obtain information than can the subjects themselves (i.e., "talks during sleep"). The good reliability and validity of the Dutch YSR were supported by Verhulst, Van der Ende, and Koot (1997). Across all YSR narrow-band syndromes (see below) they reported average Cronbach's alphas for 15- to 18-year-old boys (*n* = 243, α = .61) and girls (*n* = 263, α = .67) who had been drawn randomly from the Dutch general population, and for 15- to 18-year-old boys (*n* = 141, α = .73) and girls (*n* = 178, α = .70) from an outpatient sample. They also reported effect sizes (across all internalizing syndromes: *M* = 13.3) (across all externalizing syndromes: *M* = 3.5) for ANOVAs that compared scores of referred and non-referred individuals. The effect size for externalizing was small, probably because externalizing problems are not an important reason for referral to mental health agencies in 15- to 18-year-olds. For an outpatient sample, Verhulst et al. (1997) also reported a Pearson correlation of .64 between the total problem score of the YSR and a total symptom score derived by the Clinical Assessment Schedule (Hodges, Kline, Stern, Cytryn, & McKnew, 1982), that was designed to yield DSM–III Axis I diagnoses.

Achenbach (1991a) constructed eight narrow-band "cross-informant syndromes" that were similar for both sexes: withdrawn, somatic complaints, anxious/depressed (together constituting the broad-band internalizing scale), delinquent behavior, aggressive behavior (together constituting the broad-band externalizing scale), social problems, thought

problems, and attention problems. A syndrome called self-destructive/identity problems was found only in self-ratings by boys. The cross-informant syndromes were empirically derived from parent reports (CBCL), self-reports (YSR), and teacher reports (TRF), in large clinical samples. The Teacher's Report Form (TRF; Achenbach, 1991c) is a teacher questionnaire that was based on the CBCL.

In the present study, the few CBCL/YSR syndrome items that are not similar for both informants were left out of syndrome scores. In this way, we derived CBCL/YSR syndrome scores that comprised the same syndromes, which enabled optimal comparisons.

Poor outcome variables. At Time 5, subjects were interviewed at home. During this interview, the following self-reported signs of poor outcome were assessed: (a) police/judicial contacts (n = 23), (b) expulsion from school/job (n = 14), and (c) suicidal ideation (n = 12) between Time 4 and Time 5, and (d) unwanted pregnancy (n = 9), (e) suicide attempts (n = 4), (f) deliberate self-harm (n = 4), (g) referral to mental health services (n = 16) between Time 3 and Time 5, and (h) report of having a behavioral or emotional problem (n = 54), and (i) feeling need for professional help without actually receiving help, as a result of not seeking help or not finding help despite seeking (n = 20) between Time 4 and Time 5.

Poor outcome variables were also derived from a few responses on the YASR (Achenbach, 1997). This is a questionnaire for young adults aged 18-30 that was used for Time 5 assessment. The YASR was modeled on the YSR, and has the same format. The good reliability and validity of the YASR in American young adults (Achenbach, 1997) have been replicated in Dutch young adults (Wiznitzer et al., 1992). For the present study, we used the YASR questions on alcohol, tobacco, and drug use as indices of poor outcome. In the YASR, alcohol use is quantified as the number of drinks per week in the past 6 months, tobacco use by the number of cigarettes a day, and drug use by the number of times that drugs were used in the past 6 months. To identify subjects who clearly used more substances than average, we computed cumulative frequency tables for each type of substance use (alcohol, tobacco, drugs). Subjects who scored above the 90th percentile (P90) were considered as deviant (alcohol: > 7 drinks a week [n = 34]; tobacco: > 20 cigarettes a day [n = 21]; drugs: > 1 time in 6 months [n = 36]).

RESULTS

In Table 1, Pearson correlations between CBCL syndromes and their YSR counterparts are presented for the entire sample, and for each sex separately. These correlations can be used to interpret results of regression analysis. The higher the correlations between CBCL and YSR syndromes, the less likely CBCL and YSR syndrome scores will constitute independent predictors of poor outcome at follow-up. Furthermore, if these correlations are

high the probability of informant disagreement, and therefore, the chance that informant disagreement effects will take place declines.

Table 1. Correlations Between Time 3 CBCL and Time 3 YSR Scores

	Pearson correlation		
Syndrome	**Entire sample**	**Boys**	**Girls**
Withdrawn	.50	.40	.53
Somatic Complaints	.53	.38	.56
Anxious/Depressed	.46	.26	.52
Social Problems	.48	.40	.54
Thought Problems	.27	.08 ns	.38
Attention Problems	.46	.47	.45
Delinquent Behavior	.52	.51	.44
Aggressive Behavior	.53	.55	.52

Note. CBCL = Child Behavior Checklist; YSR = Youth Self-Report. All correlations were significant at $p < .001$, except ns.

To determine which types of behavioral or emotional problems were predictive of poor outcome, we performed forward stepwise logistic regression analyses (likelihood ratio tests were used for adding a candidate predictor to a model), with a specific poor outcome as the dependent variable. Significance levels indicated in Table 2 reflect Wald tests. Only data from subjects for whom Time 3 CBCL and YSR data, and Time 5 data regarding poor outcome were available, were used for these analyses. First, a set of eight forward stepwise regression analyses was conducted, in which Time 3 scores on the eight narrow-band CBCL syndromes - together with age and sex - were entered as eight separate predictors, and with alcohol use as a dependent variable. Similar sets of analyses were performed for other poor outcome variables. CBCL syndrome scores were recoded into categorical variables, by dividing subjects into those who scored equal to or below the 90th percentile (P90) of the cumulative frequency distribution of a syndrome score (based on the entire sample of the present study), and those who scored above P90 (0 = < P90; 1 = > P90), before entering them into regression analyses. Subsequently, forward stepwise analyses were performed in which recoded Time 3 YSR syndrome scores were entered into regression analyses, in a manner similar to CBCL syndrome scores.

In Table 2, results of regression analyses are presented. For instance, the table shows which predictors were associated with drug use at Time 5. Parents' CBCL scores on somatic complaints, attention problems, and delinquent behavior predicted this sign of poor outcome. The odds ratio for delinquent behavior indicates that the probability of drug use in young adulthood was 2.94 times higher in those adolescents who were scored above the 90th percentile on delinquent behavior at Time 3, versus those who were scored

Table 2. Odds Ratios for Child Behavior Checklist (CBCL), Youth Self-Report (YSR) and Discrepancy (DIS) Scores at Ages 15 to 18 of Self-Reported Poor Outcome at Ages 19 to 22

	Withdrawn	Somatic Complaints	Anxious/ Depressed	Social Problems	Thought Problems	Attention Problems	Delinquent Behavior	Aggressive Behavior
Outcome	**C/Y/DIS**	**C/Y/DIS**	**C/Y/DIS**	**C/Y/DIS**	**C/Y/DIS**	**C/Y/DIS**	**C/Y/DIS**	**C/Y/DIS**
Police/judicial contacts	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/**8.78**[a]	-/-/-
Expulsion from school/job	-/-/-	-/-/-	-/-/-	**7.35**/-/-	-/-/-	5.36/4.45/**8.47**[a]	-/-/-	-/-/-
Suicidal ideation	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-
Unwanted pregnancy	-/-/-	-/7.88/-	-/-/-	**10.12**/-/-	-/-/-	7.53/-/-	-/-/-	8.91/-/16.71[a]
Suicide attempts	-/-/-	-/-/-	-/-/-	-/**17.55**/-	-/-/-	-/-/-	-/-/-	-/-/-
Deliberate self-harm	-/**20.54**/-	-/8.00/-	-/8.97/14.15[b]	-/-/-	-/8.46/16.09[b]	-/-/-	-/-/-	-/-/-
Referral to mental health services	3.48[d]/6.48/5.74[b]	8.13/5.33/8.27[b]	-/**11.92**/7.97[b]	-/9.73/4.30[b]	3.88/-/-	-/6.48/**8.07**[b]	4.37/-/**5.84**[a]	-/-/-
Behavioral/emotional problem[c]	-/**4.06**/-	**3.46**[d]/3.56[d]/4.74[a]	2.85[d]/4.13/3.37[b,d]	-/3.59[d]/-	2.48[d]/**3.14**[d]/-	-/3.48[d]/-	**3.16**[d]/3.38[d]/-	-/-/-
Need for help without receiving help	-/-/-	**4.43**/-/-	-/3.79[d]/-	-/-/-	**3.57**[d]/-/-	-/-/-	-/3.71[d]/**4.38**[b]	-/-/-
Alcohol use[e]	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/**3.00**[d]/-	-/-/-
Tobacco use[f]	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	**4.98**/-/5.54[a]	**5.07**/8.82/-	-/-/-
Drug use[g]	-/-/-	**3.95**[d]/-/-	-/-/-	-/-/-	-/-/-	2.88[d]/-/-	2.94[d]/-/-	-/-/**5.47**[a]

Note. Results in bold indicate predictors that were significant ($p < .05$), independently of other predictors (second set of analyses). Dashes indicate statistically nonsignificant effects. C = CBCL; Y = YSR.

[a] Prediction of poor outcome if parents indicated considerably more symptoms than youth. [b] Prediction of poor outcome if youths scored considerably higher than parents for a specific syndrome. [c] Odds for females higher than for males (2.21, $p < .05$). [d] Odds ratios that were not significant after correction for chance findings. [e] Odds for males higher than for females (8.31, $p < .001$). [f] Odds for older age higher than for younger age (2.57, $p < .05$). [g] Odds for males higher than for females (2.98, $p < .05$).

below the 90th percentile. Similarly, compared with those who scored themselves below P90, deviant scores on the delinquent behavior scale of the YSR at Time 3 were associated with an 8.82 times higher chance of tobacco use at follow-up.

Next, continuous YSR syndrome scores were subtracted from continuous CBCL syndrome scores. Thus, scores on the YSR syndrome withdrawn were subtracted from scores on the CBCL syndrome withdrawn, and so on for the other scales. In this way, discrepancy scores were derived for each scale. After calculating a frequency distribution for the discrepancy scores, these scores were recoded into 0 (equal to or below 10th percentile), 1 (above 10th percentile, equal to or below 90th percentile), or 2 (above 90th percentile). In this way, individuals were divided into 3 groups: (a) adolescents who reported much more problems than their parents, (b) parents and adolescents with scores in the same range, and (c) parents who reported much more problems than their adolescent children. These discrepancy scores were entered into similar sets of logistic regression analyses as separate CBCL or YSR scores. In this way, the predictive power of discrepancy scores for future maladjustment was computed. By computing extra contrast effects (a) between those who scored 0 and those who scored 1, and (b) between those who scored 2 and those who scored 1, we were able to assess which type of discrepancy was important: youths reporting more problems than their parents, or parents reporting more problems than their children.

The discrepancy scores (DIS; see column Table 2) indicate the difference between scores from the parent (CBCL) and the adolescent (YSR) on a CBCL/YSR syndrome. In the following text, P > Y indicates that higher parents' versus adolescents' scores were associated with poor outcome, whereas Y > P indicates the reverse: if adolescents scored considerably higher than their parents they were at higher risk for poor outcome. For instance, it is shown that if parents reported much more aggression than their child, the risk for drug use in young adulthood increased 5.47-fold. The significant results from the first three sets of regression analyses, (a) CBCL syndrome scores, (b) YSR syndrome scores, and (c) discrepancy scores, were entered simultaneously in a final set of forward stepwise logistic regression analyses, with age and sex as covariates. In this way, we identified predictors that predicted an outcome variable, adjusted for other predictors in the analysis. For instance, results in bold in Table 2 indicate that the most parsimonious model for prediction of Time 5 drug use included CBCL somatic complaints scores, and discrepancy scores on aggressive behavior. These predictors predicted young adult drug use, independently of other predictors. In other words, if CBCL somatic complaints scores and discrepancy scores on aggressive behavior are known, scores on the CBCL scales attention problems and delinquent behavior, which constituted significant predictors of drug use in the first set of regression analyses, do not contribute to more accurate prediction of adverse outcome, in terms of drug use in adulthood.

Age and gender effects that were present in the aggregate regression analyses (or, if aggregate analyses were not performed in the first set of regression analyses) are presented in the note to Table 2. For instance, the odds ratio for alcohol use of 8.31 indicates that males were 8.31 more likely to use large amounts of alcohol at Time 5. This effect occurred independently of scores on CBCL or YSR scales at Time 3, hence, in this case, independently of scores on the YSR scale delinquent behavior, for which an odds ratio of 3.00 was found.

As a result of the large number of regression analyses (3 X 8 X 12 = 288 in the first set of analyses), multiple comparison effects may have yielded too many statistically significant results. Therefore, we indicated in Table 2 which findings were most likely to have occurred by chance. According to Sakoda, Cohen, and Beall (1954) using a .05 protection level, when 288 analyses are being performed, 18 analyses are likely to constitute chance findings. We indicated the 18 analyses yielding the smallest effects in Table 2.

DISCUSSION

The present study investigated whether assessment of discrepancies between parents and youths regarding information on psychopathology in youths is useful for determining the prognosis of psychopathology. For this purpose, it was determined whether information regarding discrepancies between informants added to the predictive power of CBCL and YSR alone. Initial scores were obtained from 15- to 18-year-olds from the Dutch general population. At follow-up, 4 years later, signs of poor outcome were assessed. Thus far, information on the validity of disagreement scores is practically lacking, although it can be hypothesized that such information is important. In the present study, informant discrepancy effects were assessed, indicating the significance of considerable disagreement between informants for the prognosis of psychopathology. The present study indicates that discrepancies between informants constitute important risk factors for adverse development. CBCL-YSR discrepancy scores of adolescents predicted a wide range of poor outcome variables: drug use, tobacco use, police/judicial contacts, expulsion from school/job, unwanted pregnancy, deliberate self-harm, need for professional help, referral to mental health services, and reports of having a behavioral or emotional problem.

To assess the importance of discrepancy scores, we computed their predictive power. Twenty CBCL syndrome scores, 23 YSR syndrome scores, and 16 discrepancy scores were significant predictors of poor outcome in the first set of regression analyses. These results underscore the relevance of discrepancy scores. However, theoretically, a large effect of a CBCL syndrome score in combination with very small or absent effects of the concurrent YSR syndrome, may result in a significant discrepancy score. For instance (Table 2), deviant CBCL delinquent behavior scores, and delinquent behavior discrepancy

scores, predicted future referral to mental health services. This might merely indicate a highly predictive effect of CBCL delinquent behavior scores, irrespective of YSR scores. Therefore, it is important to compare effects of the three types of predictors - CBCL, YSR, and discrepancy scores - in their ability to predict poor outcome irrespective of other predictors. In Table 2, it is shown that nine CBCL syndrome scores, six YSR syndrome scores, and six discrepancy scores remained significant in the final set of analyses. Hence, predictive power of discrepancy scores was not merely an epiphenomenon of effects of single-informant CBCL or YSR scores. Instead, discrepancy scores were as important as separate CBCL and YSR syndrome scores for the prediction of poor outcome. In some standardized interview procedures (e.g., Kaufman et al., 1997), interviewers are forced to decide whether a symptom is present or absent, even if parents and children provide discrepant information. The present study indicates that this type of procedure may yield loss of valuable information, which may even concern the severity of psychopathology, because some discrepancies between informants were associated with a worse prognosis.

Comparison of Predictive Power: Additive Effects and Discrepancy Effects

The results shown in Table 2 make clear that sometimes information obtained from one informant becomes more useful if information from the other informant is also available. Hence, an additive effect may occur. For instance, an additive informant effect for the prediction of the feeling of having a behavioral or emotional problem was found for CBCL scores on somatic complaints, and YSR scores on thought problems. Final regression analyses indicated a worse prognosis if both scores, instead of only one, were above the 90th percentile.

Similarly, discrepancy effects may enhance the value of information obtained by one informant. The attention problems discrepancy score was an important predictor of future use of mental health services, and remained significant in the final set of analyses, whereas none of the CBCL scales that were significant in the first set of analyses remained significant. Hence, information obtained via the CBCL became more important by combining CBCL and YSR data.

Explanations for Informant Discrepancy Effects

Several factors may be responsible for discrepancy effects. *P > Y - discrepancy effects* indicate that more problems are reported by parents than by adolescents themselves. Poor prognosis in these adolescents may result from different definitions of problems by parents and adolescents. Parents may confront the adolescent with problems that the adolescent denies or does not recognize. It may be argued that parents' tendency to exaggerate minor problems may constitute another explanation. However, it is not very likely that, for instance, exaggeration of delinquent behaviors by parents explains the associa-

tion found between P > Y - discrepancy scores for delinquent behavior in adolescence, and police/judicial contacts in young adulthood.

Y > P - discrepancy effects may indicate that parents' unawareness of their adolescents' problems is a risk factor for some kinds of adverse development. Withdrawal from familial contacts, and a tendency not to seek help from family members may explain these effects. For instance, youths who reported considerably more delinquent behaviors than their parents were at risk for feeling the need for professional help, without actually receiving help in young adulthood. Alternatively, Y > P - discrepancy effects may also be explained by parental disinterest, or inability to recognize problems in their children. This might also result in adverse development. For instance, Y > P - discrepancy for anxious/depressed predicted the feeling of having a behavioral or emotional problem in young adulthood. Apparently, adolescents who indicate problems with anxiety or depression that their parents are not aware of, have a poor prognosis, and still indicate behavioral/emotional problems 4 years later. This is in accordance with the study by Kendall et al. (1997), who found that parent-child disagreement was associated with slower treatment results in anxious children.

Emotional Versus Behavioral Problems

CBCL and YSR syndromes can be divided into syndromes reflecting emotional problems (withdrawn, somatic complaints, anxious/depressed) and syndromes indicating behavioral problems (attention problems, delinquent behavior, aggressive behavior). A similar subdivision can be made for signs of poor outcome in young adulthood. Suicidal ideation/attempts, deliberate self-harm, referral to mental health services, and feeling the need for professional help reflect emotional problems, whereas police/judicial contacts and expulsion from school/job indicate behavioral problems. It is remarkable that discrepancy effects for behavioral problems in adolescents predominantly predict behavioral problems in young adulthood. If parents reported more delinquent behavior and attention problems than their children, the risk for police/judicial contacts and expulsion from school/job, respectively, increased. Loeber et al. (1989, 1991) concluded that parents and teachers provide better information on hyperactivity than children themselves, which might easily result in sole reliance on parents and teachers to assess hyperactivity. The present study indicates that it is probably more accurate to not judge information regarding hyperactivity from different informants in terms of better, or worse. Information regarding hyperactivity from adolescents themselves helped to improve estimation of the prognosis, because information from single informants regarding the attention problems scale proved to be less useful than discrepancy effects to estimate the prognosis. Therefore, information from both sources seems to be needed.

In contrast, the majority of discrepancy effects that predicted future emotional problems were Y > P - discrepancy effects. Previous studies found that internalizing problems

are recognized poorly by parents (e.g., Kolko & Kazdin, 1993; Sourander et al., 1999). The present study indicates that if adolescents report considerably more emotional problems than their parents (possibly as a result of poor recognition by parents), the risk for persistence of emotional problems in young adulthood may increase.

Whereas, in their clinical study, Yeh and Weisz (2001) found that disagreement between parents and children occurred more often for internalizing versus externalizing problems, the present study found that clinically significant discrepancies between parents and adolescents that were associated with poor prognoses were almost equally distributed across the internalizing and externalizing problem areas. The average number of discrepancy effects was 2.00 for the syndromes covering emotional problems, and 2.66 for the syndromes reflecting behavioral problems. The difference between the Yeh and Weisz versus the present study may be associated with referral biases, because referral processes might be effected by the extent of agreement between parents and children regarding the presence of problems.

Clinical Implications of Discrepancy Effects

The finding that discrepancy effects are important signs of a poor prognosis underscores the need for information from different informants in clinical practice. Also, it is clear that certain information from one kind of informant becomes most relevant when information from the other kind of informant is taken into account. Apparently, if informants disagree, assessment and diagnosis of child psychopathology should include more than trying to determine which informant is "right". Instead, it might be helpful to consider information regarding discrepancies between informants as possibly useful, and of clinical significance.

Discrepancies and concordance in information from multiple informants may both be important for treatment issues. For instance, the present study indicates that adolescents who do not report aggressive behaviors, while their parents do, are at risk for substance use. In a treatment environment, special therapy modules might be warranted for these adolescents. First, prevention of drug use would deserve special attention. Second, attention would be needed for parent-child communication about the adolescent's aggressive behaviors, and for getting to a problem definition that is shared by parents and child. Hence, compared with a situation in which parents and adolescent would agree about the presence or absence of problems, a different clinical approach might be needed. Future studies are needed to test this type of hypotheses in treatment outcome research.

Strengths and Limitations of the Present Study

One strength of the study is that the validity of information from parents and adolescents themselves, derived via standardized assessment procedures, was assessed in an epidemiological sample, which was, by its selection, not affected by referral biases. Multiple

indices of poor outcome, covering a broad range of signs of malfunctioning that reflect internalizing and externalizing problems, were used. This constitutes another strength of the study because it provided a multiple-angle view on the validity of multi-informant information. The fact that some indices of malfunctioning, such as substance use or suicide attempts, that might be considered important predictors of similar behaviors in the future were not assessed at initial assessment, and can be regarded as a weakness of the study. However, this was a relatively minor drawback, because the major aim of the present study is to compare the differential predictive validity of multi-informant data, rather than to identify optimal predictors of future poor outcome. The fact that information about poor outcome was obtained from the young people themselves, and not from their parents, may be regarded as a disadvantage. Ideally, to compare the predictive power of CBCL and YSR scores, parent and self-reports of poor outcome should be used to reduce the probability that YSR scores would have a stronger predictive power than CBCL scores as a result of informant bias at follow-up. However, parent information on poor outcome at follow-up was not assessed in the present study, and therefore could not be used.

It may be argued that the present study has yielded too many positive results, given the large number of analyses. However, after correction for chance findings, 15 out of 16 of the discrepancy effects remained positive, and 17 out of 18 possible chance findings concerned effects of separate CBCL or YSR syndrome scores (Table 2). Furthermore, as argued by Rothman (1990), instead of adjusting for multiple comparisons, it would be far better if a new study would be performed to test if the findings are stable across studies, countries, samples, assessment procedures, et cetera.

Implications for Future Research

Because the present study appears to be the first to assess the predictive validity of CBCL–YSR discrepancy scores, replication studies in other samples are needed. Furthermore, future studies should use similar informants at initial assessment and at follow- up, to rule out informant bias effects. Also, because teachers are regarded as an important source of information (Achenbach, 1991c; Verhulst & Akkerhuis, 1986; Verhulst, Koot, & Van der Ende, 1994), future studies should include teacher data.

Use of the CBCL and YSR in clinical practice may result in a detailed profile of agreement and disagreement between different informants. For some problem dimensions, agreement may exist, whereas in other areas disagreement may be present. Future research is needed to investigate consequences of informant disagreement for choice of treatment. In case of informant disagreement in specific areas, extra treatment modules, or modification of treatment might be needed.

The present study demonstrates that assessment of informant discrepancy may be important for estimation of the prognosis of psychopathology. However, it remains unclear which mechanisms are responsible for the findings. Future prospective longitudinal stud-

ies, aimed, for instance, at the interactions between informant discrepancies and family conflict, parent-child communication, parental awareness of adolescents' feelings, and the ability of adolescents to share information about their behaviors and emotions with their parents, are needed to unravel these mechanisms.

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