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Prediction of Children's Referral to Mental Health and Special Education Services from Earlier Adjustment

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Abstract—The 4-year stability in problem behaviors assessed with the Child Behavior Checklist (CBCL), and their predictive validity with regard to poor outcome variables was studied in 1052 4–12-year old children from a general population sample. Irrespective of sex and age, the scores on the CBCL of some 44% of the children remained above the 90th percentile over the 4-year time interval. Externalizing problem behavior tended to show somewhat greater stability than internalizing problem behavior. High initial levels of both internalizing and externalizing problems, and persistence of problems were predictive of referral to mental health services. Referral to special education was higher for younger boys with high initial attention problems and school problems. Police contacts occurred more often in older boys with high initial aggression scores.

Keywords: Referral of children, parent ratings, problem behavior, longitudinal prediction

Introduction

Information on the stability of problem behavior in children across time is important to assess which early problems predict later psychopathology, to evaluate the necessity and efficacy of prevention and intervention programs, and to assess the validity of diagnostic constructs in terms of outcome. For clinical practice, it may be of particular interest to know whether the children from the general population who are most deviant at the first time of assessment will remain the most deviant or will be those children with the biggest chance of having a poor outcome at the next time of assessment.

A number of prospective studies have investigated the course of problem behaviors in children from the general population using parent and/or teacher reports (Douglas, Ross & Simpson, 1968; Fischer, Rolf, Hasazi & Cummings, 1984; Gersten, Langner,

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Eisenberg, Simcha-Fagan & McCarthy, 1976; Ghodsian, Fogelman, Lambert & Tibbenham, 1980; Graham & Rutter, 1973; Havighurst, Bowman, Liddle, Matthews & Pierce, 1962; Macfarlane, Allen & Honzik, 1962; Richman, Stevenson & Graham, 1982; Rutter, Graham, Chadwick & Yule, 1976; Shepherd, Oppenheim & Mitchell, 1966; Stevenson, Richman & Graham, 1985; Verhulst & Althaus, 1988; Verhulst, Koot & Berden, 1990a). From these the following general conclusions may be drawn: about 50% of the deviant children remain deviant 2–5 years later; externalizing problems are somewhat more stable than internalizing problems; problem behavior seems to be more stable in boys than in girls, especially at young age, but this may be an artifact of the higher prevalence of externalizing behaviors in young boys, which are more stable; behavior problems become more stable with increasing age; externalizing problems seem somewhat predictive of later school dropout and antisocial behavior.

Most of the existing studies on the stability of problem behavior in children were limited by factors such as the restriction of the sample to a single locality or the use of selected samples; large sample attrition; the use of different assessment instruments at different times; and the use of very broad categories of functioning. In two recent follow-up studies (Verhulst & Althaus, 1988; Verhulst *et al.*, 1990a) such limitations were not present. Using the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) to obtain parents' reports of problem behavior, high stability was found for both internalizing and externalizing problems in a general population sample including more than 80% of the original subjects. In the only other follow-up study of a general population sample in which the CBCL was used at follow-up but not at initial assessment (Fischer *et al.*, 1984) externalizing problems were more stable than internalizing problems. This study, however, only included preschool children.

In clinical practice it is important to know to what extent particular problems are predictive not only of later problem behavior but also of other indices of maladjustment. Referral to mental health services and to special education services, suicide attempts, police contacts and conflicts with teachers which lead to expulsion from school may be other valid indicators of maladjustment. To our knowledge, however, no study addressed the longitudinal relation between severity of problem behavior and later referral to mental health and special education services. Only a few general population studies addressed the relation between problem behavior and later police contacts (e.g. Farrington, Gallagher, Morley, Ledger & West, 1986; Pulkkinen, 1988).

In the present study a representative sample of 4–12-year old children from the general population was followed up over a 4-year period using parental reports on problems and on other indices of maladjustment. The aims of the study were: (1) to test to what extent the most deviant children at the first time of assessment would remain the most deviant at follow-up; (2) to test to what extent high levels of problem behavior are predictive of later maladjustment over a 4-year period; (3) to test whether different types of problem behavior have different predictive value with regard to later maladjustment; (4) to test to what extent predictability of maladjustment is related to demographic variables (sex, age, and socioeconomic status); and (5) to explore why some children with problems at the first time of assessment do not come to treatment in mental health or special education services.

Method

Subjects

The original general population sample of children aged 4–16 years was drawn in 1983 from the Dutch province of Zuid-Holland. Using municipal birth registers that list all residents, a random sample was drawn of 100 children of each sex and age with the Dutch nationality ($N = 2600$). Parents of the selected children were interviewed by previously trained interviewers, and answers were recorded on a machine readable form. Of the 2447 parents reached, 2076 (84.8%) provided usable data (see Verhulst, Akkerhuis & Althaus, 1985a, for more details on the sampling and data collection procedure).

Data were obtained in 1983 (Time 1), 1985 (Time 2), and 1987 (Time 3). For the present follow-up study (Time 3), 1464 children were selected who belonged to the age groups 4–12 years in 1983, because the parental reports on children's problems behaviors are only validated up to the age of 16 years. Parents were interviewed using the same procedure at Times 1 and 3. At Time 2 data were collected employing a mailing survey, resulting in the selective exclusion of a group of especially problematic children. Therefore, in this paper only Times 1 and 3 data will be reported. Usable data were obtained for 1200 of the 1461 now 8–16-year old children (581 boys, 619 girls). The response rate was 82.8%, corrected for 10 children who were known to have moved abroad and five others who could not be traced. Socioeconomic status (SES) was scored on a six-step scale of occupation as reported by the parent (Van Westerlaak, Kropman & Collaris, 1975). Three SES categories were formed: (1) unskilled and skilled manual employees; (2) clerical, technicians, minor professionals, and owners of small businesses; (3) supervisory, lesser professionals, executives, major professionals, and owners of large businesses.

Measures

Problem behavior and competence. The CBCL (Achenbach & Edelbrock, 1983) was used to obtain standardized parents' reports of children's problem behavior and competencies. The CBCL is self-explanatory, enabling most parents or others who know the child well to complete it independently in 15–30 minutes. Its good reliability and discriminative validity established for American samples were confirmed in our own studies (Verhulst *et al.*, 1985a; Verhulst, Berden & Sanders-Woudstra, 1985b).

The CBCL consists of 20 competence items and 118 items concerning problem behavior. The competence items are summed in the following three scales: *Activities* scale, *Social* scale, and *School* scale. The three scale scores were summed to give a *total competence* score as outlined by Achenbach and Edelbrock (1983). The 118 problem items describe a broad range of problems that are of concern to parents and clinicians. Parents are requested to circle a 0 if the item is *not true* for the child, a 1 if the item is *somewhat* or *sometimes true*, and a 2 if it is *very true or often true*. A *total problem* score is calculated by summing 0s, 1s and 2s for those 118 items. The higher the total problem score, the higher the level of disturbance of the child.

Achenbach and Edelbrock (1983) have constructed empirically derived syndromes by factor analysing parents' ratings of large samples of children referred to mental health agencies. Analyses were performed for both sexes and age groups 4–5, 6–11, and 12–16. For each sex- and age-group, the authors computed the two broad-band factors Internalizing and Externalizing. For these syndromes an *Internalizing* score and an *Externalizing* score were calculated by summing the scores on the items they comprise. The authors also calculated for each sex- and age-group several narrow-band factors. A problem, however, with regard to the analysis of longitudinal data is that the longer the time interval between two times of assessment, the more children will move out of their original age category into a category for which somewhat different syndrome constellations were reported. Therefore, we used so-called "core syndromes" constructed by Achenbach, Conners, Quay, Verhulst and Howell (1989). These core syndromes consisted of items that were common to most syndromes across different sex/age groups. They were derived by factor analysis on four sets of parents' ratings of 8194 6–16-year olds referred to American and Dutch mental health services. The names of these core syndromes summarize the items comprising each of the scales. There are seven core syndromes across both sexes and ages 6–16: *Aggressive, Anxious/Depressed, Attention Problems, Delinquent, Schizoid, Somatic Complaints,* and *Withdrawn.* One syndrome, *Socially Inept,* was found only for boys, while another, *Mean,* was found only for girls. A score for each of these syndromes was calculated by summing the scores of the items they comprise.

Outcome. At Times 2 and 3 the parents' reports about the occurrence of one or more of the following items were obtained: (a) referral to mental health services; referral to residential school or home for psychosocial reasons; (b) referral to special education services (excluding counseling for choice of secondary school level); (c) trouble with the police (arrest or adjudication, excluding traffic violations) or expulsion from school. If an item applied to the child in the period between Times 1 and 3 the item was scored as present. Subjects for whom such information was not available over the first 2 years of the study were excluded from the analysis on outcome variables; i.e. these analyses were done on 1052 of the 1200 subjects.

Results

Stability and change

Categories were formed of children scoring in the low, medium, or high range of the total problem score, of the broad-band syndromes Internalizing and Externalizing, and of the scores on the core syndromes Aggressive, Attention Problems, Anxious/Depressed, and Withdrawn at Times 1 and 3. The 50th and 90th percentiles for each sex and age group of the cumulative frequency distributions of the total problem and syndrome scores were chosen as cut-off points. It was not possible to determine similar cut-off points for the syndromes Delinquent, Schizoid and Somatic Complaints.

Table 1. Distribution (%) of total problem score group at Time 3 by total problem score group at Time 1

	Time 3 group		
Time 1 group	Low	Medium	High
Low	72.9 (439)[a]	25.2 (152)	1.8 (11)
Medium	35.4 (168)	53.7 (255)	10.9 (52)
High	4.9 (6)	50.8 (62)	44.3 (54)

[a]Figures in parentheses are actual numbers of children in each group.

As can be seen from Table 1, 44% of the children who scored above the 90th percentile at Time 1 obtained scores in the same range 4 years later. Of the remaining 56% of the children scoring above the 90th percentile only 5% moved into the group scoring in the bottom 50% 4 years later. Highest stability was found for children scoring below the 50th percentile at Time 1. Almost three-quarters of them remained in the same category, while only 1.8% scored above the 90th percentile at a later age. The proportion of children remaining in the same category and of those changing

to other categories was not significantly affected by sex and age. Similar 4-year stabilities were found for the core syndrome scores using the same cut-off points. The percentages of children persistently scoring above the 90th percentile across the 4-year interval were: Internalizing, 38; Externalizing, 48; Aggressive, 53; Attention Problems, 46; Anxious/Depressed, 41; and Withdrawn, 34. No significant sex or age differences in the stability of syndrome scores were found. It may be concluded that overall one-third to one-half of the children show stable problem behavior over a 4-year interval.

Prediction of outcome

Next, the relationship between Time 1 predictor variables and the outcome variables obtained over the 4-year interval was analysed. For these analyses referral to mental health services, referral to residential school/home, and scores on the CBCL item "Deliberately harms self or attempts suicide" were combined. Likewise, trouble with police/justice and expulsion from school were joined to form one variable.

In this general population sample 6.0% of the children were referred at least once in the 4-year interval to mental health services, 6.7% were referred to special education services, while 1.9% were in trouble with the police. In Table 2 the distribution of outcome variables by demographic and problem variables is given. All predictor variables, except SES, were dichotomized. Chi-square tests on the distributions of outcome variables by sex, age, SES and Time 1 low and high scoring problem groups were all highly significant ($p < .001$; except SES, $p < .05$), indicating effects of these variables on the referral rates. Chi-square tests on distributions of outcome variables by the activities and school scale scores were slightly significant ($p < .05$), whereas the total competence and the social scale scores were not significantly related to outcomes. The distributions were informative with regard to the exact percentages of children from each predictor category who scored on one or more of the outcome variables. For example, 33.9% of the children scoring above the 90th percentile of the CBCL total problem score were at least once referred to any services or had had trouble with the police during the 4-year interval, versus 12.3% of the children scoring in the lower range.

Because the various CBCL scores are not independent from each other nor from the demographic variables mentioned above, *stepwise logistic regression* analyses were performed with three different sets of predictors. The first set included sex, age, SES, the CBCL total problem score, and the CBCL total competence score. The second included sex, age, SES and the broad-band syndromes Internalizing and Externalizing and the CBCL total competence score. The third set included sex, age, SES, the syndrome scales Aggressive, Attention Problems, Anxious/Depressed and Withdrawn, and the competence scales Activities, Social and School. Separate sets were used because results with all behavior problem scores included in one set would be blurred by the overlap of the items constituting the different scores.

Logistic regression is used with dichotomous outcomes to evaluate the predictive value of a set of independent variables. For the independent variables, the strength of association is evaluated using relative odds (the odds ratio, OR). Relative odds in logistic regression analyses assess the unique contribution, i.e. separate from the

Table 2. Distribution of outcome variables over the 4-year interval by demographic variables and levels of problem behavior and competence at Time 1

	Outcome			
	Referral to mental health service	Referral to special education service	Police contact	No poor outcome
Sex				
Female	29 (5.4)[a]	18 (3.4)	6 (1.1)	483 (90.1)
Male	34 (6.6)	52 (10.1)	14 (2.7)	416 (80.6)
Age (years)				
4-7	27 (5.7)	53 (11.2)	1 (0.2)	392 (82.9)
8-12	36 (6.2)	17 (2.9)	19 (3.3)	507 (87.6)
Socioeconomic status[b]				
1	31 (9.3)	22 (6.6)	6 (1.8)	274 (82.3)
2	11 (3.1)	28 (7.9)	8 (2.3)	306 (86.7)
3	21 (5.8)	20 (5.5)	6 (1.7)	316 (87.1)
CBCL total problem score				
≤ 90th perc.	43 (4.6)	58 (6.2)	14 (1.5)	821 (87.7)
> 90th perc.	20 (16.9)	14 (11.9)	6 (5.1)	78 (66.1)
Internalizing scale				
≤ 90th perc.	44 (4.7)	60 (6.3)	16 (1.7)	826 (87.3)
> 90th perc.	19 (17.6)	12 (11.1)	4 (3.7)	73 (67.6)
Externalizing scale				
≤ 90th perc.	45 (4.7)	61 (6.4)	14 (1.5)	835 (87.4)
> 90th perc.	18 (18.2)	11 (11.1)	6 (6.1)	64 (64.6)
Aggressive scale				
≤ 90th perc.	45 (4.7)	60 (6.3)	13 (1.4)	833 (87.6)
> 90th perc.	18 (17.5)	12 (11.7)	7 (6.8)	66 (64.1)
Attention Problems scale				
≤ 90th perc.	45 (4.7)	57 (6.0)	17 (1.8)	837 (87.6)
> 90th perc.	18 (18.4)	15 (15.3)	3 (3.1)	62 (63.6)
Anxious/Depressed scale				
≤ 90th perc.	48 (5.0)	63 (6.6)	18 (1.9)	829 (86.5)
> 90th perc.	15 (15.6)	9 (9.4)	2 (2.1)	70 (72.9)
Withdrawn scale				
≤ 90th perc.	49 (5.1)	59 (6.2)	18 (1.9)	827 (86.8)
> 90th perc.	14 (13.9)	13 (12.9)	2 (2.0)	72 (71.3)
Total competence score				
≥ 10th perc.	58 (6.0)	63 (6.6)	19 (2.0)	820 (85.4)
< 10th perc.	5 (5.3)	9 (9.6)	1 (1.1)	79 (84.0)
Activities scale				
≥ 10th perc.	63 (6.4)	64 (6.5)	19 (1.9)	834 (85.1)
< 10th perc.	0 (0.0)	8 (10.8)	1 (1.4)	65 (87.8)
Social Scale				
≥ 10th perc.	56 (5.9)	63 (6.6)	19 (2.0)	818 (85.6)
< 10th perc.	7 (7.1)	9 (9.2)	1 (1.0)	81 (82.7)
School scale[c]				
≥ 10th perc.	47 (6.1)	41 (5.3)	19 (2.5)	665 (86.1)
< 10th perc.	4 (8.0)	6 (12.0)	1 (2.0)	39 (78.0)

[a]Row percentages in parentheses.
[b]Three missing values.
[c]Not for 4–5-year olds.

other variables in the model, made by each independent variable to the prediction of outcome. Values greater than 1.0 indicate a positive relation with outcome; values less than 1.0 indicate a negative relation with outcome. The BMDP program PLR (Dixon, 1983) was used with the statistical criterion for factor entry set at $p < .10$. In Table 3 an OR is presented only when the 95% confidence interval around it excluded 1.0. Since the ORs obtained for sex, age and SES hardly differed across the three analyses, only those obtained in the analysis with predictor set 1 are given in this table.

Table 3. Relative odds on stepwise logistic regression of predictor variables[a] against outcome variables

	Outcome			
Predictor variable	Referral to mental health service	Referral to special education service	Police contact	Any poor outcome
Sex	—	3.3	2.4	2.2
Age group	—	4.4[b]	16.1	1.5[b]
Socioeconomic status	1.4	—	—	—
CBCL total problem score	5.0	2.1	3.4	3.7
Internalizing scale	3.3	2.0	—	2.2
Externalizing scale	2.7	—	4.4	2.8
Aggressive scale	2.9	—	5.1	2.7
Attention Problems scale	3.0	2.2	—	2.5
Anxious/Depressed scale	—	—	—	—
Withdrawn scale	—	—	—	1.8
School scale	—	4.4	—	—

[a]Only predictor variables with at least one significant relation to outcome are listed.
[b]Younger age group had higher likelihood of outcome.

Analyses involving predictor set 1 showed that boys had a significantly greater risk than girls of being referred to special education services (OR = 3.3) and of getting into trouble with the police (OR = 2.4). Children from the younger age group had a significantly higher risk of referral to special education services (OR = 4.4), whereas, those from the older age group had a much larger likelihood of getting into contact with the police (OR = 16.1). Coming from a lower socioeconomic background was slightly associated with an increased risk of referral to mental health services (1.4). Having a CBCL total problem score above the 90th percentile was associated with a significantly greater risk of referral to mental health services (OR = 5.0), referral to special education services (OR = 2.1) and contact with the police (OR = 3.4). Having a score below the 10th percentile of the total competence score was not significantly associated with a higher risk for any of the outcome variables.

In the analysis with predictor set 2 it was found that having an Internalizing scale score above the 90th percentile was associated significantly with referral to both mental health services (OR = 3.3) and special education services (OR = 2.7), while a score in that range on the Externalizing scale predicted referral to mental health services

(OR = 2.4) and trouble with the police (OR = 4.4), but not referral to special education services, to a significant degree.

The analyses using the third set of predictor variables showed that having a score above the 90th percentile of the Aggressive scale was associated with a greater likelihood of being referred to mental health services (OR = 2.9) as well as of getting into contact with the police (OR = 5.1). A score above the 90th percentile on the Attention Problems scale was indicative of a greater probability of being referred to both kinds of services (OR = 3.0 and 2.2, respectively). Finally, having school problems, as indicated by a score below the 10th percentile on the School scale, was associated with a higher risk of referral to special education services (OR = 4.4). No other syndrome scale significantly increased the likelihood of any of the outcomes. Thus, boys and girls of any age between 4 and 12 from the low socioeconomic status groups showing externalizing (aggressive or attention related) and/or internalizing problem behaviors at one point in time will be more often referred to mental health services than other children in subsequent years. Boys in the age range 4–7 years having attention problems, internalizing problems and/or school problems are most likely to be referred to special education services across a 4-year time-span. Boys in the higher grades of elementary school age showing externalizing, in particular aggressive, behaviors have the largest risk of getting into contact with the police and of being expelled from school in subsequent years.

Finally, we explored why some initially deviant children were referred during the subsequent 4-year period while other deviant children were not. Of the group of children with Time 1 total problem scores above the 90th percentile (n = 118), 20 were referred to mental health services, 14 were referred to special education services, and 78 were not referred. The mean total problem score of the deviant group referred to mental health services did not differ from the scores of the non-referred group with deviant scores at Time 1 (59.1 vs 53.7). In contrast, the total problem score of both groups did differ significantly at Time 3 (52.6 vs 35.7, t = 3.09, p = .005). Further, the initially deviant referred children had significantly higher Time 3 (but not Time 1) mean scores than the initially deviant non-referred children on the aggressive, attention problems, anxious/depressed, somatic complaints and schizoid scales ($p < .05$). Thus, while the non-referred deviant group showed a considerable decline in problem behavior over the 4-year period (total problem score from 53.7 to 35.7), this was not the case for the deviant referred group (mean scores 59.1 at Time 1 and 52.6 at Time 3), despite the services they receive or had received. This absence of a decline of problem behavior seems to be indicative of the presence of more serious and persistent behavior problems in the referred deviant group as compared to the non-referred deviant group.

Discussion

The present 4-year follow-up of problem behavior in a sample of 1200 children from the general population originally aged 4–12 revealed high stability in the level of CBCL problem scores. Nearly half of the children who scored in the high range of the total problem scores at the first time of measurement still scored in this range

4 years later. It appeared that of the children who initially scored in the high range of aggressive behavior, attention problems, anxious/depressed and withdrawn behavior, 53, 46, 41, and 34%, respectively, scored in the same high range 4 years later. No sex or age differences in stability were found. This indicates that, irrespective of the child's original age (ranging from 4 to 12) and sex, the persistence of externalizing as well as internalizing problem behavior is substantial across a 4-year time interval. This is in agreement with the high stability of problem behaviors found in previous studies for preschool children (Richman *et al.*, 1982) as well as young adolescents (Graham & Rutter, 1973; Rutter *et al.*, 1976). This study, however, as far as we know is the first to present longitudinal data of the stability of problem behavior and its relation to poor outcome in a general population sample covering preschool to adolescence, assessed with the same instruments and following the same methodology.

The stability for aggressive behavior agrees with findings from other investigations (Loeber, 1982; Olweus, 1979) and indicates that aggressive behaviors in children at one age, even in young children, strongly predict aggressive behaviors some years later.

The results from the logistic regression analyses showed that scoring in the highest range of the total problem score at Time 1 was particularly predictive of mental health referral and getting into trouble with the police, but much less of referral to special education services. Scale scores appeared to be most revealing in this respect. While having a score above the 90th percentile for either aggressive behavior or attention problems or both was predictive of referral to mental health services, only scoring high on attention problems was predictive of referral to special education services, and only scoring high on aggressive was indicative of getting into trouble with the police. Scoring low on the competence part of the CBCL did not seem to be of particular value in the prediction of poor outcome variables. Only the School scale appeared to be indicative of referral to special education services. Also the demographic variables seemed to have an impact on the chance of having a poor outcome in the subsequent years. Being a boy increased the risk of being referred to special education services as well as getting into trouble with the police, but did not affect the chance of being referred to a mental health service. Being in the age range of 4–7 increased the risk of referral to special education services, and belonging to the age group 8–12 years increased the risk of police contact. However, children from both age groups had equal chances of getting referred to mental health services. Socioeconomic status appeared to be predictive only of referral to mental health services. Children from the lowest socioeconomic status groups had a somewhat higher risk of referral.

These findings suggest that especially problems which are vexing, intense, and persistent form important reasons for adults to seek help for the child. Persistence of problem behavior seems to be of special importance with regard to referral to mental health services, since of the children with initially high levels of problem behavior only those whose levels remained high had been referred to those services. Particularly, aggressive behavior and attention problems appeared predictive of a poor outcome. The findings indicate that socially less well accepted and generally disturbing behaviors tended to persist more stongly than *specific* problems reflecting inner conflict tapped by the syndromes Anxious/Depressed and Withdrawn. However, it should be stressed that the presence of internalizing problems and externalizing problems seem to be equally important reasons to seek professional help.

Other studies found a relation between referral status and the severity of parent reported problem behavior in their children, in particular antisocial behavior (Garralda & Bailey, 1988; Langner *et al.*, 1974; Wolff, 1976), as well as between referral status and parental concern about the ability to control the children and the high stress felt about them (Garralda & Bailey, 1988; Bailey & Garralda, 1989). We found a significant contribution of the broad-band Internalizing scale scores to the prediction of referrals. It is of interest that internalizing scores increased the risk for referral to mental health services as well as special education services to a greater extent than did scores on the externalizing scale. This effect of internalizing behavior on outcome is independent of the effects of other predictor variables, because these were partialled out in the analyses. Apparently, not only externalizing problems but also internalizing problems may cause substantial distress to the environment so that adults become aware that internalizing problems cause suffering to the child.

This study confirms findings from previous, cross-sectional studies (e.g. Offord *et al.*, 1987) which showed that the majority of children with problem behaviors in the general population remain untreated. Only 16.9% of the children in the present study with initial high problem scores were referred to mental health services during the follow-up period. Several explanations may be provided for this low rate of service utilization. First, there is the possibility that children's problem behaviors are transitory and that the need for intervention disappears. Our findings partially rule out this possibility: for 44% of the initially high scoring children the problem scores remained within the highest decile and for another 51% the scores remained above the median. Second, there are a number of factors in the process of referral that may interfere with the child receiving adequate help, including (1) parental failure to perceive their child's problem, (2) the reluctance of parents who do perceive a problem to seek help, (3) failure of primary health care professionals to identify mental health problems, (4) reluctance of these professionals to refer a child to a mental health service, and (5) inaccessibility or unavailability of specialized services (for a detailed description of the referral pathway to child psychiatric help, see Verhulst & Koot, 1991). Lack of access to or unavailability of mental health services or cost to the child's parents do not provide a plausible explanation, because for lower and middle income groups in the Netherlands at the time of the study these services were payed for by obligatory insurance. This study provides no information on the other possible explanations. However, it does give information on the value of the CBCL as a screening instrument to be used for intervention in primary health care. Many parents who are concerned about behavioral, emotional and developmental problems do not discuss these issues with the primary health care professional (Hickson, Altmeier & O'Connor, 1983). Discussion of parental concerns about their children's problem behavior, however, increases the likelihood that primary health care professionals will identify psychopathology (Dulcan *et al.*, 1990). Used as a screening instrument, the CBCL may enchance the parents' as well as the primary health care professionals' sensitivity to behavioral deviance. As shown in this study, the instrument is fairly sensitive to persisting behavioral and emotional problems, while in other studies (e.g. Achenbach & Edelbrock, 1983; Verhulst *et al.*, 1985a,b; Verhulst, Versluis-den Bieman, van der Ende, Berden & Sanders-Woudstra, 1990b) it has been shown to discriminate well between disturbed and non-disturbed children and to be correlated with clinical

severity ratings. However, it should be noted that selection of problem children only based on the cut-off scores provided with the CBCL will also yield a significant number of false positives. Therefore, in accordance with the multiaxial assessment approach proposed by Achenbach (Achenbach & McConaughy, 1987) reports on the child's problem behavior should be obtained from multiple informants, including parents, teachers, and children themselves.

This study did not consider other factors which may affect adults' tendency to seek help, and thus be additive to the predictive power of problem behaviors in this regard. Broken homes, unstable family circumstances and parental problems may not only be related to the onset (e.g. Rae-Grant, Thomas, Offord & Boyle, 1989) and to the persistence of psychiatric disorders (e.g. Cohen & Brook, 1987), but also act as a catalyst in the parents' readiness to seek help for the child's problems. However, a German study (Esser, Lahnert & Schmidt, 1986) found that severity of psychiatric disorder had the best predictive value with regard to the utilization of child psychiatric/psychological treatment facilities by children aged 8–13, while variables such as adverse family circumstances and loss of the biological parent explained only a relatively small amount of its variance. Also, the issue of the pervasiveness of problems as a risk factor was not tested, although some evidence exists that parents' and teachers' checklists used together provide the best prediction of special education placement (Mattison, Humphrey, Kales & Wallace, 1986).

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