ARTICLE

Identification and Management of Psychosocial Problems by Preventive Child Health Care

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Objectives: To assess the degree to which physicians and nurses working in preventive child health care (child health professionals [CHPs]) identify and manage psychosocial problems in children, and to determine its association with parent-reported behavioral and emotional problems, sociodemographic factors, and general and mental health history of children.

Design: The CHPs examined the child and interviewed parents and child during their routine health assessments. The parents completed the Child Behavior Checklist.

Setting: Nineteen child health care services across the Netherlands, serving nearly all school-aged children routinely.

Subjects: Of 4970 children aged 5 through 15 years, eligible for a routine health assessment, 4480 (90.1%) participated.

Main Outcome Measures: Identification and management of psychosocial problems by CHPs.

Results: In 25% of all children, CHPs identified 1 or more psychosocial problems. One in 5 identified children were referred for further diagnosis and treatment. Identification of psychosocial problems and subsequent referral were 6 times more likely in children with serious parent-reported problem behavior according to the Child Behavior Checklist total problem score (8% of total sample). However, CHPs identified no psychosocial problems in 43% of these children and therefore undertook no action. Other child factors associated with CHPs' identification and referral were past treatment for psychosocial problems, life events, and academic problems. After adjustment for these, sociodemographic characteristics did not predict referral.

Conclusions: The CHPs identify psychosocial problems in school-aged children frequently and undertake actions for most of them. Screening for psychosocial problems may be a promising option to reduce these problems, but accurate identification should be enhanced.

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PSYCHOSOCIAL problems, such as behavioral, emotional, and educational problems, are highly prevalent among children and can severely interfere with everyday functioning. Only a minority of the children with such problems receive mental health care.[1-4] In a study conducted among more than 2000 Dutch children,[3] only 13% of the children with behavioral and emotional problems had been referred to mental health services in the year before the assessment.

In the Netherlands, preventive child health care is one of the most important low-threshold services for the early detection of psychosocial problems in children. This preventive health care is provided unasked to all children living in the Netherlands by community physicians and nurses working in preventive child health care services (child health professionals [CHPs]).[5-7] These services offer publicly funded preventive programs (screening, vaccinations, and health education and promotion) for all children from birth to 19 years. As part of this system, more than 90% of all children undergo 3 to 4 assessments by a CHP during their school careers. Nearly all services offer assessments to children in grade 2 of primary school (mean age, 5-6 years) and grade 2 of secondary school (mean age, 13-14 years), and most in grade 4 or 5 and grade 7 or 8 of primary school.[8] (In the Netherlands, primary school takes 8 years, and secondary school, 4 to 6 years, depending on its level.) These assessments consist of a general physical examination including some standardized screening procedures, and an interview with parents or with older children themselves

SUBJECTS AND METHODS

SAMPLE

We obtained our sample by means of a 2-stage selection procedure. In the first stage, a random sample of 19 of the 63 child health care services was drawn, after stratification by region and degree of urbanization of their district. In the second stage, each child health care service provided a sample of 75 children for each of 4 grades (second, fourth, and seventh grades of primary school, and the second grade of secondary school) by inviting all children in 3 school classes per grade to participate. The selected classes of secondary school should represent different levels of education, as the Dutch secondary school system consists of different types of schools. Children in schools for children with special needs were not included in the study, as the system of preventive health assessments is different in these schools.

Of the 4970 eligible children, 4480 (90.1%) participated. Differences between responding and nonresponding children by sex, age, ethnicity, and degree of urbanization were small, according to Cohen effect size index *w* (range of *w*, 0.01-0.08).[9]

PROCEDURE AND MEASURES

The data were collected in a standardized way as part of the routine preventive health assessments from October 1, 1997, to June 30, 1998. The design of the study was approved by the local medical ethical committee. It was similar to that of previously reported studies on child health[10,11] and growth and maturation.[12,13] The Child Behavior Checklist (CBCL)[14] was mailed to parents, along with the standard invitation to the preventive health assessment. The CBCL was completed by the parents and returned to the researchers in a sealed envelope. After each child's physical examination, the CHP obtained sociodemographic and mental health history information by following a standardized interview with the parents or, if the child was 12 years or older, with the child himself or herself. Ninety-six percent of children in primary education and 11% of children in secondary education were accompanied by their parent(s). After each assessment, the CHP filled out the following question: "Does the child have a psychosocial problem, at this moment?" (yes or no) and scored the type of the identified problem(s) on a precoded list. Children with only risk indicators for the development of psychosocial problems, such as parents with psychiatric problems or other family problems, had to be coded as no. If a problem was identified, the CHP was asked to rate the severity of the problem (mild, moderate, or severe) and to indicate how the problem was managed (precoded question).

Sociodemographic variables assessed were sex, age, ethnicity, family composition, siblings living in the family at the time of study, educational level and employment status of the parent(s), and degree of urbanization. Ethnicity was based on the native country of the child and of both biological parents. At least 2 of them had to be born outside the Netherlands to qualify as non-Dutch. Parental educational level was used as a measure of socioeconomic status and was based on the highest degree completed by the father or mother. Degree of urbanization was assessed by means of the postal code of the address of residence.[15]

Data on general and mental health history concerned whether the child was (point prevalence) or had been (lifetime prevalence) treated for psychosocial problems. Response options included mental health professionals (eg, psychiatrist or psychologist), medical professionals (eg, general practitioner or pediatrician), and other professionals (eg, specialized family help or parenting support). In addition, life event(s) in the previous year (such as hospitalization, death of family member, unemployment, or divorce) were assessed in a standardized way. Finally, 2 competence items of the CBCL were included (see next paragraph).

The CBCL was used to assess the parent's report of the child's behavioral and emotional problems during the preceding 6 months.[14] The good reliability and validity of the CBCL, established by Achenbach,[14] were confirmed for the Dutch translation.[16] The CBCL consists of 20 competence items and 120 problem items. In this article only 2 competence items were used (if the child had ever had any problems at school [academic or other] and if the child had a physical illness or general or mental handicap). Eight syndrome scales, 2 broadband groups of syndromes designated *internalizing* and *externalizing*, and a total problem score were computed. Internalizing consisted of the withdrawn, somatic complaints, and anxious/depressed syndrome scales, and externalizing consisted of the delinquent and aggressive behavior syndrome scales. Cases were subsequently allocated to a normal range or a clinical range of the scoring distributions based on the Dutch normative sample.[15] Cutoffs were set at the 97th percentile for the 8 syndrome scales and at the 90th percentile for the total problem and internalizing and externalizing scales.

ANALYSIS

First, we examined the prevalence of psychosocial problems as identified by CHPs. Second, we analyzed the management strategies used by CHPs, also in relation to the severity of the problems. We used χ^2 tests to determine the statistical significance of differences between distributions of categorical data. Third, we assessed which child factors (CBCL problem scales, sociodemographic variables, and general and mental health history variables) were related to the identification of psychosocial problems by CHPs (no or yes), by means of univariate and multivariate logistic regression analyses. We repeated these analyses regarding a referral for psychosocial problems by CHPs (no or yes). All independent child variables were dichotomized.

The regression analyses were all performed with multilevel techniques because of the hierarchical nature of the data: characteristics of a CHP may have an impact on the assessments of all children who are seen by him or her. Multilevel models account for this clustering of individual data by CHP.[17,18] In all multilevel logistic regression models used, the random components of variances were assessed both at the individual and at the CHP level (n=78 CHPs). Random variances at the child level were assumed to be approximately binomially distributed.[17] Models were fitted by means of the most accurate procedure available, ie, by using a predictive quasi-likelihood procedure in combination with a second-order Taylor expansion series.[17]

Prevalence estimates presented in the tables and text are weighted by region and age, to adjust for differences between the study population and the Dutch population. Test statistics, odds ratios, and 95% confidence intervals were calculated on the basis of the unweighted data.

Table 1. Management Strategies of CHPs by Severity of Problems as Rated by CHPs*

	Severity, %			
	Mild (n = 572)	Moderate (n = 386)	Severe (n = 83)	*P*
No action	22	7	6	<.001
Advice or reassurance	64	64	57	.20
Follow-up with parents or child	11	27	35	<.001
Consultation with others	33	58	74	<.001
Referral to others	7	33	61	<.001

**Nontreated weighted sample in which child health professionals (CHPs) identified psychosocial problems (n = 1041). More than 1 management strategy per child could be indicated; percentages concern severity categories; χ^2 tests. Data are missing for 20 children.*

Table 2. Identification of Psychosocial Problems by CHPs and Management Strategies Used in Relation to the CBCL Total Problem Score*

	CBCL Total Problem Score, %		
	Normal Range (n = 3769)	Clinical Range (n = 333)	*P*
Identification of psychosocial problems			
No	79	43	<.001
Yes	21	57	
Management strategies†			
No action	83	47	<.001
Advice or reassurance	12	41	<.001
Follow-up with parents or child	3	16	<.001
Consultation with others	8	32	<.001
Referral to others	4	17	<.001
Any action that implies follow-up (follow-up, consultation with others, and/or referral)	11	43	<.001

**Nontreated weighted sample (n = 4102). CHP indicates child health professional; CBCL, Child Behavior Checklist. χ^2 Tests. Excluded are 300 children with incomplete or missing CBCL data.*

†More than 1 management strategy per child could be indicated.

concerning their physical and psychosocial problems. The assessments take approximately 10 minutes. At the end of the assessment, the CHP decides whether there is any need for counseling, follow-up, or referral. If CHPs identify more serious problems, they always decide to refer the child and the parents to other professional services, as they do not offer curative care themselves.

Originally, the main role of preventive child health care was restricted to the prevention of physical conditions. Recently, its focus has been shifting to mental health. Little is known yet about the effectiveness of child health care in detecting psychosocial problems in children, and about its role in the referral pathway to specialized mental health services.

The aim of the present study was first to assess the degree to which CHPs identify and manage psychosocial problems among children aged 5 through 15 years in the general population. Second, it assesses which child factors are associated with the identification of psychosocial problems by CHPs, and with their referral for further evaluation and treatment.

RESULTS

PROBLEM IDENTIFICATION

In 25% of all children, the CHP identified 1 or more psychosocial problems. In 52% of these cases the severity of the problems was rated as mild, in 37% as moderate, and in 11% as severe. At the time of the study, 2% of all children were being treated for psychosocial problems by a mental health professional, 2% by another medical professional, and 1% by other professionals. The first group was excluded from further analyses, as psychosocial problems were expected to be already known among these children.

MANAGEMENT STRATEGIES

The CHPs undertook actions in 85% of the nontreated children with identified psychosocial problems. Various management strategies were used: advice or reassurance (62%); consultation with school, colleagues, or official authorities (45%); referral to another professional (21%); and follow-up (19%).

Management strategies varied according to the severity of the problems as rated by the CHP (**Table 1**). Follow-up, consultation, and referral were more frequent in children whose psychosocial problems were rated moderate or severe. All children with severe psychosocial problems for whom no actions were undertaken (6%) were already being treated by a medical or nonmedical professional at the time of the assessment.

CHILD FACTORS RELATED TO PROBLEM IDENTIFICATION AND REFERRAL

Of the nontreated children, 8% had a CBCL total problem score in the clinical range. **Table 2** presents the number of nontreated children with a CBCL total problem score in the normal and clinical range who were identified by CHPs as having psychosocial problems, and the management strategies used.

The CHPs identified psychosocial problems in 57% of the children with a CBCL total problem score in the clinical range (cutoff at 90th percentile). This percentage was 67% for those scoring above the 98th percentile of the CBCL total problem score and 80% for the children scoring above the 99th percentile. The CHPs iden-

Table 3. Results Derived From Multilevel Univariate Logistic Regression Analyses of CBCL Problem Scales Increasing the Probability of Identification of, and Referral for, Psychosocial Problems by CHPs*

Clinical Range CBCL Problem Scales	OR (95% CI)	
	Identification	Referral
Withdrawn	8.58 (4.76-15.46)	7.67 (3.97-14.82)
Somatic complaints	2.69 (1.71-4.23)	4.27 (2.39-7.63)
Anxious/depressed	7.68 (4.73-12.46)	8.58 (4.95-14.86)
Social problems	8.22 (5.14-13.15)	9.64 (5.65-16.45)
Thought problems	7.64 (3.54-16.50)	5.28 (2.09-13.31)
Attention problems	7.56 (4.09-13.97)	9.12 (4.70-17.70)
Delinquent behavior	4.63 (2.78-7.70)	8.00 (4.41-14.49)
Aggressive behavior	7.89 (4.91-12.68)	8.52 (5.05-14.35)
Internalizing	4.38 (3.45-5.58)	5.82 (4.10-8.26)
Externalizing	3.67 (2.91-4.62)	4.58 (3.23-6.50)
Total problems	6.30 (4.92-8.07)	5.97 (4.21-8.47)

**Nontreated sample (n = 3990). Excluded were 412 children with incomplete or missing data. CBCL indicates Child Behavior Checklist; CHP, child health professional; OR, crude odds ratio; and CI, confidence interval.*

Table 4. Results Derived From Multilevel Univariate Logistic Regression Analyses of Sociodemographic Variables Increasing the Probability of Identification of, and Referral for, Psychosocial Problems by CHPs*

Sociodemographic Variables†	OR (95% CI)	
	Identification	Referral
Female sex	0.83 (0.71-0.97)	*0.82 (0.61-1.12)*
Age 12-16 y	0.65 (0.48-0.86)	*0.77 (0.46-1.30)*
Non-Dutch nationality	*1.16 (0.83-1.61)*	*1.14 (0.65-2.00)*
One-parent family	1.61 (1.22-2.12)	2.08 (1.32-3.28)
No siblings	*0.98 (0.73-1.32)*	*1.35 (0.81-2.25)*
Medium or high parental educational level	0.84 (0.70-0.99)	*0.83 (0.60-1.15)*
Parents unemployed or working ≤16 h/wk	1.67 (1.24-2.23)	*1.14 (0.66-1.96)*
Very highly urbanized	1.37 (1.07-1.76)	*1.51 (0.98-2.31)*

**Nontreated sample (n = 3990). Excluded were 412 children with incomplete or missing data. CHP indicates child health professional; OR, crude odds ratio; and CI, confidence interval. Non–statistically significant (P≥.05) ORs are italicized.*

†Reference categories are as follows: male sex; age 4 to 11 years; Dutch nationality; 2-parent family; 1 or more siblings; low or very low parental educational level; at least 1 parent working more than 16 hours a week; and not or mildly urbanized.

tified psychosocial problems in 21% of the children with a CBCL total problem score in the normal range. These problems were rated as mild in 61% of the cases, moderate in 33%, and severe in 6%; the rating of problems of children scoring in the clinical range of the CBCL total problem score was mild in 36%, moderate in 48%, and severe in 16% (χ^2=43.04; $P<.001$).

No actions were taken in 47% of all children with a CBCL total problem score in the clinical range; in 93% of these cases, this was because CHPs had identified no psychosocial problems. Referral to another professional was 4 times more likely in children with a CBCL total problem score in the clinical range (17%) than in those scoring in the normal range (4%).

Table 3 presents the association of CBCL problem scales with the identification of, and referral for, psychosocial problems by CHPs. Odds ratios for all CBCL scales were high, indicating that children who have scores in the clinical range of different CBCL problem scales were between 2.69 and 9.64 times more likely to be identified with or referred for psychosocial problems by CHPs.

Concerning the sociodemographic variables, **Table 4** shows that CHPs identified psychosocial problems relatively frequently in a number of groups: boys, younger children, children with parents of low educational level, children of single parents, children of unemployed parents, and children living in highly urbanized areas. In contrast, they referred only children from single parents more frequently.

With the exception of the parental report of physical illness or handicap of the child, all general and mental health history variables (**Table 5**) were significantly related to both the identification of psychosocial problems by CHPs and a referral for psychosocial problems. The identification of and referral for psychosocial problems was most frequent in children who had been treated for psychosocial problems in the past by a medical professional, such as a general practitioner or pediatrician.

Table 6 provides the results of multiple logistic regression analyses. It lists variables that were significantly related to the identification of psychosocial problems by CHPs (in the second column) and to referral for these problems (in the third column) after adjustment for the effect of all other variables. Because of the hierarchical structure of the CBCL, 3 models were tested for both dependent variables: one set containing the 8 CBCL syndrome scales, one set containing the internalizing and externalizing scales, and one set containing only the total problems scale. As the results were almost identical, only the odds ratios of the sociodemographic variables and general and mental health history variables of the first model, thus with adjustment for the 8 CBCL syndrome scales, are listed in Table 6. These results show that a referral for psychosocial problems was independent of sociodemographic variables, but still more likely in children with scores in the clinical range of the CBCL problem scales somatic complaints, social problems, and aggressive behavior, and with past treatment for psychosocial problems, life events, and academic problems.

COMMENT

Physicians and nurses working in preventive child health care identified psychosocial problems in one quarter of the general population of children aged 5 to 15 years. The severity of these cases was mainly rated as mild or moderate. The CHPs undertook actions for most of the identified cases of psychosocial problems, mainly in the form of advice to parents, or consultation with schools or their own colleagues. Identification of psychosocial problems and subsequent referral were 6 times more likely in children with serious parent-reported problem behavior according to the CBCL total problem score. However, CHPs identified no psychosocial problem in 43%

Table 5. Results Derived From Multilevel Univariate Logistic Regression Analyses of General and Mental Health History Variables Increasing the Probability of Identification of, and Referral for, Psychosocial Problems by CHPs*

General and Mental Health History Variables	OR (95% CI)	
	Identification	Referral
Past psychological treatment for PP	4.63 (3.45-6.22)	3.93 (2.50-6.19)
Past medical treatment for PP	7.10 (5.36-9.40)	6.06 (4.08-9.00)
Past other treatment for PP	5.53 (3.94-7.77)	5.17 (3.21-8.33)
Subjected to life event (past year)	1.69 (1.44-1.98)	1.95 (1.43-2.65)
Parent report of academic problems	3.30 (2.73-3.99)	3.87 (2.78-5.38)
Parent report of physical illness or handicap	1.68 (1.23-2.29)	*1.64 (0.94-2.86)*

**Nontreated sample (n = 3990). Excluded were 412 children with incomplete or missing data. CHP indicates child health professional; PP, psychosocial problems; OR, crude odds ratio; and CI, confidence interval. Non–statistically significant (P≥.05) ORs are italicized.*

of the children with a CBCL total problem score in the clinical range. Furthermore, they identified a psychosocial problem in 21% of the children with normal CBCL results. Such an imperfect agreement is likely because of several reasons.

First, CHPs identify a broad range of psychosocial problems in children and adolescents—including mild problems—many of which do not need direct treatment, whereas high CBCL scores typically occur among children who are referred for mental health services. The CHPs can thus be expected to identify more problems, which are on average less severe. Our results show that they do so indeed. Moreover, when the CBCL cutoff was increased from the 90th to the 99th percentile, the percentage of the children with a CBCL total problem score in the clinical range who were identified with psychosocial problems by CHPs increased from 57% to 80%.

Second, even if they intend to identify the same children, both the CBCL questionnaire and the CHP may make errors in the identification of the relevant children. Regarding the CBCL, for instance, the sensitivity and specificity of the Dutch version at the cutoff for the clinical range are 0.66 and 0.82, respectively, with referral to mental health care as morbidity criterion.[15] Considering identification by the CHP as the gold standard, this would mean that about one half of all elevated CBCL total problem scores were false-positives, for which the CHP was right in not identifying these children. Almost certainly, the reverse is also true.[19-21]

Third, the CBCL score is based on only 1 informant, the parent, whereas the CHPs' identification is based on the parent, the child, and sometimes the teacher as informants. Disagreement between different informants on behavioral or emotional problems of children has been extensively documented. Achenbach et al[22] demonstrated a mean Pearson correlation of 0.28 between different informants (parents, teachers, mental health workers, observers, and peers) and of 0.22 between children

Table 6. Results Derived From Multilevel Multiple Logistic Regression Analyses of Significant Child Factors Increasing the Probability of Identification of, and Referral for, Psychosocial Problems by CHPs*

Child Factors	OR (95% CI)	
	Identification	Referral
Clinical range CBCL problem scales		
Withdrawn	2.50 (1.24-5.03)	*1.80 (0.73-4.42)*
Somatic complaints	*1.37 (0.80-2.36)*	2.16 (1.08-4.30)
Anxious/depressed	2.00 (1.09-3.68)	*1.89 (0.91-3.93)*
Social problems	2.76 (1.55-4.91)	2.61 (1.32-5.17)
Thought problems	*1.97 (0.72-5.41)*	*0.53 (0.14-2.01)*
Attention problems	*1.25 (0.58-2.66)*	*1.32 (0.59-2.98)*
Delinquent behavior	*1.30 (0.68-2.49)*	*2.07 (0.97-4.44)*
Aggressive behavior	3.14 (1.77-5.59)	2.91 (1.44-5.88)
Internalizing	2.49 (1.90-3.28)	2.92 (1.93-4.40)
Externalizing	1.93 (1.48-2.53)	2.07 (1.36-3.14)
Total problems	4.18 (3.20-5.48)	3.57 (2.43-5.26)
Sociodemographic variables		
Female sex	*0.99 (0.83-1.18)*	*1.02 (0.73-1.43)*
Age 12-16 y	0.58 (0.42-0.81)	*0.65 (0.36-1.17)*
Non-Dutch nationality	*1.07 (0.74-1.55)*	*1.20 (0.65-2.22)*
One-parent family	*1.05 (0.75-1.47)*	*1.62 (0.94-2.79)*
No siblings	*0.79 (0.56-1.11)*	*1.06 (0.60-1.87)*
Medium or high parental educational level	*0.92 (0.76-1.12)*	*0.96 (0.67-1.38)*
Parents unemployed or working ≤16 h/wk	*1.37 (0.97-1.96)*	*0.66 (0.34-1.27)*
Very highly urbanized	1.34 (1.01-1.77)	*1.39 (0.87-2.22)*
General and mental health history variables		
Past psychological treatment for PP	2.21 (1.56-3.12)	*1.41 (0.82-2.42)*
Past medical treatment for PP	4.67 (3.43-6.35)	3.58 (2.30-5.59)
Past other treatment for PP	2.65 (1.81-3.90)	2.28 (1.31-3.97)
Subjected to life event (past year)	1.55 (1.30-1.85)	1.61 (1.15-2.26)
Parent report of academic problems	2.28 (1.84-2.83)	2.30 (1.57-3.36)
Parent report of physical illness or handicap	*1.09 (0.76-1.57)*	*0.91 (0.48-1.72)*

**Nontreated sample (n = 3990). Excluded were 412 children with incomplete or missing data. CHP indicates child health professional; PP, psychosocial problems; CBCL, Child Behavior Checklist; OR, adjusted odds ratio; and CI, confidence interval. Non–statistically significant (P≥.05) ORs are italicized. Only child factors that contribute to the prediction of identification and/or of referral are shown. Child factors contributing to neither of these 2 are not shown. Results regarding CBCL scales refer to 3 different models that all compose the same sociodemographic variables and (mental) health history variables but different sets of CBCL variables: 1 set contains the 8 CBCL syndrome scales, 1 set contains the internalizing and externalizing scales, and 1 set contains only the total problems scale. As the results regarding sociodemographic variables and (mental) health history variables were almost identical, only the ORs of these for the first model, thus with adjustment for the 8 CBCL syndrome scales, are listed in the table.*

†Reference categories are as follows: male sex; age 4 to 11 years; Dutch nationality; 2-parent family; 1 or more siblings; low or very low parental educational level; at least 1 parent working more than 16 hours a week; and not or mildly urbanized.

and other informants. Additional analyses indeed showed that identification of psychosocial problems by CHPs was more likely among children with a CBCL total problem score in the clinical range who were accompanied by their parents (69% vs 48% for unaccompanied children with

such a score in secondary school; in primary school, nearly all children were accompanied by at least 1 parent).

Our study shows further that the effect of some sociodemographic variables (sex, family composition, and socioeconomic status) on the CHPs' identification of psychosocial problems could be completely explained by behavioral and emotional problems measured by the CBCL and by general and mental health history variables. Apparently, such problems and such a history are quite common among boys, children of single parents, children of parents with a low education level, and children of unemployed parents. In contrast, regardless of behavioral and emotional problems according to the CBCL and general and mental health history, CHPs identified more psychosocial problems in young children and those living in highly urbanized areas. Furthermore, mental health history, the sociodemographic characteristics listed above, and scores on 4 CBCL syndrome scales also explained the more frequent identification of children with an elevated score on the other syndrome scales. These 4 are the CBCL scales somatic complaints, thought problems, attention problems, and delinquent behavior. Interestingly, after adjustment for the other variables, CHPs in general identified children with an elevated score on the internalizing scale somewhat more frequently than those with an elevated score on the externalizing scale, whereas one might expect that the latter are easier to identify. It is difficult to compare our results with those of other studies because none of these used CBCL syndrome scales to characterize problems; the results of other approaches, such as diagnoses based on the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition*[23] or the *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition,*[24] do not always correspond with CBCL syndrome scales.[25,26]

It might be hypothesized that a contribution of general and mental health history to identification might at least partially be due to familiarity of the CHP with the child and the parents.[27,28] In our study, this is difficult to assess because we only included first encounters during the regular preventive health assessment, and Dutch CHPs do not provide curative care. However, if a CHP identified psychosocial problems, the likeliness of a CBCL total problem score in the clinical range was higher (23%) if this identification was also based on previous information of a CHP on the child than if it was based on other information sources (17%; $\chi^2 = 11.83$; $P = .003$).

Regarding referral for psychosocial problems to other professional services, none of the sociodemographic variables was predictive. The CHPs thus seemed to base their decision for referral almost completely on information regarding the mental health of a child, and not on the child's sociodemographic background. Regarding specific CBCL scales, referral occurred more frequently among children with an elevated score on the internalizing scale and on 3 syndrome scales. The first result corresponded with that on identification. However, the more frequent identification of psychosocial problems among children with elevated scores on the withdrawn and anxious/depressed scales did not correspond with more frequent referral of them, whereas children with an elevated score on the somatic complaints scale were referred more frequently without an increased frequency of identification.

Our results also show that CHPs did not undertake action, or only gave advice or reassurance, for a substantial portion (57%) of the children with a CBCL total problem score in the clinical range. The main reason for this lack of follow-up was that CHPs did not identify these children, as discussed in previous paragraphs. Several other studies have shown similar results.[27-29] Improvements regarding this may be reached in several ways,[19-21] for instance, by improving expertise and diagnostic tools, and by making more time available for diagnosis.

The response in this study was very high (90%), and our sample is considered representative of children in primary and secondary school eligible for a routine health assessment by child health care, with respect to sex, age, and socioeconomic background.[30] Only non-Dutch children and children living in highly urbanized areas were underrepresented.[15,31,32] As our study showed that CHPs identified psychosocial problems among these groups rather frequently, the actual prevalence will probably be slightly higher. Excluded from this study were children in special education, another group that probably has much higher rates of psychosocial problems. However, this group consisted of only 4% of all children.[33] The prevalence of identified psychosocial problems would thus be only slightly higher (28%) if CHPs identified them in all these children.

Recent US studies have shown prevalence rates of psychosocial problems as identified by clinicians (pediatricians, primary care physicians, or pediatric nurse practitioners) in school-aged children ranging from 10% to 27%.[27-29,34,35] Horwitz and coworkers[28] reported that clinicians identified psychosocial or developmental problems among 27% of 1886 children aged 4 to 8 years who visited community-based, primary care pediatric practices; of the identified children, they referred 16% to specialty services outside their own practice. In another study, family physicians identified psychosocial or developmental problems in approximately 22% of 898 children aged 5 to 15 years, and referred 46% of the identified children to mental health services.[29] Kelleher and coworkers[35] reported that pediatric and family practice clinicians identified psychosocial problems among 19% of a national sample of 21 065 pediatric visitors aged 4 to 15 years and, in a subsample, referred 40% of those identified, and identified 57% of those with an elevated score on the Pediatric Symptom Checklist.[27] Finally, Jellinek and coworkers[34] reported much lower rates of psychosocial dysfunction in the same sample on the basis of the Pediatric Symptom Checklist (5573 children aged 4-5 years, 10%; 15 492 children aged 6-15 years, 13%). They further summarized 7 previous smaller studies with similar design (n = 115 to 379) in which Pediatric Symptom Checklist identification rates varied from 7% to 22%. It is not easy to compare these rates with our results, however. First, these studies were performed in primary health care settings and consisted of well child and other visits, whereas our study was performed at a community level. Furthermore, sample characteristics and the exact definition of psychosocial problems differed, as well as the clinical criteria for defining problem behavior. For ex-

ample, in some studies, clinicians were asked directly for the presence of "psychosocial or developmental problems,"[29,35] whereas others asked clinicians to fill out more elaborate checklists.[28]

The stability of problem behavior from childhood into adolescence, as well as into adulthood, has been demonstrated in several studies.[36-42] For example, 39% of a general population sample of children who scored in the clinical range of the CBCL total problem scale still scored in that range at follow-up 8 years later.[40] Thus, children do not easily grow out of these problems. At the same time, results of randomized controlled trials show that treatment programs can be effective in the reduction of problem behavior.[43-46] Durlak and Wells[47] evaluated the outcomes of 130 secondary preventive mental health programs for children and adolescents and concluded that such programs significantly reduce problems and increase competencies. Hence, the early detection of psychosocial problems, for instance by CHPs, may improve their prognoses in later life, if such preventive mental health programs are properly implemented in daily practice.[21] Additional efforts may be needed to reach this in preventive child and adolescent services.[8,21,48,49]

The present study was the first Dutch national study performed on the identification and management of psychosocial problems by preventive child health care. Its results show that CHPs identify a substantial number of children with minor and major psychosocial problems during their routine preventive health assessments and undertake some form of action for most of the identified children. However, improvement of the skills and tools of CHPs regarding the identification of psychosocial problems may be necessary, as they do not identify psychosocial problems in a considerable proportion of the children with serious behavioral or emotional problems according to the CBCL. If identified on a timely basis, at least some of these children might also benefit from treatment. Our results thus show that screening for psychosocial problems by physicians and nurses working in preventive child health care may be a promising option to reduce these problems, but that their accurate identification should be further enhanced.

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Poetry in Pediatrics

New Year's Eve

The sod is saturated here. The rivers
slide their cappuccino fingers
through the trees. Dead derelicts, scoured from their dens
bob softly seaward. Nothing interrupts
the lawn's flat plane.
How difficult must it have been
to leave a child, cold beneath the birches
on the east slope of this cemetery?

Almost twenty years. Still, I walk unerringly
to the grave of someone else's child. I scrape
dead leaves from the marker's face.
My fingers trace the dates, March 23, 1976
to November 29, 1979. The tracks of heavy trucks
have cut the slope just south of here.
A dozen tiny potholes mark their way.

E. M. McMahon, Jr
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