2 Differences between professionals when identifying children with problems were not explained by actual problems present

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Abstract

Objective
To assess whether differences between individual Preventive Child Healthcare (PCH) professionals in the percentage of children they identify as having problems are larger than expected based on chance and whether such differences can be explained by differences in parent-reported problems or risk indicators.

Study Design
We used data from three community based studies among 3170 Dutch children aged eight to twelve, invited for a routine health examination. Parents filled in the Child Behavior Checklist (CBCL) and questions on demographic characteristics. After the examination PCH professionals registered whether they had identified any psychosocial problem in the child.

We examined differences between professionals in the rate of identified children. We used multilevel logistic regression analysis to assess whether such differences could be explained by parent reported problems or risk indicators.

Results
Significant differences between PCH professionals were found (p < 0.001). These differences could not be explained by parent-reported problems or risk indicators. The differences had the largest effect for children with a score above the CBCL clinical cut-off point.

Conclusion
Some PCH professionals are more likely to identify psychosocial problems than others, independently from parent-reported problems or other risk indicators.
2.1 Introduction

Emotional and behavioral problems are quite common among children, in all age groups. Such problems can lead to serious limitations in daily functioning and are likely to persist in later life. However, only a minority of these children is treated for these problems. Verhulst et al. found that only 13% of children with behavioral or emotional problems were referred to mental healthcare.

Community pediatric services, like those in the USA and the Netherlands, offering routine healthcare services to the population as a whole, are in a unique position to identify children with psychosocial problems. In the Netherlands this early identification is an explicit task of the existing Preventive Child Healthcare (PCH). Several studies have shown, however, that identification of children with psychosocial problems in community and primary pediatric care is less than satisfactory. Clearly, identification of such problems is not always easy, but when done carefully, it can help to improve the prognosis of the children involved.

Impressions from clinical practice lead us to believe that individual PCH professionals do not always share the same criteria when rating children’s health. Inspection of data collected in other studies (e.g. Brugman et al.) had revealed large differences between individual PCH professionals with respect to the proportion of children they identified as being (rather) unhealthy. In 2005 Crone et al. found significant differences between some PCH centers in the percentage of children identified as having problems. They suggest that differences in protocols may be relevant in this respect, but also indicate that this can only partially explain the differences they found. In this study we want to assess a) whether there are systematic differences between individual PCH professionals in the proportion of children they identify as having psychosocial problems, b) whether such differences may be explained by differences in the prevalence of problems or differences in possible risk indicators among the groups of children seen by individual PCH professionals, and c) how large such differences are in relation to children’s Child Behavior Checklist Total Problem Score (TPS).

2.2 Methods

2.2.1 Sample

We analyzed data from three previous studies that used similar methodologies with regard to sampling and data collection and the same or very similar measures and included children in the age range between eight and twelve years. The three studies used a similar two-step data collection procedure. First, we randomly sampled a number of regional PCH centers, after stratification by region and degree of urbanization of their district. Second, each PCH center provided a sample of children from those who were to be invited for a routine preventive health assessment. Study 1 assessed the prevalence of psychosocial problems in a national representative sample in 1997/1998, in which 10,054 parents of children aged zero to fifteen participated (response rate: 93%). Study 2 examined the usability of three different questionnaires for the early detection of
psychosocial problems by PCH\textsuperscript{12} among 2041 parents of children aged eight to twelve (response rate: 84\%). Study 3 studied psychosocial problems in a national sample in 2004,\textsuperscript{13} with 4776 parents of children aged fourteen months to twelve years participating (response rate: 85\%). More detailed information about the data collection can be found elsewhere.\textsuperscript{12,14} Differences between respondents and non-respondents by sex, age and ethnicity in the three studies were small, with Cohen’s W effect size index varying between 0.01 and 0.11. The largest differences were found for ethnicity.

### 2.2.2 Procedure and measures

The data were collected in a standardized way as part of the routine preventive health assessment for which all Dutch children are invited regularly. Children were examined by those PCH professionals that were scheduled to see the children for the routine health examination. All participating PCH professionals received on site training by the researchers regarding protocol and the categorization of psychosocial problems. Data were collected by means of paper and pencil questionnaires for parents and for the PCH professional doing the routine preventive health examination. The questionnaires for parents were mailed to them along with the standard invitation for a preventive health assessment. After completion by the parents the questionnaires were returned to PCH, which sent them, unopened, to the researchers. During the preventive health assessment, the PCH professional obtained additional information from the parents on socio-demographic background, family characteristics and mental health history. Finally, after the health assessment, the PCH professional answered additional questions regarding his or her assessment of the child’s psychosocial problems.

The dependent variables in this study were whether the PCH professional identified the child as having any psychosocial problem and whether he or she identified any problem for which the child was referred to mental healthcare or youth care. This information was obtained using the PCH questionnaire. The PCH professional was asked: “Does the child have a psychosocial problem at this moment?” (yes or no). Psychosocial problems were defined as emotional and behavioral problems of the child itself. Children with only risk indicators for the development of psychosocial problems had to be coded as having no problems. PCH professionals were explicitly asked to indicate all problems, whether light, moderate or severe. They also reported whether the problems identified lead them to refer the child to mental healthcare or to youth care.

PCH also asked parents whether the child had ever been treated because of psychosocial problems and if the child was currently under treatment. If so, he asked for the institution by which the child had been treated.

In each of the three studies, the parents or PCH provided information about the following possible risk indicators: number of (biological or non-biological) parents present in the family (one or two), parental employment status (1 or 2 fulltime or two part time jobs, one part time job or jobless), parental educational level (father’s, if available, otherwise mother’s: low (up to eight years in education), medium, (nine to twelve years in education) or high (more years in education)), age and gender.

The data sets of each study contained an identification code for the PCH professional who examined the child. One of the PCH professionals involved had participated in two
studies. We ensured that this professional’s identification code was identical across the two studies. Finally, we knew the discipline of the PCH profession, either nurse or a physician.

Each study used the Child Behavior Checklist (CBCL) as a measure for the presence of emotional and behavioral problems. The CBCL was part of the questionnaire answered by parents. The 120 item CBCL was originally developed by Achenbach and has been shown to be reliable and to have substantive concurrent and predictive validity. In study 1 and 2, the Dutch 1991 version of the CBCL was used. In study 3, the Dutch version of the 2001 American version of the CBCL was used, which has been revised regarding the wording of some items and the construction of some of the subscales. Both versions allow for the calculation of a score on the CBCL Total Problem Scale (TPS), which includes information from all items and uses all items. We used the standard clinical cut-off points, as defined in the manuals, in order to distinguish between children with and without problems. For the purpose of this study, the TPS scores of both versions are assumed to measure a very similar concept and therefore, essentially, to be identical. This assumption was checked in the analyses.

2.2.3 Analyses
We limited the analyses to children in the age range from eight to twelve years, of Dutch origin and currently not under treatment for psychosocial problems. The age range of eight to twelve was chosen because all three studies covered this age group: study 1 contained 1231 children in this age group, study 2 1825 and study 3 1351. Children from non-Dutch origin – i.e. at least one parent born outside the Netherlands – were excluded because of the following reasons. As people from non-Dutch immigrants tend to live in specific neighborhoods and tend to attend specific schools, some PCH professionals see far more children from non-Dutch origin than others. In our sample 67% of these children were examined by only 22% of the PCH professionals involved. Reijneveld et al. showed that problem identification by PCH among Dutch children was clearly associated with parent-reported problems; for children from non-Dutch origin such an association was not found. This suggests strongly that problem identification among these groups is a more complicated process and should be studied separately from that among problem identification in general.

We also excluded children currently under treatment, because this is an almost certain indication of the presence of psychosocial problems, and treatment status was known to the PCH professionals. Finally, children with any missing data on the variables used in this study were excluded. The resulting sample, available for analysis, consisted of 3140 cases, 949 from study 1, 1444 from study 2 and 747 from study 3.

First, we assessed whether the differences between individual PCH professionals in the percentages of children identified as having problems were larger than might be expected on the basis of a simple binomial distribution. A simple chi-squared test could not be used because some physicians did only see a very limited number of children (in 7 cases, only 1 child). Therefore, we used a Monte Carlo procedure to attain an unbiased estimate of the exact significance level.
Secondly, we assessed to what extent these differences could be explained by differences in TPSs or the potential risk indicators mentioned before. We used bivariate and multivariate logistic regression analyses to assess the statistical significance of the relation of these characteristics and the discipline of the PCH professional – by themselves and in combination – with the identification of problems by PCH. The variables assessed this way are presented in Table 1. Those factors that showed a significant relationship were included in the multilevel analyses that followed as risk indicators. Then we performed a series of multilevel logistic regression analyses using three models. The first model only calculated the effect of the identity of the PCH professional as a level 2 factor on the likelihood of children being identified as having problems. In Model 2, the CBCL TPS score was added to the analyses. We plotted the logistic predictions based on the CBCL together with the empirical percentage of children identified by PCH. As the logistic prediction fitted the data very well, we decided to use the continuous CBCL score as a predictor in the model. In model 3 risk indicators were added to the analysis as level 1 factors. This way we assessed whether the effect of the PCH professionals’ identity remained significant when TPS score and background characteristics were added to the equation. We used the Random Intercept Variance coefficient (RIV), a coefficient calculated in multilevel logistic regression analysis, to assess whether there was an effect of the level 2 professionals’ identity. When the 95% Confidence Interval around this RIV lies above 0, the second-level effect may be considered significant. We estimated only random intercepts and no random slopes for predictors. These analyses were done using both the identification of any problem and the identification of problems for which children were referred as dependent variable. The multilevel analyses were done in S-Plus. For parameter estimation we used Penalized Quasi Likelihood with first order Taylor linearization.

Some PCH professionals examined very few children. In order to determine whether the number of children examined had an effect on the results, we repeated all analyses including only professionals who had examined at least 20 children. To check for the assumption that the two different versions of the CBCL used in this study could be considered to be identical, we also repeated the analyses with CBCL version number added as a predictor and checked whether version number showed a significant effect. As mentioned before, we removed children from non-Dutch origin from the analyses. It may be, however, that those professionals who see many of those children, tend to develop a different frame of reference and thereby contribute disproportionately to inter-individual variance. We checked for this by an additional multilevel analysis adding the percentage of non-Dutch children examined by individual PCH professionals (ranging from 0% to 78%) as a professional’s characteristic to the model 3.

Finally, in order to gain some insight in the magnitude of the effects we found, we first estimated the relative size of the child-adjusted differences in identification between professionals using the Variance Partition Component (VPC). The VPC indicates which part of the differences can explained by the level-2 clustering, i.e. inter-professional variability, for each value of the other variables included in the model. For these analyses we used two simplified models: one with the TPS score and gender as factor in the model, the other one with the TPS score and past treatment for psychosocial problems as predictors. Second, we calculated the model-predicted
probabilities of identification, in relation to TPS score. We did this for professionals on the 5th, 25th, 50th, 75th and 95th percentile. The probabilities were calculated using a simplified model with TPS as the sole predictor.

### Table 1  Child and family characteristics and CBCL Total Problems Scale score and properties of children identified as having problems

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>(%)</th>
<th>Of which Identified as having problems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>3140</td>
<td>(100%)</td>
<td>20.7%</td>
</tr>
<tr>
<td><strong>Age in years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>378</td>
<td>(12.0%)</td>
<td>31.0%</td>
</tr>
<tr>
<td>9</td>
<td>562</td>
<td>(17.9%)</td>
<td>21.7%</td>
</tr>
<tr>
<td>10</td>
<td>862</td>
<td>(27.5%)</td>
<td>18.4%</td>
</tr>
<tr>
<td>11</td>
<td>1022</td>
<td>(32.5%)</td>
<td>17.6%</td>
</tr>
<tr>
<td>12</td>
<td>316</td>
<td>(10.1%)</td>
<td>22.8%</td>
</tr>
<tr>
<td><strong>Mean age in years (sd)</strong></td>
<td>10.1</td>
<td>(1.2)</td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>boys</td>
<td>1526</td>
<td>(48.6%)</td>
<td>24.2%</td>
</tr>
<tr>
<td>girls</td>
<td>1614</td>
<td>(51.4%)</td>
<td>17.4%</td>
</tr>
<tr>
<td><strong>No of parents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>239</td>
<td>(7.6%)</td>
<td>39.3%</td>
</tr>
<tr>
<td>2</td>
<td>2901</td>
<td>(92.4%)</td>
<td>19.2%</td>
</tr>
<tr>
<td><strong>Job status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 or 2 full time / 2 part time jobs</td>
<td>2899</td>
<td>(92.3%)</td>
<td>19.7%</td>
</tr>
<tr>
<td>1 part time job</td>
<td>156</td>
<td>(5%)</td>
<td>33.3%</td>
</tr>
<tr>
<td>jobless</td>
<td>85</td>
<td>(2.7%)</td>
<td>31.8%</td>
</tr>
<tr>
<td><strong>Highest educational level completed by parents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>primary level, up to 8 years</td>
<td>95</td>
<td>(3%)</td>
<td>33.7%</td>
</tr>
<tr>
<td>secondary level, from 9 to 14 years</td>
<td>1999</td>
<td>(63.7%)</td>
<td>22.0%</td>
</tr>
<tr>
<td>academic level, more than 14 years</td>
<td>1046</td>
<td>(33.3%)</td>
<td>17.1%</td>
</tr>
<tr>
<td><strong>Ever treated for psychosocial problems</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>2673</td>
<td>(85.1%)</td>
<td>17.8%</td>
</tr>
<tr>
<td>Yes</td>
<td>467</td>
<td>(14.9%)</td>
<td>37.5%</td>
</tr>
<tr>
<td><strong>Examined by a</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>physician</td>
<td>567</td>
<td>(18.1%)</td>
<td>18.3%</td>
</tr>
<tr>
<td>nurse</td>
<td>2573</td>
<td>(81.9%)</td>
<td>21.2%</td>
</tr>
<tr>
<td><strong>Mean TPS score (sd)</strong></td>
<td>17.0</td>
<td>(14.0)</td>
<td></td>
</tr>
</tbody>
</table>

### 2.3 Results

Table 1 presents information about the sample used in this study. The 3140 children involved had been examined by 117 different PCH professionals; 61 of the PCH professionals had examined 20 children or more. The number of children examined by each individual PCH professional varied between 1 and 163, with a mean of 26.8.

About one fifth of the children was identified by the PCH professionals as having some psychosocial problem. Figure 1 shows that this proportion varied widely between individual professionals. Only PCH professionals who saw at least 10 children are incorporated in Figure 1. The black bars present the observed data. The grey bars present the expected numbers, based on the binomial distribution. Variation in the proportion of
identified children between PCH professionals was larger than could be expected based on fluctuation (p-value based on 10,000 Monte Carlo samples < 0.001).

Figure 1  Number of PCH professionals by proportion of children identified as having a problem, observed frequencies and expected frequencies based on the binomial distribution.

The percentage of children identified as having a psychosocial problem for which they were referred to mental healthcare or to youth care was 6%. The proportions of PCH professionals that referred none, some but less than 6%, 6 to 10% and 10% or more were 40%, 23%, 15% and 22%, respectively. Again, the variation between PCH professionals was larger than could be expected based on random fluctuation (p-value based on 10,000 Monte Carlo samples < 0.001).

In bivariate and multivariate logistic regression analyses most variables presented in Table 1 showed significant relationships with problem identification by PCH. However, we found no such a relationship for job status and being examined by a physician or nurse. So, age, gender, number of parents, educational level and treatment status were included in the multilevel analyses.

Table 2 shows the results of the multilevel analyses. Model 1 (first column) is the model with only variation between children an between professionals. The associated RIV was 0.34 with a confidence interval well above zero, indicating a statistically significant variation between professionals. The results of the model 2 (second column) showed that the TPS score was indeed related to identification by PCH professionals with statistical significance, but the second-level RIV remained statistically significantly higher than zero. The results of model 3 (third column) showed statistically significant effects of the risk indicators too, but again the variation between professionals remained statistically significant.
Table 2  Results of the multilevel analyses on the identification of any problem in three models

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.36 -1.51</td>
<td>-2.35 -2.14</td>
<td>-1.01 -2.34</td>
</tr>
<tr>
<td>95% CI</td>
<td>-2.12</td>
<td>-3.11</td>
<td></td>
</tr>
<tr>
<td>Random Intercept Variance (level 2)</td>
<td>0.34 0.20 -0.57</td>
<td>0.43 0.26 -0.71</td>
<td>0.39 0.24 -0.66</td>
</tr>
<tr>
<td>B</td>
<td>0.05 0.05 -0.06</td>
<td>0.05 0.04 -0.05</td>
<td></td>
</tr>
<tr>
<td>TPS score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.19 -0.30</td>
<td>-0.55 -0.16</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no of parents</td>
<td>0.87 0.56 -1.18</td>
<td>0.78 0.53 -1.04</td>
<td></td>
</tr>
<tr>
<td>past treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>educational level 1</td>
<td>-0.63 -1.13</td>
<td>-0.63 -1.13</td>
<td></td>
</tr>
<tr>
<td>educational level 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no of PCH professionals</td>
<td>117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>no of children</td>
<td>3140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean no (range) of children for each PCH profession:</td>
<td>26.8 (1-163)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We repeated these analyses with the identification of problems for which children were referred as the dependent variable. In each of the models the RIV we found was significant: in the first model it was 0.75 (0.55 – 1.00); in the second model it was 0.83 ((0.62 – 1.11) and in the final model it was 0.83 (0.63 – 1.12).

The analyses which added CBCL version number as a predictor in the model, did not show a statistically significant effect for version number, nor did the second-level RIV associated with the professionals’ identity change substantially. The results of the analyses in which the percentage of non-Dutch children examined by individual PCH professionals was added to model 3, did not lead to other conclusions, either. The same applies for the analyses including only physicians who saw 20 children or more.

Figure 2 presents information about the size of the differences between professionals, in relation to the TPS score and the child’s gender. The size of the differences is clearly related to the TPS score. For boys the differences between individual PCH professionals are most marked when they had a TPS score of about 40. This is near the CBCL clinical cut-off point (36-40, depending on gender and age). For boys with a CBCL TPS around 40 about 9% of the variance in problem identification must be attributed to the identity of the PCH professional by whom they are examined. For girls the differences are most marked in relation to a TPS score of about 50, well above the standard TPS cut-off point.

Figure 3 presents the effect sizes in relation, again, to the TPS and stratified to whether children underwent any treatment for psychosocial problems in the past. The relation to the TPS was similar to that presented in Figure 2. For children who had been treated, individual differences between professionals were more marked at somewhat higher TPS scores than for those who had never been treated.
Figure 2  Degree of inter-professional variability, as measured by the Variance Partition Components, in relation to TPS score and gender

Figure 3  Degree of inter-professional variability, as measured by the Variance Partition Components, in relation to TPS score and having been treated for psychosocial problems in the past
Figure 4, finally, presents the model-predicted probabilities of problem identification in relation to TPS score. The solid line in the center indicates the mean probability, indicating that, on average, children with a TPS of 40 have a probability of about 40% of being identified as having problems. For 50% of all professionals, those between the two lines indicating the 25th and 75th percentiles, this probability lies between about 30 and 50%. For 5% of the professionals this chance is less than 20% and also for 5% this probability is more than 65%. Again we see that the differences at very low or very high TPS scores are much smaller. Yet, on a large part of the scale, the differences remain substantial.

2.4 Discussion

Main results

This study showed that there are important differences between individual PCH professionals in the identification of children with psychosocial problems, and that these differences cannot be explained by parent-reported problems on the CBCL or by differences in the child’s background characteristics. In other words, some PCH professionals tend to perceive more children as having problems than other professionals. This applies both to the identification of any problem and to the identification of problems for which children were referred to mental healthcare or youth care. Differences in problem identification between professionals were most marked for children with a TPS score above the clinical cut-off point, especially for girls – as compared to boys – and for children who had been treated for psychosocial problems in the past, compared to children who had never been treated.
Limitations

The three studies used data that are representative for all children of Dutch origin in this age group in the Netherlands under care by PCH. All three studies were done in the context of regular care in Dutch PCH. Yet, there are reasons to suppose that the differences we found are an underestimation of the effects in standard practice. First, we excluded children from non-western origin. We previously showed that identifying problems among children from non-Dutch origin probably is more difficult than among children from Dutch origin, due e.g. to language problems, cultural barriers and so on. We expect, therefore, that differences between individual PCH professionals have an even greater effect when children from non-Dutch origin are involved. Furthermore, although data collection was done in the context of regular care, PCH professionals who participated in the studies, may be – on average – more interested in the identification of children with psychosocial problems. If this is true, the variation between PCH professionals in the field will probably be larger that the variation in our sample.

The available data sets posed some limitations to the variables we could use in the analyses. For example, some PCH professionals work mainly in socially deprived neighborhoods. Such work setting characteristics may evidently be related to differences in the proportion of children identified as having problems. We could not include such factors in the analysis. However, at least a part of the effect of this factor will be related to a higher problem level in problem areas and this will be reflected in a higher TPS of the children involved. As far as this is the case, in our analyses the effects of this factor will be attributed to TPS. Therefore, in our view, it seems unlikely that this factor could explain all of the systematic inter-individual variance we found, and we believe, despite the limitations of this study, that our results indicate actual differences between PCH professionals in the Netherlands. Whether our conclusions may be generalized to other settings is difficult to answer, as we found no other studies assessing this problem as we did. However, it would be interesting to investigate this issue in settings, like community-based pediatric centers and primary healthcare, in which staff with limited psychological and psychiatric training has to identify children or adults with problems.

It would have been very interesting to determine which characteristics of PCH professionals (e.g. experience and education) could explain the differences between them. Unfortunately, we did not have any data on PCH professionals characteristics.

Fit with the literature

To our knowledge this is the first study that tried to assess differences between individual healthcare providers in the identification of children with psychosocial problems, as it occurs in large-scale standard practice. Many studies have reported on interrater reliability in the field of mental health assessment, but those studies used small samples and mostly concerned specific instruments. Such studies are less suited for assessing the effects of differences between individual healthcare providers in real life, as the study design itself introduces deviations from standard care: two or more persons assessing the same child, using video taping, observations through one-way screens, case descriptions or vignettes etc.
Implications

Are the differences that we found serious? For children with very low TPS scores the effects we found were relatively modest – and most children score in the lower TPS range. When a child has a TPS of about 40, the probability that it will be identified as having problems lies between 30% and 50% when seen by half of the PCH professionals. This is already a remarkable range. Yet, for 25% of all PCH professionals, the probability is still higher and also for 25% this probability is lower. In other words, the variation is largest at relatively high scores, just where the identification by PCH matters most. In our view, therefore, the differences that we found are serious, indeed. We must, however, take into account that the majority of the children have relatively low scores and that our model is therefore based mainly on those children. For that reason, our study should be replicated in a sample with more higher scoring children.

Other studies reported that PCH did not identify any problem in about half of all children with a TPS score above the clinical cut-off point. This finding in itself does not necessarily point to under-identification of problems, as a clinical TPS score is only a valid and reliable indication for problems, not absolute and certain evidence. The clinical assessment by the PCH professional might be more correct, e.g. because he or she identifies problems that are not or insufficiently indicated by the CBCL. However, if this assumption were the main explanation for the lack of agreement between PCH identification and CBCL TPS, we would expect it to be randomly distributed over individual professionals.

This study showed that this is not the case. Identification of emotional and behavioral problems by PCH should thus be improved, thereby diminishing inter-professional variation. The question then remains how to reduce the inter-professional variability. The literature offers several suggestions which can help to do so. Several studies showed that good quality questionnaires can improve problem identification by PCH. Wiefferink et al. showed that training PCH professionals and the use of detailed protocols led to an increase in the sensitivity and specificity of problem identification by PCH and thus to a reduction in inter-professional variability. The effects in their study diminished in time, though. This shows that attention should be paid to continuation of the method and protocols used. Crone et al. studied the sustainability of a health education program in Well-Baby clinics. They found that factors such as perceived self-efficacy, responsibility, training attendance, participation in the adoption decision and level of institutionalization were related to the degree to which physicians and nurses used the program. Such findings may be very relevant for protocols for the identification of psychosocial problems, too. We are not aware of such implementation studies in this field.

The results of this and other studies clearly indicate that the development of high-quality protocols and tools and an effective implementation program with continuous attention to adherence to the protocol are highly desirable. Moreover, the time for applying tools during routine examinations may have to be increased, too. Further research has to show how this could be achieved most effectively.
Conclusion

There are systematic differences between individual PCH professionals in the number of children they identify as having problems, and these differences cannot be explained by problems – as indicated by a clinical CBCL TPS – among these children or other risk indicators.

Clearly, PCH professionals need to improve the identification of problems among children they examine, especially as other studies have shown that such an improvement is possible.8,29,31

The inter-individual variability that we found shows that there are large opportunities to improve the identification of psychosocial problems among children. In order to do so, high-quality protocols, including the necessary tools, an effective and structural implementation program and sustained attention to adherence to protocols have to be developed.

References


