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## Social competence and emotional/behaviour problems in 6–16 year-old Swedish school children

Accepted: 26 August 1998

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**Abstract** Social competence and emotional/behavioural problems as reported by parents on a Swedish version of the Child Behaviour Checklist (CBCL) were examined in 1308 Swedish school-aged children/adolescents recruited from a stratified, random sample of schools in urban, semirural, and rural areas in Uppsala County, Sweden, and from Stockholm, the capital city of Sweden. The overall response rate was 80.6%. Few gender differences were found, but adolescents received higher problem scores and higher social competence scores than the younger children. Children from the middle SES groups were regarded as having higher social competence levels, and children from the lower SES groups had higher emotional/

behaviour problem scores. Children from the larger cities consistently obtained higher problem scores. Those who had received help during the previous year because of psychological problems (2%) had much higher problem scores than those who had not received help. The levels of emotional/behavioural problems in children and adolescents in the present sample seem to be comparable to those reported in similar Scandinavian studies where the CBCL has been used. However, they were considerably lower than those commonly reported in epidemiological studies of children/adolescents from other countries and cultures.

**Key words** Child – adolescent – psychopathology – epidemiology

### Introduction

Extensive epidemiological research on psychosocial functioning in children and adolescents has been carried out in various countries and cultures (40) over the years. However, one has to interpret the findings cautiously because of diverse and nonstandardized assessment methods, particularly in early epidemiological research. In the pioneering Isle of Wight study, Rutter and his co-workers developed parent (31) and teacher (30) questionnaires for assessing behaviour problems in school-aged children. These instruments have also been used in several epidemiological studies of children in other countries and cultures (13, 15, 21, 26).

Based on clinical samples of children referred to child psychiatric services, Achenbach and his coworkers (4)

developed an extensive checklist, the Child Behaviour Checklist (CBCL), which assesses social competence and behavioural/emotional problems in children. The CBCL is to be filled out by parents. Today it has been translated into more than 50 different languages and is used in numerous studies on a wide range of problems in children and adolescents (42). During the last decade, several cross-cultural studies have been accomplished in which social competencies and behavioural/emotional problems in children/adolescents have been compared between countries (5, 33, 36). In a recent study on parent-reported problems in children and adolescents in 12 countries or cultures, total problem, externalizing and internalizing scores were compared and found to be lowest for Swedish children (12). Results from Scandinavian epidemiological studies using the CBCL have

been published from Finland (6), Norway (17, 23), Iceland (18), and recently Denmark (7).

Since the 1940s various large-scale epidemiological studies of children's psychosocial functioning have been conducted in Sweden [for a review, see (9)]. Several of these have been based on teacher, child or adolescent self-reports, only a few have applied parent reports in the assessment (10, 19, 20). In an early pioneering study, Jonsson and Kälvesten examined social psychiatric problems in 222 boys 8–16 years-old from Stockholm (19). Using a symptom checklist developed by MacFarlane and her co-workers for a longitudinal study of American children (25), Jonsson and Kälvesten found that 25% of the boys could be regarded as "problem cases". In a study of 10- and 12-year-old school children in a rural district in Southern Sweden, Kornfält (20) found that 6% of the children were rated by their parents as being problematic, compared with 13% in teacher ratings, and 18% when the children themselves reported psychological problems. Cederblad and Höök (9) used a semi-structured interview with parents based on the items used in the MacFarlane study and found that 13% of the children received a problem score indicating deviance in their behaviour.

The aims of the present study were (1) investigate social competence and behaviour/emotional problems in Swedish school children 6–16 years, (2) supply normative Swedish data for the CBCL, (3) examine whether factors as children's age, gender, socio-economic status (SES) of the family, area of residence (urban, semirural/rural), Swedish vs. non-Swedish citizenship, were related to the children's social competence and behaviour/emotional problem scores, and (4) compare the study sample scores with the outcomes of similar Scandinavian studies as well as studies conducted in other countries and cultures where the CBCL has been used.

## Methods

### Subjects and procedures

Our sample of school children was recruited from Uppsala County and from Western Stockholm in 1992–1993. At the time of study, the County of Uppsala consisted of 270,000 inhabitants, and the City of Uppsala of 106,000 inhabitants (the fourth largest city in Sweden). The City of Stockholm, the largest in Sweden, had about 1 million people (Statistics Sweden) (34). We aimed to include at least 50 boys and 50 girls in each of the 11 age groups and equally large subsamples from rural, semirural (small and middle-sized towns), and urban (larger cities) areas, in addition to equally large subsamples of school children in low (1–3) middle (4–6) and high (7–9) grades.

A cluster sampling procedure was used, and 1677 children from 10 public preschools and 25 public schools

(66 classes from grades 1–9) were invited to participate in the study. Of a total of 44 eligible schools in the large cities (Stockholm and Uppsala), 13 schools were randomly selected and from each of these schools 2–3 classes were likewise randomly selected. Twelve schools were randomly selected (of 47 schools with more than 100 pupils) in the semirural and rural areas, and from each of these schools 2–5 classes were similarly randomly selected. One school in the countryside, and one classroom teacher in Uppsala was reluctant to participate, and both were therefore replaced with another school and another class. In Sweden, 99% of all school children attend public schools (27). According to school statistics, about 1% of adolescents left grade 9 in 1992–1993 with at least one missing school mark due to high school absence (28).

After consent from the principal of each preschool and school, the classroom teachers of each selected class received information about the study by mail. In addition, they were informed about the study by one research assistant during a meeting at school, when all the material were handed over to the teachers. They were asked to notify each class about the study and to distribute the material to the students, who brought the CBCL questionnaire home along with an information letter to the parents. The students then returned the CBCL questionnaire in a sealed envelope to the classroom teacher who collected the material over a period of several weeks. Each class received 500 Sw.Cr. after the teacher decided to terminate the collection of questionnaires.

The teachers were asked to evaluate whether at least one parent in each family had knowledge enough in the Swedish language to be able to fill out the CBCL. Twenty-nine families (1.7%) were excluded because they lacked such competence. In order to follow procedures recommended by Achenbach in the assessment of children in a normative sample [Achenbach 1991, p. 20 (1)], parents were also asked whether the child had received any help in school or regular health service during the previous year related to psychological problems. Twenty-six parents (1.9%) responded positively to this item, and their children were excluded from the final sample. An analysis showed that there was no difference in social competence levels between those who had received any help, compared to those who had not, whereas the behavioural/emotional problem scores were significantly higher among those who had received help ( $M = 39.1$ ) compared with those who had not ( $M = 14.2$ ), [ $t(1275) = 4.54$ ,  $p < 0.001$ ].

Among the 1622 subjects who fulfilled the inclusion criteria, 242 families forgot to return the questionnaire, or returned it blank, or refused to participate (altogether 16.9%). In 2.4% ( $n = 40$ ) of the 1348 questionnaires returned, more than 8 items had been left out by the parents. The final sample consisted of 1308 school

children with complete data (627 boys and 681 girls, 47.9% and 52.1%, respectively; 662 6–11 year-olds and 646 12–16 year-olds, 50.6% and 49.4%, respectively).

The area of residence of the families was as follows: rural 34.1%, semirural 30.5%, and urban 30.7%, unclassified 4.7%. The SES of the families was rated in accordance with the guidelines of Statistics Sweden (34). In two-parent families the highest rating for parent occupation was used. The categories were then collapsed into the following classes; 1 = upper status (enterprisers, lawyers, physicians, etc.), 2 = middle status (civil servants, teachers, etc.), 3 = lower status (unskilled and skilled workers). The SES distribution in the general population of the study areas (Uppsala County and Stockholm), and in the total population in Sweden were the following: upper: 6%/16%/6%; middle: 45%/39%/41%; lower: 40%/30%/44%; and other: 9%/14%/9%. The distribution of the SES in the study sample was: upper 9.6%, middle 57.8%, lower 27.8%, and other 4.8%.

There were few differences regarding the proportion of subjects aged 0–17 years living in the two areas (Uppsala County and Stockholm: 23% and 21%) as compared to the country as a whole (22%). However, the income index was somewhat higher in the County of Uppsala and the Stockholm areas, 101 and 110 respectively, as compared to the whole country which was 100. The proportions of families with a non-Swedish background, also including those born abroad, for the County of Uppsala and Stockholm were 13.2% and 15.%, as compared to 15.3% for the country as a whole. At the time of study 5.7% of those living in Sweden had non-Swedish citizenship, and 9.6% were born abroad. In the study sample, 4.6% of the parents were of non-Swedish nationality.

#### Attrition

The attrition rate varied from 14.9–24.1%, lowest in the youngest age group (13.4%) and highest in grades 4, 7, and 8, 23.1–24.3%, lowest in the rural and semirural areas (14.1–14.9%), and highest in one of the middle-sized towns (21.5%) and Stockholm (24.1%). The overall response rate in the study was 80.6%.

In a majority of the schools (in Stockholm and Uppsala County except for Uppsala City), the teachers were also asked to fill out a Swedish version of the Rutter teacher questionnaire (30) (26 items scored on a 0–2 scale, total behaviour problem scores ranging from 0–52, and from which two subscales, antisocial and neurotic problems, can be formed) (30). Of 953 children, 754 were assessed by both parents (CBCL) and teachers, and for 198 children (20.8%) only teacher ratings were obtained. Analyses of differences between those who participated in both ratings, and those who only

participated in the Rutter teacher ratings showed that the latter had significantly higher total behaviour scores ( $M = 2.8$  and  $M = 4.5$ , respectively,  $t(928) = 3.64$ ,  $p < 0.001$ ).

A further analysis showed that there was no difference between the two groups regarding neurotic problems, but those who did not take part in the CBCL rating had significantly higher scores on the antisocial subscale of the Rutter teacher scale,  $t(928) = 3.85$ ,  $p < 0.001$ . Although no age difference was found, significantly more girls than boys took part in the teacher ratings, but not parent ratings, as compared with those who participated in both ratings,  $X^2(1) = 4.05$ ,  $p < 0.05$ .

#### The CBCL

Prior to the study an already existing translation of the CBCL was carefully checked by three bilingual persons (two of whom had extensive experience in child psychiatry) and differences in phrasing of the items were resolved by discussion.

The CBCL consists of 20 social competence items and 118 items on the behavioural/emotional problem scale. The parents are asked to rate the children's behaviour problems on a 0–2 scale (0 = "not true", 1 = "somewhat or sometimes true", 2 = "very true or often true") for the previous 6 months. The social competence score can be subdivided into three areas, Activities, Social, and School scales, and the sum of scores on these scales yields a total competence score. The behaviour problem scores can be divided into three broad-band dimensions, Internalising, Externalizing, and a Mixed category, which form a total behaviour problem score (excluding items 2 and 4). The Internalising scale consists of three subscales, Withdrawn, Somatic Complaints, and Anxious/Depressed syndromes. The Externalizing scale consists of Delinquent and Aggression syndromes, and the Mixed category includes Thought, Social, and Attention problems. The guidelines recommended by Achenbach in the 1991 year manual were followed (1).

The study was approved by the Ethics Committee, Faculty of Medicine at Uppsala University.

#### Statistics

Correlations between nominal variables were analyzed with cross-tabulation (chi-square statistics), and between continuous variables Pearson product-moment correlations were used. Differences between group means were analyzed with t-tests or ANOVAs. Due to a relatively large number of analyses, the alpha level was set to  $p < 0.01$  and for Tukey's post hoc tests the same significance levels were employed.

## Results

Mothers had filled out the CBCL in 70.9% of the cases, fathers in 12.5%, mothers and fathers together in 13%, and other custodians in 1.4% (2.2% were unclassified responses). A significant difference emerged in that mothers and fathers who rated their children together also found them to be more socially competent than did mothers who rated them alone [ $F(3,1105) = 3.27$ ,  $p < 0.05$ ]( $M = 17.7$  and  $M = 16.9$ , respectively). However, there was no difference related to children's behavioural/emotional problems (mothers:  $M = 14.1$ ; fathers:  $M = 15.2$ ; both mothers and fathers:  $M = 14.6$ ; other custodian:  $M = 19.3$ ).

The 90th percentiles for the total problem score of the whole group was 30 points with small variations between gender and age groups (6–11 vs. 12–16 years) (somewhat higher for the 12–16 year old boys, 33 points).

The following analyses were performed in two sets of two-way ANOVAs where age (6–11 vs. 12–16 years) and gender were used as grouping variables in the first set and SES (upper, middle, and lower) and area of residence (rural, semirural, and urban) were used in the second set. The total means of the school children's social competence and behavioural/emotional problem scores by gender and age are shown in Table 1.

### Social competence

Using "total social competence score" as a dependent variable, a significant main effect was obtained for age,

$F(1, 1128) = 7.65$ ,  $p < 0.01$ . The older children had significantly higher social competence scores than the younger children. A significant SES effect was also found,  $F(2, 1033) = 11.23$ ,  $p < 0.001$ . Tukey's post hoc test indicated that the children from the middle SES groups were rated by their parents to be more competent than those in the lower groups. Similar results for "activities subscale" were found in that a significant age effect was obtained,  $F(1, 1304) = 22.95$ ,  $p < 0.001$  and again, the older children were regarded as more competent than the younger ones. There was also a significant main effect for SES,  $F(2, 1190) = 21.22$ ,  $p < 0.01$ . Tukey's post hoc test showed that the children from the middle SES groups were rated as significantly more competent than those in both the lower and upper SES groups. Similarly, a significant main effect for SES was found for the "Social competence" subscale,  $F(2, 1202) = 10.59$ ,  $p < 0.001$ . Again, Tukey's post hoc test showed that the children in the middle SES groups were regarded by the parents as significantly more competent than both the upper and the lower SES groups. For "school competence", a significant gender effect was found,  $F(1, 1168) = 24.14$ ,  $p < 0.001$ , girls having higher competence scores than boys. A significant "area of residence" effect was also obtained,  $F(2, 1059) = 5.55$ ,  $p < 0.01$ . It was indicated by Tukey's post hoc test that children living in semirural areas were more competent than those in rural and urban areas. Finally, a significant main effect for SES was found,  $F(2, 1059) = 8.55$ ,  $p < 0.001$ . Children in the middle SES groups were regarded by the parents as

**Table 1** Means and SDs (within parentheses) of the school children's social competence and behavioral/emotional problem scores (CBCL) by gender and age group

Area	All N = 1308	Girls (681)	Boys (627)	6–11 Years (662)	12–16 Years (646)
<b>Social competence</b>					
Activities	5.1(2.0)	5.2(1.9)	5.1(2.0)	4.9(1.9)	5.4(2.2)
Social	6.7(1.8)	6.6(1.8)	6.7(1.9)	6.6(1.8)	6.7(1.9)
School	5.1(0.8)	5.2(0.7)	4.9(0.8)	5.0(0.7)	5.1(0.8)
Total score	17.0(3.4)	17.1(3.2)	16.9(3.5)	16.7(3.3)	17.2(3.4)
<b>Problem areas</b>					
Anxious/ depressed	1.9(2.6)	2.0(2.6)	1.8(2.6)	2.0(2.6)	1.8(2.6)
Withdrawn	1.2(1.5)	1.3(1.6)	1.2(1.5)	1.1(1.3)	1.4(1.7)
Somatic	1.0(1.5)	1.1(1.6)	0.8(1.4)	0.8(1.3)	1.1(1.7)
<b>Complaints</b>					
Aggressive	4.5(4.4)	4.4(4.2)	4.7(4.6)	4.8(4.3)	4.3(4.4)
Delinquent	1.1(1.5)	1.0(1.4)	1.2(1.6)	0.9(1.2)	1.2(1.7)
Thought	0.1(0.5)	0.1(0.6)	0.1(0.5)	0.1(0.6)	0.1(0.5)
Social	0.7(1.3)	0.7(1.4)	0.7(1.3)	0.8(1.3)	0.7(1.3)
Attention	1.6(2.1)	1.4(1.9)	1.8(2.3)	1.6(2.0)	1.6(2.2)
Internalizing	4.0(4.3)	4.3(4.4)	3.7(4.1)	3.9(3.9)	4.2(4.6)
Externalizing	5.6(5.4)	5.4(5.3)	5.9(5.6)	5.7(5.2)	5.5(5.7)
Total problem score	14.3(12.6)	14.3(12.4)	14.3(12.9)	14.5(11.8)	14.1(13.5)

significantly more competent than children in the lower SES groups according to Tukey's post hoc test.

#### Behavioural/emotional problem scales

Using "the total problem scores" as a dependent variable the results of ANOVAs with the same sets of grouping factors presented significant main effects for SES and area of residence,  $F(2, 1191) = 5.11, p < 0.01$  and  $F(2, 1191) = 5.68, p < 0.01$ , respectively. Tukey's post hoc tests exposed children from the lower SES groups as having significantly higher scores than those in the other two SES groups, and children from urban areas having significantly higher scores than those from the rural areas. Analyses of the three broad-band syndromes indicated significant main effects for area of residence for "Internalizing problems",  $F(2, 1190) = 5.08, p < 0.01$  as well as for "Mixed problems",  $F(2, 1193) = 8.29, p < 0.001$ . For both syndromes children from urban areas had significantly higher scores than those from the other two areas. A significant main SES effect was also found for "Externalizing problems",  $F(2, 1193) = 5.20, p < 0.01$ . Children from the lower SES groups had significantly higher problem scores than those in the middle SES groups.

Further analyses of the various subscales in the three broad-band behaviour syndromes were also performed. On the "Internalizing" broad-band scale, a significant main effect was obtained for "Anxious/depressed problems" and "Area of residence",  $F(2, 1193) = 6.70, p < 0.01$ . Tukey's post hoc test indicated that children from urban areas scored significantly higher than those in the two other areas. For "Withdrawn problems", a significant age effect was found,  $F(1, 1309) = 7.71, p < 0.01$ , and the older children had higher problem scores than the younger ones. For "Somatic complaints" significant main effects were found for gender,  $F(1, 1309) = 11.62, p < 0.001$  and age,  $F(1, 1309) = 9.20, p < 0.01$ . Girls had significantly higher scores than boys and older children had higher scores than younger children.

Additional analyses of the subscales on the Externalizing broad-band syndrome revealed significant main effects for "Delinquent problems" and age,  $F(1, 1309) = 14.07, p < 0.001$ . The older children had significantly higher scores than had the young children. A significant main effect was also found for SES,  $F(2, 1193) = 4.90, p < 0.01$ . Tukey's post hoc test showed that children from the lower SES groups received significantly higher scores than those in the middle SES groups.

For the Mixed broad-band syndrome, a significant effect was found for Thought problems and area of residence,  $F(2, 1193) = 6.17, p < 0.01$  and Social problems,  $F(2, 1193) = 6.68, p < 0.01$ . For both types

of problems Tukey's post hoc tests displayed significantly higher scores for children from the urban areas than children from the other two areas. For Attention problems, a significant effect was found for gender,  $F(1, 1309) = 7.25, p < 0.01$ , boys having higher scores than girls. In addition, a significant main effect was found for area of residence,  $F(2, 1193) = 8.44, p < 0.001$ . Tukey's post hoc test indicated significantly higher scores for children from urban areas.

Using Cohen's criteria (11) for estimating of effect sizes (ES), all differences between groups were small (less than 5%) with the majority being less than 1%. The largest ES were obtained for Total Social competence (4%), Activities (4%) and social competence scores (2%) and were related to SES differences between groups.

#### Correlations between social competence and behavioural/emotional problem scores

Although several correlations were significant but low in magnitude, they were highest for total social and school competence among boys, and for their total behaviour problem score (Table 2). However, the correlations between the various emotional/behavioural subscales were all significant and varied from  $r = 0.21$  to  $0.66$  (Table 3). The correlation between internalizing and externalizing scores was  $r = 0.51$  ( $p < 0.001$ ).

#### Discussion

In the present study social competencies and behavioural/emotional problems as rated by parents were examined in a cluster sample of 1308 preschool and school children/adolescents 6–16 years-old. Overall, the results showed that older children were regarded as more social competent than younger ones but that they also received higher scores on Withdrawn, Somatic Complaints, and Delinquent Problem scales. Girls were regarded as more school competent than boys. By contrast, girls received higher scores on the Somatic Complaints scale than boys, but lower scores on the Attention Problem scale. Parents from the lower SES groups rated their children as having more problems than did other parents. However, parents from the middle SES groups regarded their children as more socially competent than did parents in the other SES groups. Parents living in the larger cities consistently rated their children/adolescents as having more problems. Although statistical differences related to gender, age, SES and living area (urban/rural) were found, overall the effect sizes were small and explained less than 4% of the variance.

In the present study the response rate was high (80.6%) but attrition rates were higher in the largest city area (Stockholm) and among adolescents in grades 7 and 8 (not in grade 9, though). It took several weeks for

**Table 2** Correlations between the school children's social competence and behavioral/emotional problem scores by gender and age

Competence scale	Total Problem score	Internalizing score	Externalizing score	Age
<b>All</b>				
Social	-0.12**	-0.09*	-0.12**	0.08*
Activities	-0.06	-0.04	-0.06	0.13**
School	-0.16**	-0.10**	-0.15**	0.04
Total	-0.16**	-0.12**	-0.14**	0.09*
Age	-0.01	0.07	-0.04	-
<b>Girls</b>				
Social	-0.08	-0.06	-0.10	0.04
Activities	-0.04	0.01	-0.06	0.17**
School	-0.09	-0.06	-0.09	0.05
Total	-0.10	-0.07	-0.10	0.08
Age	-0.02	-0.10*	-0.08	-
<b>Boys</b>				
Social	-0.16**	-0.12*	-0.15**	0.13*
Activities	-0.09	-0.10*	-0.06	0.10
School	-0.23**	-0.17**	-0.19**	0.03
Total	-0.22**	-0.19**	-0.18**	0.11
Age	0.02	0.04	0.01	-

\*  $p < 0.01$ ; \*\*  $p < 0.001$

the teachers to collect the questionnaires, and long-term or frequent school absence might have influenced the representativeness of the sample. However, according to school statistics about 1% of adolescents have a high school absence and the rates in the lower grades are negligible (28). A decrease in response rate by age has also been reported in other Scandinavian epidemiological studies where the CBCL has been used (7, 17, 18). The results of the concurrent administration of the Rutter teacher rating scale also revealed that children of those parents who did not participate in the CBCL assessment received somewhat higher behaviour problem scores by their teachers, in particular on the antisocial scale. This finding suggests that the obtained CBCL problem scores is a somewhat lower estimate of the actual scores for children/adolescents in the school population. Similar findings have been reported in a French epidemiological study by Fombonne (15) where the CBCL and the Rutter teacher inventories were administered at the same time.

Various approaches have been used in different epidemiological studies when collecting the CBCL data. In the present school-based study, children were asked to take the CBCL inventories home to their parents together with an information letter. This method is different from that used in other Scandinavian studies (6, 7, 17, 18) where the CBCL inventories were mailed to the parents. However, response rates in these latter studies were consistently lower and varied from 45% (17) to 60–65% in a general population (7, 18, 23), and 60% in a twin population (17). In several other epidemiological studies (12), a more costly method for collecting data was used in which trained interviewers visited the homes of the families and administered the

CBCL to one of the parents, which resulted in participation rates of more than 90% (1, 3, 12, 38). In a study by Verhulst et al. (41), lower total problem scores were found when parents filled out the inventory by mail than if the CBCL was administered by home interviewers, thus, suggesting that high scoring families tend to be underrepresented in mail surveys. In a cross-cultural study by Tsiantis et al. (36), 80% of Greek parents contacted through the schools participated in the study (similar to the present study) as compared to 58% of the parents in a German sample contacted by mail. Overall, the sampling method used in the present study was cost-effective and the representativeness of the sample acceptable.

In the present study about 70% of the CBCL inventories were filled out by the mothers alone (in addition to 15% where both mothers and fathers together filled out the CBCL). However, children's total behaviour problem scores were not related to which one of the parents, or parent surrogates, filled out the CBCL. Similarly, in a study of the general population in Norway 66% of the parents who provided the information were mothers, but a higher proportion, 77%, was noticed in a twin population (17). However, the proportion was higher (80–85%) in the interview study of American children by Achenbach (1) and even higher in the Icelandic study conducted by mail (92%) (18). Overall, such differences in response rates are likely to be explained by differences in cultural attitudes and habits rather than being related to the methods used in collecting the data.

In the present study about 2% of the children/adolescents who had received help during the previous year because of psychological problems in school or at

**Table 3** Pearson product-moment correlations between various behavioral/emotional problem scales among school children

	Anxious/ depressed	Somatic complaints	Withdrawn	Aggressive	Delinquent	Social problems	Thought problems	Attention	Internalizing	Externalizing	Total problems
Anxious/ depressed	—										
Somatic complaints	0.31	—									
Withdrawn	0.55	0.30	—								
Aggressive	0.48	0.25	0.35	—							
Delinquent	0.31	0.33	0.35	0.63	—						
Social problems	0.49	0.21	0.43	0.46	0.30	—					
Thought problems	0.38	0.29	0.35	0.30	0.30	0.38	—				
Attention	0.51	0.25	0.41	0.62	0.45	0.66	0.40	—			
Internalizing	0.88	0.63	0.77	0.49	0.42	0.51	0.45	0.52	—		
Externalizing	0.47	0.29	0.38	0.98	0.78	0.46	0.33	0.62	0.51	—	
Total problems	0.73	0.50	0.62	0.84	0.69	0.64	0.49	0.76	0.81	0.87	—

Note: All rs were significant at the  $p < 0.001$  level

regular health care centers (and who were excluded from the final sample) also had much higher emotional/behavioural problem scores than other school children. This figure corresponds well with reports on Swedish children where 2% in a population have received help from child psychiatric services during the previous year (10, 14)). While referral status is commonly used as a criterion for caseness (1), the rates have varied from 0% to 16% in studies conducted in other countries for those children who have received some form of help because of psychological problems (33).

Although few gender differences in total problem scores have been found in other large scale epidemiological studies conducted in different countries (37), boys have received higher scores than the girls on various CBCL items (33). It has therefore been argued that such gender differences reflect common patterns in various cultures or the expression of biological differences, for example, related to neurodevelopmental maturity (16). However, in the present study boys had higher scores than girls on the attention problem subscale only, and girls had more somatic complaints in addition to a higher school competence than the boys. Although younger children have been found to have higher total problem scores, effect sizes have generally been small, and for the syndrome scales and single CBCL items no consistent age effects have been observed (37). In the present study when differences were found, the adolescents (12–16 years) consistently had higher problem scores as well as higher social competence scores than the younger ones (6–11 years).

In several cross-cultural comparison studies higher total problem scores have also been reported for lower SES children (37). In line with these findings children from the lower SES groups were regarded as having more emotional/behavioural problems than those from the other groups. However, children from the middle SES groups were more often regarded by their parents to be more socially competent than children in the other SES groups. Further, in numerous comparison studies children from the larger cities have had higher problem scores than those from the semirural and rural areas. It has been reported that behavioural problems and psychiatric disorders are twice as common among children from the inner City of London than among those in the Isle of Wight study (32), and similar findings have also been reported from a Norwegian study (24). However, in previous Swedish epidemiological studies few differences in behavioural or emotional problems between children from urban and rural areas have been found (10). This applies also to a recent study of school adolescents from various areas in Sweden using the Youth Self-Report (YSR) (8).

In a review of cross-cultural studies where the CBCL has been used the mean total problem scores ranged from 20.0 to 35.4 (37). In contrast, few differences in

rank ordering of the item scores were found. In a recent cross-cultural study including twelve countries or cultures where the CBCL had been used in large scale epidemiological studies, the present Swedish sample had the lowest problem scores in most of the comparisons (12). When comparing our results with other Scandinavian studies, again, the total mean problem score of the present sample is the lowest ( $M = 14.2$ ) as compared to children in the same age groups in two studies conducted in various parts in Norway [ $M = 15.4$ ; (29); in the study by Kvernmo and Heyerdal (23), the means for 13–16 year-old boys and girls were  $M = 17.2$  and  $M = 14.3$ , respectively) and a small scale study in Finland ( $M = 16$ –19)(6). Total problem scores were also similar to studies of children 4–16 years old from Iceland ( $M = 17.5$ )(18) and Denmark ( $M = 17.7$ )(7). The outcomes of the Scandinavian studies suggest that parents of school-aged children and adolescents in these countries experience similar amounts of emotional and behavioural problems among their children but generally lower levels as compared with parents in several other countries or that their tolerance for deviant behaviours among children is higher. However, another possible interpretation is that there is a similar response bias in parental ratings of children in the Scandinavian countries. Our preliminary data also suggest that teacher ratings on the Rutter questionnaire were lower as compared with similar ratings in a study of French school children (15). However, the cut-off score (9 points) for the 90th percentile of the sample was identical to the one suggested by Rutter in a study of school children from the U.K. (30). Preliminary data from a study on 3400 Swedish school youths (8) suggest that their emotional/behavioural problem scores are similar to those obtained in the USA (2) and Norway (22), but higher than those obtained in studies of adolescents from Iceland (18), Denmark (7), and Holland (39).

Some limitations of the present study need to be emphasized. First, the lower scores obtained for the present sample could be attributed to a sampling bias. Although cluster sampling is a practical procedure when collecting data the precision is influenced by the number of clusters, i.e., primary sampling units, and thus limits the accuracy of prevalence estimates in the target population. The results of the concurrent administration of the Rutter teacher rating scale also revealed that children of those parents who did not participate in the

CBCL assessment received somewhat higher behaviour problem scores by their teachers. In addition, a higher SES was found among families in the subsample from Stockholm contributing to a higher SES level for the whole sample as compared with the population of Sweden. However, it should be noted that the present sample also included a somewhat higher proportion of families from large cities and children with higher problem scores as compared with the whole population, thus, counterbalancing the effects of a higher SES in the total sample. Further, in most cases when SES differences were found, the effect sizes were small explaining less than 1% of the between-group variances for the behaviour problem scales. Although a home-based interview approach would likely have yielded a lower attrition rate, the present school-based data collection approach was successful in achieving an adequate response rate for a very reasonable cost in terms of money expenditure, time, and effort of the administrators who collected the data. Another limitation of the study was that the present sample of children and adolescents was restricted to one county in Sweden and one area of the largest city in the country, Stockholm. The proportion of non-Swedish citizens was lower in the study sample than in the whole population.

In conclusion, few gender differences were found but the adolescents received higher problem scores in addition to higher social competence scores than the younger children. Children from the middle SES groups were regarded as having higher social competence levels and children from the lower SES groups had higher emotional/behavioural problem scores. Children from the larger cities consistently obtained higher problem scores. It was also found that children who had received help during the previous year because of psychological problems (2%) had much higher problem scores than those who had not received such help. The levels of emotional/behavioural problems of the present sample of children and adolescents are comparable to those in similar Scandinavian studies where the CBCL has been used. However, the amount of problems was considerably lower than reported in epidemiological studies of children/adolescents from other countries and cultures (12).

**Acknowledgment** The authors gratefully acknowledge the skillful help and assistance by Research Psychologist Kjerstin Hemmingson.

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