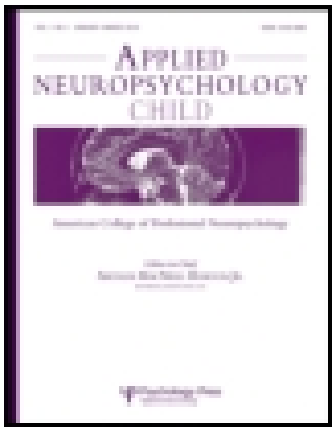

Applied Neuropsychology: Child
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/hapc20

Short- and Long-Term Effects of Child Neuropsychological Assessment With a Collaborative and Therapeutic Approach: A Preliminary Study

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Published online: 11 Feb 2015.

To cite this article: Anita Hansson, Lina Hansson, Ingela Danielsson & Erik Domellöf (2015): Short- and Long-Term Effects of Child Neuropsychological Assessment With a Collaborative and Therapeutic Approach: A Preliminary Study, Applied Neuropsychology: Child, DOI: 10.1080/21622965.2014.996646

To link to this article: http://dx.doi.org/10.1080/21622965.2014.996646

APPLIED NEUROPSYCHOLOGY: CHILD, *0*: 1–10, 2015

ISSN: 2162-2965 print/2162-2973 online
DOI: 10.1080/21622965.2014.996646

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This preliminary study explored if a collaborative and therapeutic approach (CTA) could reduce self-reported psychiatric symptoms (Beck Youth Inventories [BYI]) in children referred for neuropsychological assessment. Participants included 11 children ($M_{age} = 12.4$ years) receiving CTA, 11 ($M_{age} = 12.6$ years) receiving parent support, and 9 ($M_{age} = 12.3$ years) remaining on a waiting list. Contrary to both comparison groups, the CTA group reported fewer psychiatric symptoms on most BYI subscales after intervention, and this decrease was sustained for the Anger and Anxiety subscales at 6-month follow-up. Findings support a potential effectiveness of CTA in the neuropsychological assessment of children in a child psychiatric setting.

Key words: *child psychiatry, child psychology, collaborative and therapeutic approach, neurodevelopmental disorder, neuropsychological assessment*

Many neurodevelopmental disorders are first observed during childhood and take the form of impaired performance in one or more neuropsychological functions. Genetic vulnerability factors, together with biological/organic factors and psychosocial environmental factors, affect the symptom picture. Children with neurodevelopmental disorders are at risk for developing a chronic state of frustration, irritation, and fatigue (Green, 2001) and often show psychiatric symptoms such as severe anxiety and depression (Kutcher, 2005). Parent support is one of the most common prevention measures in Swedish child psychiatry, and many parents seek advice on how to relate to their children. Children with neurodevelopmental disorders may have different needs compared with typically developing children. Thus, measures directed at providing parent support that do not take into account possible neurodevelopmental disorders seldom lead to alleviation of symptoms for these

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children and may even lead to a worsening of their symptoms (Green, 2001).

Within the framework of therapeutic assessment (TA), psychological assessments can be used as empathy amplifiers and can provide the child and parents with experiences that make them receptive to the changes the assessment brings forth. A main goal of the assessment in TA with young children is to help parents to view their child in a more accurate and compassionate way. The child participates actively by specifying the goals of the assessment, is able to contribute additional information, and is involved in interpreting the test results. This active participation helps to shape the understanding of the child's distress and complaints and the ways in which they impact daily functioning. The child's involvement in the results offers a meaningful perspective for weighing potential significance. The assessor must at all times bear in mind how children and parents should be guided toward new insights (Finn, 2007).

In the TA process, presentation of the test results during the feedback procedure has been shown to be crucial. Parents of children who have undergone neuropsychological assessment report positive effects of feedback in terms of providing an increased understanding of the child and suggestions for necessary changes in the child's environment (Arffa & Knapp, 2008). Of relevance to the present study, Tharinger, Finn, Hersh, et al. (2008) have established a rationale for how feedback may be presented to children and argue for the benefits of involving the child in the assessment process. They suggest that many children may have difficulty with taking in direct personal and emotionally charged information as they may become overwhelmed and defensive. More indirect feedback in the form of a symbolic fable may instead spark their interest and involvement, help the child to modify his/her life story, and provide words for the child's emotions.

Thus, TA incorporates systemic, developmental, and narrative theory principles into a child-focused therapeutic method that can be a positive and potentially transforming experience for both the child and his/her family (Hamilton et al., 2009; Smith & Handler, 2009; Tharinger, Finn, Austin, et al., 2008). Evidence for TA as an effective family therapy intervention has been established by controlled studies and single-subject experiments (Smith, Handler, & Nash, 2010; Smith, Nicholas, Handler, & Nash, 2011; Smith, Wolf, Handler, & Nash, 2009; Tharinger et al., 2009). Positive effects of TA as family therapy, which involves children with social, emotional, and/or personality issues and their parents, have also been described in several clinical reports and case studies in terms of symptom reductions, increased family function, and increased self-confidence (e.g., Hamilton et al., 2009; Smith & Handler, 2009; Tharinger et al., 2009; Tharinger, Finn, Wilkinson, & McDonald Schaber, 2007). Importantly, one study that specifically explored feedback in the form of fables to children undergoing neuropsychological assessment revealed positive effects (Tharinger & Pilgrim, 2012). Compared with children not receiving feedback, the children provided with individualized fables stated increased learning about themselves and their problems and that their parents showed more understanding of them. They also reported a more positive assessor relationship and a greater sense of collaboration during the neuropsychological assessment.

Inspired by TA and motivational interviewing (MI; Miller & Rollnick, 2002), collaborative therapeutic neuropsychological assessment (CTNA; Gorske & Smith, 2009) was developed as an integration of Gorske's therapeutic neuropsychological assessment and neuropsychological assessment feedback intervention (Gorske, 2008) and Smith's collaborative neuropsychological assessment (Gorske & Smith, 2009). To date, studies evaluating the therapeutic effect of CTNA in the assessment of children are scarce. However, encouraging examples of CTNA including child cases are available (Gorske & Smith, 2012). In the CTNA approach, it is assumed that the patient wants to learn what it is that will benefit his/her functioning and that an informed, educated, and strengthened patient will actively participate in and carry out the treatment recommendations. For parents, it is assumed that information and education will strengthen their resolve to accept responsibility for the well-being of their child. Test results from psychological assessments are assumed to provide answers to questions and offer guidance in treatment planning. In line with the TA model, the feedback of assessment results is considered important in helping children and parents to redefine their life stories and provides new perspectives on perceived difficulties with a focus on strengths and weaknesses. CTNA uses techniques from MI such as elicit-provide-elicit and "rolling with resistance." The concept of central cognitive-emotional complaint (CCEC) helps the assessor to summarize and understand the patient's problems and the consequences of these problems in three stages: the patient's desire for change, the patient's behavior and cognitive reactions, and the emotional reactions the patient experiences when faced with what he/she perceives as being difficult (Gorske & Smith, 2009).

Although there are several reports of positive therapeutic effects of TA and/or CTNA in children, few studies have been devoted to exploring whether or not such positive effects are persistent over time. However, Finn (2007) theorized that treatment benefits of TA would be long-lasting, which was later supported by single-case studies with time-series designs, including follow-ups at

40 days and 60 days after intervention (Smith, Finn, Swain, & Handler, 2010; Smith, Handler, et al., 2010; Smith et al., 2009, 2011).

The aim of this study was to evaluate both short- and long-term therapeutic effects of neuropsychological assessment with a collaborative and therapeutic approach (CTA) in a sample of children referred for neuropsychological assessment. At the start of this study, it was not possible to deduce dedicated practical collaborative and therapeutic assessment procedures specifically regarding children with neuropsychiatric conditions from either TA or CTNA. Thus, elements of both TA (overall approach, symbolic fables feedback) and CTNA (MI techniques, feedback sessions to school, CCEC) were employed to optimize the fit with pediatric neuropsychological assessment. Comparing preintervention and postintervention measurements of self-reported externalized and internalized psychiatric symptoms in children receiving CTA and control children (receiving parental support or remaining on a waiting list), the hypotheses were that (a) children in the CTA group would report a larger reduction of symptoms than would children in the control groups, and (b) this therapeutic effect would remain after 6 months.

METHODS

Participants

At the start of the study, following informed consent from their parents/guardians, 68 children waiting for neuropsychological assessment at the Child and Adolescent Psychiatric Clinic at Sundsvall Hospital in Sundsvall, Sweden, were invited to participate in the study. Of these children, 41 accepted the invitation and were called to an initial meeting for information and to self-report psychiatric symptoms by means of the Beck Youth Inventories (BYI). One child who was facing police investigation, judicial examination, and/or other serious crises was excluded. An additional 9 children were excluded due to not reporting any significant symptoms as judged by the BYI. The remaining 31 children were found to exhibit one or several significant symptoms and were thus included in the study. The final sample was divided into three groups: 11 (4 girls, 7 boys; $M_{age} = 12.4$ years, $SD = 3.1$ years, range = 9–16 years) were assigned to neuropsychological assessment with CTA, 11 (2 girls, 9 boys; $M_{age} = 12.6$ years, $SD = 3.3$ years, range = 7–17 years) were assigned to receive parent support (PS), and 9 (1 girl, 8 boys; $M_{age} = 12.3$ years, $SD = 3.0$ years, range = 8–16 years) remained on the waiting list (WL). Children who had waited the longest were given priority to the CTA group for ethical reasons and to comply with legislated treatment guarantees. Assignment to the control groups was based on considerations made to the guardians' preferences for inclusion in either group, if parent support was already ongoing, or if the parents were considered to be in need of support. If there were no preferences or particular circumstances, children were selected to be included in the PS or WL group in an attempt to make the group sizes as similar as possible. The remittance issues of each group are shown in Table 1. The study was approved by the Umeå Regional Ethical Board. All children and guardians gave written, informed consent for participation in the study. After the study was completed, all children in the control groups were given a neuropsychological assessment with CTA.

Measures and Procedures

All data were collected at the Child Psychiatric Clinic at Sundsvall Hospital from 2010 to 2011. The clinical work was carried out by four trained advanced psychology students supervised by one senior psychologist (AH) and tutored by one additional senior psychologist. Data were collected before and after intervention and, in the case of the CTA group, after 6 months (see Figure 1).

Beck Youth Inventories

The Swedish version of the BYI was used for preintervention and postintervention measurements of all children as a measure of their self-evaluated symptoms of emotional and social impairment (Beck, Beck, & Jolly, 2004). BYI are a series of five self-report inventories, each containing 20 statements covering both internalized (Depression, Anxiety, and Self-Concept subscales) and externalized (Anger and Disruptive Behavior subscales) symptoms. The instrument is intended for ages 9 to 18 years, but given adjustments such as reading the instructions out loud, BYI can be used from the age of 7 years with proven high measurement reliability (Beck et al., 2004). In the present study, care was taken to ensure that both younger children (7–9 years old) and older children whose ability for independent responding was judged as being challenged received the necessary adjustments to be able to

TABLE 1
Group Remittance Issues

Group	*N*	*ADHD (n)*	*ASD (n)*	*Coexisting Disorders (n)*
CTA	11	0	4	7
PS	11	0	2	9
WL	9	2	4	3
Total	31	2	10	19

N = number; ADHD = attention-deficit hyperactivity disorder; ASD = autism spectrum disorder; CTA = collaborative therapeutic approach; PS = parent support; WL = waiting list.

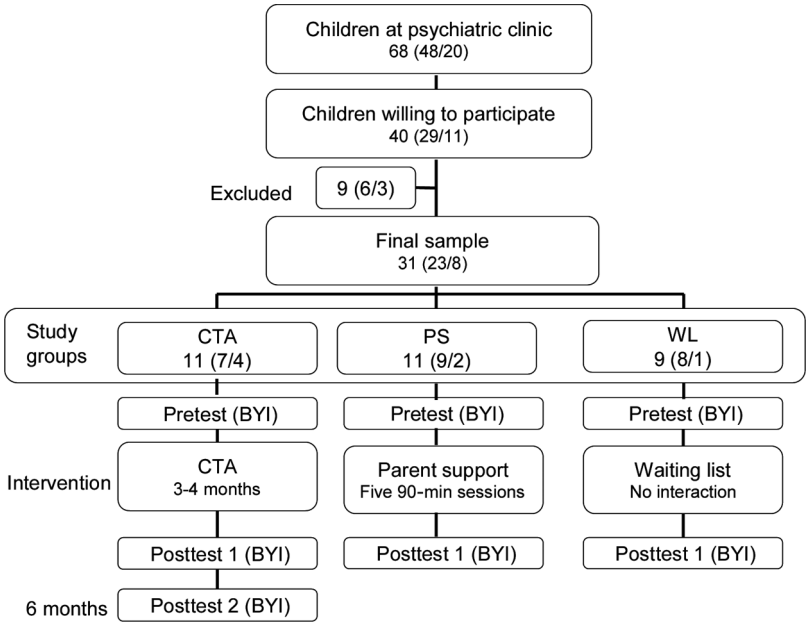

FIGURE 1 Outline of recruitment and study design. Numbers in parentheses specify boys/girls. CTA = collaborative therapeutic approach; PS = parent support; WL = waiting list; BYI = Beck Youth Inventories.

complete all scales. The BYI have three clinical limit values: Symptoms up to the 74th percentile are considered "average"; those between the 75th and 89th percentiles are considered "moderately elevated"; and those symptoms from the 90th percentile and above are considered "extremely elevated." Conversely, symptoms between the 11th and 25th percentiles are considered "lower than average" and values in the 10th percentile and under are considered "much lower than average." The percentile distribution is not normally distributed because children and adolescents in a nonclinical population typically do not endorse the kind of problems the instrument is designed to measure. On the scales of Anxiety, Depression, Anger, and Disruptive Behavior, the higher the percentile score, the more deviant the self-report of the child is considered to be. In contrast, on the Self-Concept scale, a higher score denotes a more positive self-concept and a lower value indicates a more negative self-concept. The clinical validity of the BYI has been studied in clinical groups, and all scales except Disruptive Behavior have been found to contribute to discrimination between treatment/diagnosis groups and matched controls (Beck et al., 2004).

Group Interventions

Neuropsychological assessment with a collaborative and therapeutic approach. The neuropsychological assessments were carried out according to Baron (2003) with an added CTA based on both TA (Finn, 2007) and CTNA (Gorske & Smith, 2009). The assessments were used to create situations together with the child that made visible the child's functions, reactions to success and adversity, challenges, and encouragement. This helped to provide a ground for dialogue about the child's subjective experiences and understanding of these experiences and their relations to problems in everyday life. The child's new experiences opened up the possibility for reconsidering previous conceptions and putting words on insights. For example:

> Assessor (A): How many tasks did you think that you would manage?
> Child (C): None
> A: How many did you finish?
> C: Several.
> A: How did you manage that?
> C: I dared to try!
> A: When you are calm and dare to try, you can manage more than you think!

Each assessment took 3 to 4 months and included 5 to 13 sessions each lasting 45 min to 120 min, corresponding to a total treatment duration of 8 to 16 hours. The assessment procedure included eight steps (Table 2) covering questions from the parents and child, developmental history interview, testing, and feedback.

Questions. The child, the parents, and the school were guided to formulate questions that the assessment would aim to answer. At the first visit, the parents were interviewed about the problems of the child and the family and their consequences, while the assessor

TABLE 2
Outline of the Assessment Procedure

Step	*Psychological Assessment*	*Minutes Per Session*
1	*Parent questions*	60–90
2	*Child questions*	30–60
3	Developmental history interview	90–180
4	Testing + *feedback of results* ($M = 6.2$ sessions)	45–180
5	Feedback of child psychiatric assessment	60–120
6	*Collaborative feedback with parents* (if necessary)	60–120
7	*Collaborative feedback with the child, parents present*	30–90
8	School conference (if necessary)	60–120

Note. Model-specific supplements are indicated in italics.

explored the parents' thoughts, feelings, and explanations. The parents were then encouraged to add their own questions to the assessment that involved them—for example: "What can we do to best support our child?" and "How can we understand our child?" The parents were further supported in how to talk to their child about the upcoming assessment. During the second visit, the assessor and child discussed what the child experienced as problematic, the child's view of herself/himself, her/his life, her/his relations to others, and her/his thoughts about the future. The child's problems and consequences were summarized in three steps using CCEC (Gorske & Smith, 2009). The first step included the child's wishes for change and what the child wanted (e.g., "You wish that you could be like everybody else"). The second step covered the child's behavioral and thought reactions to matters perceived as difficult (e.g., "When you think that it becomes too hard, you have bad thoughts about yourself and act out"), and the third step involved emotional reactions to the same (e.g., "And then you feel afraid and sad"). CCEC was mirrored by the assessor as hypotheses. The child and accompanying parents were invited to reflect about these hypotheses as a means to promote understanding and gain insight in the child's everyday life. The child was also helped to formulate their own questions using CCEC, which resulted in questions such as, "Why don't I like to be in crowds?" or the child wishing for something—for example, "I wish I quarreled less with Mom." These questions were sustained during the assessment process and were answered in the feedback. In addition, the principal of the child's school was contacted, and together with the staff concerned, the principal engaged in formulating questions about special needs of the child, relevant environmental and instructional/curricular modifications, and the best protocol and support of the child during school hours. Some schools arranged a dedicated conference in which the school psychologist and special educator also took part in formulating questions. The school staff was encouraged to express questions that involved them in the solution. Typical questions were, "What type of pedagogical supports would improve NN's learning process?" and "Does NN need any support, protection, or guidance during breaks?"

Developmental history interview. During the third session, the parents were given a clearly described explanation of the neuropsychological assessment procedure and information about the child's developmental history was collected using a CTA.

Neuropsychological testing. To promote optimal individual performance, neuropsychological testing was modified for every child with regard to time duration, rewards (e.g., candy or playtime), encouragement, and structure. The choice of test instruments and the number of test occasions were directed by each individual child's questions and by hypotheses that the test results generated. The parents of two children were allowed to observe their respective child being tested and were later invited to reflect on their observations. Remaining parents received demonstrations of how their child solved various tasks during the feedback occasion after each testing session. "Testing the limit" (Lezak, Howieson, Bigler, & Tranel, 2012) was used to make the child conscious of his/her problem-solving strategies and emotional reactions to adversity and success through mutual exploration. This form of mutual exploration has been suggested to provide a therapeutic effect (Tharinger et al., 2007). In the current setting, apart from informing the assessor about how modifying the terms of engagement/delivery either facilitates or obstructs the child's performance, the process also has the potential to help the child become more aware of their own problem-solving strategies, whether there is flexibility in making paradigm shifts, and their own resiliency in terms of adversity. Further, neuropsychological testing helped the assessor to understand the motives behind the child's behavior, how the child viewed the world, and what might be of help to the child.

Feedback. Feedback was given continuously, cumulatively, and collaboratively throughout the assessment process. All test results were communicated following Finn's (2007) three-step model, and feedback was given in accordance with the MI collaborative approach, including the elicit-provide-elicit and "rolling with resistance" techniques. Language and tone were adapted to the particular family. During each testing occasion, parents received a description of the assessment methods and took part in a discussion about the test results and the child's problem-solving strategies and problems. The

assessor could then bring together reactions from the child and the parents and summarize the results in correspondence with the questions posed at the beginning of the assessment process. On completion of the assessment, feedback concerning the full child psychiatric assessment was given to the parents in the presence of a physician, the assessor, and a counselor. At this point, all assessment results were summarized into diagnoses, the child's strengths and shortcomings, and treatment recommendations. After this, systematic, cooperative, process-directed, and child-centered feedback sessions took place with the parents, with the child and parents, and with the parents and the school. In collaborative feedback with the parents, the parents were given the opportunity to anchor new knowledge about their child and reflect upon the child's needs and the possibilities to meet those needs within the family. Metaphors used by the family during the assessment were employed and test results were reformulated to help the parents to further modify and develop the understanding of their child. At the end, the feedback to the child was discussed and planned together with the parents. Collaborative feedback with the child started with revisiting the child's initial questions/wishes. The child was then supported in using words to discuss their strengths, weaknesses, and new experiences gained during the assessment process. Support was also given in reformulating initial self-descriptions (e.g., "I give up easily" changed to "I do my best"; "I'm a slow reader" changed to "It's good for me to have time when I read"). The children were further presented with the main assessment results in two ways depending on their level of ability to use symbols: For the children who were considered to be able to use symbols ($n = 6$), the assessor wrote a personal symbolic fable (Tharinger, Finn, Hersh, et al., 2008). Children who were considered limited in symbolic ability received a personal description of neuropsychological functioning with regard to strengths, difficulties, and needs. The children were then asked what they thought about their fable/description and if they wanted to change it in any way. Further, the symbolic fable may also help people surrounding the child to view the child in a more empathetic light (Tharinger, Finn, Hersh, et al., 2008). It is thus recommended to send a letter to the parents, the school, and other concerned parties conveying the information given to the child but adjusted for language and content. In the present study, such a letter was sent to both the parents and the school in all cases.

Parent Support

In Swedish child psychiatry practice, parents are frequently offered guidance in how to relate to their children to further the psychosocial development of the child. Parent support is intended to further parents' awareness of their children's needs and contribute to strengthening the parental role. Children with neuropsychiatric problems are at risk for being subjected to unrealistic demands compared with better-functioning children. When the surrounding world imposes demands that are beyond the child's capabilities, the child may react with defiant behavior. The parent support given in the present study was designed to support parents of children with neurodevelopmental disorders with a focus on empathy and to guide the parents to better meet the needs of their child (Green, 2001). Support was tailored to help the parents to predict what could become difficult for the child and, when problems arose, to actively choose to ignore minor transgressions, to negotiate with the child, and to practice problem solving. All parents in the PS group were offered five 90-min supporting sessions (average number of attended meetings = 3.75). No children were present in these sessions.

Waiting List

Children assigned to the WL group and their guardians were not in contact with the Child Psychiatry Clinic regarding any kind of treatment during the course of the study.

RESULTS

Percentile Values Before and After Intervention

Two-way analysis of variance (ANOVA) revealed no main effect of group on any of the BYI subscales, indicating that there were no significant differences in self-reported clinically significant psychiatric symptoms (percentile values) between the groups either before or after intervention (see Table 3). However, a main effect of occasion was found for the sub-scales of Anxiety, $F(1, 18) = 9.3$, $p < .01$, $\eta_p^2 = .34$, Depression, $F(1, 18) = 13.4$, $p < .01$, $\eta_p^2 = .43$, Anger, $F(1, 22) = 8.2$, $p < .01$, $\eta_p^2 = .27$, and Self-Concept, $F(1, 8) = 5.5$, $p < .05$, $\eta_p^2 = .41$, with Disruptive Behavior just failing to reach significance, $F(1, 11) = 4.4$, $p = .059$, $\eta_p^2 = .39$. Thus, independent of group, the children reported less elevated symptoms of social and emotional impairment and a tendency for less disruptive behavior at postintervention. No significant interaction between group and occasion was found.

Number of Psychiatric Symptoms Before and After Intervention

Analysis using the Kruskal-Wallis Test showed that the number of self-reported clinically significant psychiatric

TABLE 3
Group Mean Percentile Values and Standard Deviations for the Five BYI Scales at the Preintervention, Postintervention, and Follow-Up Measurement Occasions

		Preintervention		*Postintervention*		*Follow-Up*	
BYI Scale	*Group*	*M (SD)*	*n*	*M (SD)*	*n*	*M (SD)*	*n*
Anxiety	CTA	91.4 (7.5)	8	81.2 (17.3)	8	67.6 (28.2)	7
	PS	90.5 (8.0)	7	69.8 (32.3)	7	—	—
	WL	86.8 (5.9)	6	74.2 (22.2)	6	—	—
Depression	CTA	85.4 (6.6)	9	65.8 (17.1)	9	73.8 (11.9)	8
	PS	87.3 (7.1)	6	74.8 (29.2)	6	—	—
	WL	85.8 (7.0)	6	64.3 (21.4)	6	—	—
Anger	CTA	90.9 (6.5)	11	70.8 (24.7)	11	75.4 (21.4)	10
	PS	90.9 (4.3)	8	79.6 (18.6)	8	—	—
	WL	88.0 (8.2)	6	80.2 (19.1)	6	—	—
Disruptive Behavior	CTA	88.8 (4.5)	4	70.7 (31.7)	4	86.1 (10.6)	3
	PS	84.3 (8.4)	5	62.4 (23.2)	5	—	—
	WL	88.3 (8.2)	5	89.6 (9.4)	5	—	—
Self-Concept	CTA	15.6 (3.5)	5	39.3 (28.5)	5	34.4 (17.5)	5
	PS	6.8 (4.6)	2	14.8 (17.0)	2	—	—
	WL	11.7 (7.9)	4	30.4 (20.0)	4	—	—

BYI = Beck Youth Inventories; *M* = mean; *SD* = standard deviation; *n* = number; CTA = collaborative therapeutic approach; PS = parent support; WL = waiting list.

TABLE 4
Number of Clinically Significant Symptoms for the Five BYI Scales Within Respective Group at the Preintervention, Postintervention, and Follow-Up Measurement Occasions

		Clinical Symptoms (n)		
BYI Scale	*Group*	*Preintervention*	*Postintervention*	*Follow-Up*
Anxiety	CTA	8	6	3
	PS	7	5	—
	WL	6	3	—
Depression	CTA	9	3	3
	PS	6	5	—
	WL	6	2	—
Anger	CTA	11	6	5
	PS	8	5	—
	WL	6	4	—
Disruptive Behavior	CTA	4	2	3
	PS	5	2	—
	WL	5	4	—
Self-Concept	CTA	5	1	1
	PS	2	1	—
	WL	4	2	—

BYI = Beck Youth Inventories; *n* = number; CTA = collaborative therapeutic approach; PS = parent support; WL = waiting list.

symptoms did not differ between the groups at premeasurement. However, the Wilcoxon Signed Rank Test signaled a significant reduction in the number of self-reported clinically significant psychiatric symptoms between preintervention and postintervention for the CTA group, $Z(10) = -2.7$, $p < .01$, $\eta^2 = .82$. A similar significant improvement in terms of number of symptoms was not found in the respective PS or WL group (see Table 4).

Number of Psychiatric Symptoms 6 Months After Intervention in the CTA Group

Six months after the intervention, 10 of the 11 children in the CTA group were measured on one additional occasion. ANOVA showed a significant effect of occasion for the BYI subscales of Anxiety, $F(2, 12) = 5.6$, $p < .05$, $\eta_p^2 = .48$, and Anger, $F(2, 18) = 5.9$, $p < .05$, $\eta_p^2 = .39$. Contrast calculation of paired differences between preintervention measurement and following measurements revealed significant differences in self-reported clinically significant symptoms with regard to percentile values. For the Anxiety subscale, the average value of the children's self-reported symptoms had dropped from correspondingly "extremely elevated" at preintervention to "moderately elevated" or "average" at the 6-month postintervention measurement, $F(1, 6) = 6.7$, $p < .05$, $\eta_p^2 = .53$. A similar significant symptom reduction was seen for the Anger subscale, where the percentile value had dropped from "extremely elevated" values at preintervention to "average" at postintervention, $F(1, 9) = 8.2$, $p < .05$, $\eta_p^2 = .48$, and remained "average" at 6-month postintervention, $F(1, 9) = 5.6$, $p < .05$, $\eta_p^2 = .38$. In addition, Friedman's Test showed a significant difference in the number of self-reported symptoms between the three measurement occasions in the CTA group, $X^2(2) = 12.8$, $p < .01$, $\tau = 0.64$. Thus, in general, the number of symptoms was significantly reduced from preintervention to the first postintervention occasion and then remained at the same reduced level at 6 months postintervention.

DISCUSSION

The aim of this study was to evaluate the therapeutic effect of a collaborative and therapeutic neuropsychological assessment method in children remitted for psychiatric evaluation. The proposed hypotheses were that children assessed with a CTA (i.e., the CTA group) would self-report a larger decrease in clinically significant symptoms at postintervention compared with the respective PS and WL groups and that this positive effect would remain at a second postintervention occasion (6 months after the first) in the CTA group.

In contrast to what was expected, between-group analysis failed to detect evident group differences in

symptom change and indicated an overall improvement at postintervention regardless of group in terms of reduced percentile values. However, regarding the number of clinical symptoms, in keeping with our hypothesis, within-group analysis revealed a significant symptom reduction for the CTA group in terms of these children generally reporting fewer clinical symptoms on the five BYI scales at postintervention compared with preintervention. A similar symptom reduction was not seen within the respective PS and WL groups, where the children were more prone to report random symptom changes. The groups were similar regarding symptoms at preintervention, but where a strong intervention effect on psychiatric symptoms was found for the CTA group, only a weak effect was apparent for the PS group and no effect was found for the WL group. Thus, even if all groups seemingly displayed reduced BYI percentile values at postintervention, possibly due to the attention given to their problems and the prospect of receiving help, the CTA group alone showed a reduced amount of psychiatric symptoms. More time spent with the parents in the CTA group than in the PS group may have contributed to this effect. Nevertheless, the finding of a general decrease in both externalized and internalized psychiatric symptoms in the CTA group but not in the respective comparison group supports previously reported positive results from studies using a TA approach with children (cf. Fantini, Ashieri, & Bertrando, 2013; Hamilton et al., 2009; Purves, 2012; Tharinger et al., 2007, 2009; Tharinger, Fisher, & Gerber, 2012), suggesting that a CTA can have a beneficial therapeutic effect for children remitted to neuropsychological assessment.

As anticipated, the therapeutic effect for the CTA group was also found to be persistent after 6 months, at least in part. In this study, collaborative and therapeutic assessment had a particularly enduring therapeutic effect on the BYI Anxiety and Anger scales. A similar long-term therapeutic effect on the other three symptom scales, however, could not be confirmed. A possible explanation for this could be that the Depression and Self-Concept subscales may be regarded as more slowly changing internalized symptoms compared with the Anxiety and Anger subscales. As for the externalized symptom scale of Disruptive Behavior, on a speculative note, it might be that children with behavioral problems had entrenched and integrated the image of themselves as being difficult to such an extent that it would have required experiences of success over a longer period of time than 6 months before a sense of being less disruptive could have been shown, as measured by a self-report instrument. It should be noted, though, that as the BYI scores were generally low at postintervention, another explanation could be that there was limited room for continued improvement. Further studies to more fully explore the long-term effects of collaborative and therapeutic assessment procedures in pediatric populations are warranted.

Despite the promising preliminary findings, there are several limitations to the present study that need to be addressed. There is a risk that the lack of random assignment may have affected the results. For example, it could be argued that the children in the CTA group were possibly better suited to that intervention. In addition, differences between the symptomatology of the children in the groups may have influenced the results. Another shortfall of the study was that only BYI scales were used to measure the children's psychiatric symptoms. The BYI lack scale controlling for style of answer, and the risk for repetitive and stereotypical ways of answering cannot be excluded. Further, the BYI may fail to capture symptoms in children with neuropsychiatric problems as they generally have more difficulty with awareness, interpretation, and communication of mental states. This is particularly true in the case of autism spectrum disorders. With certain modifications, the Kiddie Schedule of Affective Disorders and Schizophrenia has proven more reliable in evaluating children with autism spectrum disorder and low intelligence (Leyfer et al., 2006; Masi, Brovedani, Mucci, & Favilla, 2002), and it may consequently be recommended that this instrument is included in future studies. Other potentially rewarding instrumental additions could be the Children's Global Assessment Scale (Shaffer et al., 1983) to evaluate the child's general psychiatric state and parent and teacher evaluations of the child's symptoms and behavior for information concerning the child's development. It could also be of interest to interview the parents of the assessed children to validate the children's self-reported symptom changes and to receive a qualitative measurement of the effect of CTA. Further, pairing parent/teacher input with global attainment scaling could offer a contextually relevant and more individualized functional description of the specific impact and the child's response to the intervention.

Additional limitations include the restricted overall sample size, which inevitably affected the power of the study, and the uneven group sizes. However, the inclusion of comparison groups is a strength of the present study and reported effect sizes are generally large. Further, all groups had a widespread age distribution (7–18 years), thereby suggesting a considerable variation in degree of maturity and cognitive level within the groups. For children with neurodevelopmental disorders, a lower degree of maturity may have affected the evaluation. In future research, it would be of interest to study large group sizes with children of different ages, including a focus on the role of maturity level on the outcome parameters.

Finally, it should be mentioned that the more recently developed models of TA with children (TA-C) and TA with adolescents could potentially be facilitating and rewarding tools in future studies. For example, TA-C expands on the paradigm used in the present study by encompassing features such as the involvement of further significant others in the child's assessment, staged family therapeutic sessions, and an increased number of feedback and follow-up sessions to reactivate and consolidate the treatment recommendations (Smith, Finn, et al., 2010; Smith, Handler, et al., 2010; Smith et al., 2009, 2011). Such procedures appear promising with regard to increasing the therapeutic effects of a CTA in the assessment of children as currently described.

CONCLUSIONS

This study evaluated the therapeutic effects of a CTA in the assessment of children with suspected neurodevelopmental disorders. It was found that compared with children receiving parent support and children on the waiting list, children receiving CTA reported reduced psychiatric symptoms at postintervention. These children also reported long-lasting positive effects on feelings of anger and fear 6 months after the intervention. The preliminary findings reported here support the notion that a collaborative and therapeutic assessment approach may be a rewarding method in the evaluation of children remitted to child psychiatric clinics. However, more research is needed to corroborate and extend the present findings. This research should preferentially use a broader set of evaluation instruments, including interviews, larger sample sizes with more coherent groups, randomized assignment, and, possibly, an assessment paradigm more specially developed for use with children than that which was available to employ in the present study. It would also be of importance to compare traditional child neuropsychological assessment with assessment using a CTA to more directly address the impact of the difference when neuropsychological assessments with children are augmented with TA/CTNA methods compared with typical practice.

ACKNOWLEDGMENTS

We thank the children and their families for participating, Lena Hansson, Per-Erik Svedén, and Petter Tunlind for their contributions to the study, Britt Lissdaniels for assisting in the supervision, and Erling Englund for statistical consultations.

FUNDING

This study was financed by the Child and Adolescent Psychiatric Clinic, Sundsvall Hospital, and the Sundsvall Forensic Psychiatric Centre in Sundsvall, Sweden.

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