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Cognitive behavioural group therapy for adolescents with ADHD: a study of satisfaction and feasibility

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ABSTRACT

Background: Adolescents with ADHD are at increased risk of adverse outcomes and a negative life trajectory into adulthood. Evidence regarding treatment specifically tailored for the needs of this age group are still limited. High dropout rates, discontinuation of medication and treatment resistance are common issues in this population, and the patient perspective on new treatment options is therefore important. In this study, we aimed to investigate treatment satisfaction and feasibility of a group CBT program for adolescents with ADHD. We further aimed to identify any baseline characteristics predicting satisfaction.

Materials and methods: This study was part of a larger RCT of group CBT as add-on treatment for adolescents aged 14–18 years (Mean age 15.9 years, SD 1.3) with ADHD in Norway. Satisfaction and feasibility in the treatment group ($n = 48$) were measured by completion of an evaluation questionnaire, attendance of group sessions and a group-leaders checklist. Predictors of satisfaction were analysed using linear regression.

Results: Overall satisfaction was very high with a significant age effect, the eldest participants being most satisfied. Attendance rate was high with few dropouts and medical adherence during the treatment period was good. Group-leaders generally self-evaluated adherence to treatment manual positively but addressing resistance towards homework as challenging.

Conclusions: The participants were very satisfied with the group CBT treatment. Treatment options that are accepted and well-liked by the targeted population have the potential of reducing resistance towards treatment, improving future health and adherence to medication. The program is considered suitable for a clinical setting and may represent a feasible treatment supplement for adolescent ADHD.

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ADHD; group therapy; CBT; adolescence; treatment satisfaction

Introduction

Attention Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder affecting 3–5% of the general population during childhood [1]. The disorder is characterized by pervasive symptoms of inattention, impulsivity and hyperactivity that affects daily functioning across multiple domains. Although the presenting clinical features and impairment may change as the child grows older, the majority continue to meet diagnostic criteria as adolescents and adults [2]. Adolescents with ADHD are at increased risk of many adverse outcomes and a negative life trajectory into adulthood [3,4]. Appropriate treatment and care for this group will potentially reduce the risk of harmful outcomes and hence be cost-effective on many levels for individuals, families and society [5,6].

National and international guidelines recommend multimodal treatment programs for ADHD [7,8]. Pharmacotherapy has well documented effects on reducing core symptoms [9].

Still, medication does not necessarily contribute to developing skills or function, and is often insufficient to control symptoms and comorbidity [10,11]. Although there is evidence of long-term effect discontinuation of treatment is also a frequent problem [12]. Evidence regarding non-pharmacological treatment options specifically tailored for the needs of adolescents with ADHD are still limited [13].

Cognitive behavioral therapy (CBT) is a well-known and well-documented psychological treatment delivered in both individual and group format and treatment effect has been shown across age groups in a range of psychiatric disorders [14–16]. There is growing evidence on the effect of CBT in reducing core symptoms of ADHD in adults [17], but knowledge on effect of CBT-based programs for adolescent ADHD is still limited. Results from previous studies are promising but not conclusive [18–21]. Hopefully we will gain more knowledge from ongoing studies expected to publish their results in the near future [22,23].

Patient centred health care plays an important role in psychiatric care. As high dropout rates, discontinuation of medication and treatment resistance are common issues in an adolescent psychiatric population in general [24], the patient perspective is especially important when evaluating new treatment programs for this group [25,26]. For adolescents with ADHD ambivalence, motivational issues and resistance towards treatment are especially challenging and treatment options able to overcome these issues are potentially more likely to succeed.

As part of efforts to improve the quality and efficacy of treatment for adolescents with ADHD, we designed a CBT group treatment tailored to this patient group. When designing the study, we considered an evaluation of satisfaction and feasibility to be an important part of the trial. Thus, the primary aim of the present study was to investigate treatment satisfaction with a CBT group treatment program for adolescents with ADHD. We also aimed to identify any baseline characteristics predicting satisfaction. Furthermore, we aimed to explore if the treatment was considered feasible in a clinical setting of a Child and Adolescent Psychiatric (CAP) clinic by measuring attendance, dropouts, medication adherence, and group-leaders perspective on treatment adherence.

Materials and methods

Study design

The present study was part of a larger rater-blinded randomized controlled trial (RCT) with the primary aim to evaluate efficacy of a CBT group therapy program as add-on to standard treatment for adolescents with ADHD. A more detailed account of diagnostic procedures and recruitment process are presented elsewhere [23]. After diagnosis all patients received standard clinical management, including a short psychoeducational intervention and a trial period of medical treatment. After at least one month on stable medical treatment patients still experiencing symptoms and impairment were recruited.

After inclusion patients were randomly assigned to attend CBT-group treatment or a control group. The treatment took place at two CAP outpatient units at St. Olav's University Hospital with the catchment area comprising the city of Trondheim and surrounding areas in Norway.

Participants and procedure

The study was approved by the Regional Committee for Medical and Health Research Ethics in South East Norway (2015/2115). A total of 100 adolescents aged 14-18 years (Mean age 15.8 years, SD 1.3) were included in the RCT. Randomization into the two treatment arms were done in a 1:1 ratio by a computer program supplied by the Unit for Applied Clinical Research. 50 participants were randomized to the intervention group, 48 of these (96%) completed the intervention and were included in the present study (demographics, Table 1). The diagnosis of ADHD and comorbidity,

Table 1. Demographics, clinical characteristics, and medication use at pre-intervention assessment for participants completing the CBT intervention.

Variable	Total (n = 48)
Gender, n (%)	
Female	28 (58%)
Male	20 (42%)
Age, years (mean, SD)	15.9 (1.3)
ADHD presentation, n (%)	48 (100%)
ADHD-predominantly inattentive	26 (54%)
ADHD-predominately combined	22 (46%)
Medication, n (%)	45 (94%)
Methylphenidate	30 (63%)
Lisdexamphetamine	8 (17%)
Atomoxetine	6 (13%)
Guanfacine	1 (2%)
Comorbidity, n (%)	27 (56%)
Anxiety disorder NOS	7 (15%)
Generalized anxiety disorder/social phobia/specific phobia	10 (21%)
Depression disorder, NOS	6 (13%)
Obsessive compulsive disorder	1 (2%)
Tic disorders and Tourette syndrome	4 (8%)
Behavioural disorder, ODD	5 (10%)
Learning disorder, dyslexia, mixed	8 (17%)
ADHD-RS (mean, SD)	
Self-reported (n = 42)	21.5 (9.9)
Parent-reported (n = 46)	24.2 (9.7)
Teacher-reported (n = 27)	19.6 (10.1)
Functional assessment, C-GAS (mean, SD)	62.8 (6.4)
Severity of illness, CGI-S, n (%)	
Mildly ill	8 (17%)
Moderately ill	36 (75%)
Markedly ill	4 (8%)

Note: C-GAS: Children's Global Assessment Scale; CGI-S: Clinical Global Impression-Severity Scale.

as well as assessment of overall psychosocial function and illness severity, were reassessed after recruitment before inclusion. Inclusion criteria included a verified diagnosis of ADHD according to the International Statistical Classification of Disease and Related Health Problems (ICD-10) [27] and a Clinical Global Impression Severity (CGI-S) [28] score ≥ 3 (mildly ill, impairment in one setting). Exclusion criteria were intellectual disability (IQ < 70), autism spectrum disorder, psychosis, substance use disorder, severe conduct disorder, suicidal behaviour, or severe depression. Adolescents with comorbid anxiety disorders, mood disorders, behavioural disorders and tic disorders were included in the study.

All participants who completed the intervention (n = 48) were asked to fill out an evaluation questionnaire at the end of the last group-treatment session. Only the participant number was added to the questionnaire and the participants were ensured that the information would be treated confidentially. The forms were collected by the group leaders, who were blinded to the project number assigned to each participant.

Participants were strongly encouraged to comply with their current medication during the intervention period. During this period one routine medical follow-up was offered by a doctor at the CAP clinic. Medication use was recorded at inclusion and post treatment.

Each CBT-group was led by two group leaders recruited from the CAP clinic. There were in total 11 group leaders in eight different pairs. Seven of the group leaders were psychologists, three were clinical pedagogues, and one was a child and adolescent psychiatrist in training. All group leaders had clinical experience from diagnosing and treating

ADHD in adolescents. The group leaders had varied experience with CBT treatment, only one was certified as a CBT therapist. Group leaders were given a copy of the Young-Bramham textbook describing treatment strategies in CBT for ADHD [29]. They also participated in a full day course on CBT and delivering of the research treatment manual. Supervision was given regularly to all group leaders by an experienced CBT supervisor (AMS) who also attended some sessions as an observer.

The intervention

The CBT group treatment manual used in this study was an adaptation of the CBT program developed by Susan Young and Jessica Bramham [29]. Material from the program was translated to Norwegian by an agency and adjusted to suit a Norwegian population of adolescents. The objectives of the programme were to provide information about ADHD, and psychological strategies and techniques for coping with both ADHD-symptoms and commonly associated problems. By addressing these issues, the treatment aims to reduce core symptoms and improve functioning. The program is delivered in a group format. Cognitive behavioural therapy was the core psychological technique used in delivering this program closely followed by psychoeducation and motivational interviewing.

The manualised intervention was delivered in 12 weekly sessions of 90 min, including a break. Each group usually consisted of six participants. The sessions were organized after school hours, transport aid was provided when needed and food was served upon arrival. The program was delivered using different teaching techniques including visual aids (on-screen presentation), modelling, exercises, group activities and role-play. Handouts with all the presentations and exercises were provided and used for repetition and individual notes. Between sessions all participants received a phone call from a research assistant who followed up on homework and reminded participants about the next session. We used the term 'coach' to describe this role to the participants and on the evaluation questionnaire.

The content of the manualized sessions focused on core symptoms of ADHD, comorbid disorders and difficulties,

and preparation for the future (Table 2). All sessions followed the same structure: (1) presenting today's agenda, (2) reminding about highlights from last week's session, (3) going through homework, (4) starting activity or group discussion, (5) psychoeducation, (6) skills training, (7) exercise or activity, and (8) defining and preparing homework for the following week. Homework was pre-defined based on each session's main subject, presented on a PowerPoint and individualized for each participant with the aid of the group leaders. Cognitive behavioural techniques such as structure, agenda, feedback, rewards and focus on exercises in and between sessions were emphasized in delivering the program. Parents did not participate in this program.

Measures, pre-intervention

To verify the diagnosis of ADHD and assess comorbidity an experienced clinician interviewed the adolescents before inclusion using a semi-structured diagnostic interview, *The Schedule for Affective Disorders and Schizophrenia for school age children-Present and Lifetime version* (Kiddie-SADS-PL) [30].

ADHD-Rating Scale-IV (ADHD-RS-IV) [31] is a questionnaire measuring the severity of ADHD-symptoms on 18 items rated on a 4-point Likert scale. ADHD-RS-IV has shown acceptable psychometric properties in children and adolescents [32]. The questionnaire was completed by participants (self-version), parents (home-version) and teachers (school-version) at inclusion.

The Children's Global Assessment Scale (C-GAS) [33] is a measure of global psychosocial function, rated on a scale from 0-100. Higher values indicate better function. The Norwegian version of C-GAS has shown acceptable validity and interrater reliability [34].

The Clinical Global Impression -Severity Scale (CGI-S) [28] was used for assessing the severity of the adolescents ADHD. CGI-S was rated on a scale ranging from 1, *normal/not at all ill* to 7, *among the most extremely ill patients*.

An experienced clinician blinded to randomization assessed both CGAS and CGI-S.

Table 2. Overview of the group therapy program.

Modules	Homework assignment
Core symptoms of ADHD	
1. Introduction. What is ADHD	Reflect and make notes about expectations and goals
2. Attention	Awareness of when and where attention is disrupted
3. Memory	Awareness of aids and inner strategies to improve memory
4. Organization and time management	Practice skills to organize, plan and reward effort
5. Impulsivity	Practice skills to reduce impulsive behaviour
Comorbid disorders and difficulties	
6. Problem solving	Practice skills on problem solving
7. Anxiety	Awareness of avoidance, practice skills on exposure and relaxation
8a. Sadness and depression	Reflect and make notes on past episodes of sadness/depression or practice skills to improve your mood
8b. Sleep	Awareness of sleeping pattern and what improves sleep
9. Social interaction and communication	Practice skills on communication and listening
10. Frustration and anger	Practice skills on anger management
The future	
11. and 12. Preparing for the future	Reflect and make notes on future goals and how to achieve them

Table 3. Results from the evaluation questionnaire 'user satisfaction and value of coaching'.

#	Item	n	Mean item score (SD)
1	Have you learned more about ADD and ADHD from participating in this group?	48	3.06 (0.67)*
2	Was the content suitable for your needs?	48	3.04 (0.62)*
3	How well did you understand the suggested skills?	48	3.23 (0.59)*
4	Will you be using any of the skills you have learned?	47	2.96 (0.83)*
5	Did you like being in a group with other adolescents?	48	3.35 (0.73)*
6	Did you find it useful to learn about the experiences and coping strategies of others?	48	3.37 (0.73)*
7	Did you find coaching between group sessions helpful?	47	2.98 (0.94)*
8	How did you benefit from coaching? ^a		
9	Did you have other experiences with coaching? ^a		
10	In total: How satisfied are you with the cognitive behavioural group therapy?	48	4.21 (0.77)**

Notes: *Participants rated question 1–7 on a scale from 1 *not much/not good* to 4 *very much/very good*. ^aQuestions 8 and 9 were open questions.

**Participants rated question 10 on a scale from 1 *dissatisfied* to 5 *very satisfied*.

Measures, satisfaction and feasibility

Satisfaction and feasibility were measured in the intervention group only. Satisfaction was measured by completion of an evaluation questionnaire by the participants at the end of the last session. Feasibility was measured by recording attendance at all group sessions and by completion of a checklist by group leaders after every session. Current medication use was recorded at inclusion and post-intervention.

The *Treatment Satisfaction and Value of Coaching Questionnaire* (Table 3) was developed for the present study by the last author. The questionnaire was an adaptation of the evaluation questionnaire used previously in a study of CBT in adults with ADHD [35]. A reliability analysis was carried out on the evaluation questionnaire items 1–7. Cronbach's alpha showed the questionnaire to reach acceptable reliability, $\alpha = 0.72$. Only the deletion of item 3 increased alpha by 0.05. As the difference was small, we chose to keep all items in further analysis.

The *Group-leaders checklist* (Table 4) was developed for this project and included one item regarding preparations before the session and nine items regarding adherence to specified elements of the treatment manual. Each item was rated on a 3-point scale (yes, partly, no) after each session by one or both group-leaders.

Statistical analyses

All analysis of satisfaction, attendance and medical adherence included all patients who completed the intervention ($n = 48$). We calculated mean scores of satisfactions on both single items and groups of items on the evaluation questionnaire. Analysis of satisfaction were done using the mean score on item 1–7 as well as single item scores. The mean score on item 1–7 were considered most relevant for evaluation of overall satisfaction with the treatment program and was used as dependent variable in linear regression with age, gender, ADHD-presentation, symptom severity, global functioning, comorbidity, and number of sessions attended as predictors, one at a time. Normality of residuals were checked by visual inspection of Q–Q plots.

Qualitative data from open questions in the evaluation questionnaire were analysed by grouping comments and reporting on frequencies. Items on the group-leader's checklists are reported as mean scores and frequencies. All analyses were carried out using SPSS 26.

Table 4. Items on the group-leader checklist.

#	Item
1	Made necessary preparations before the session
2	Repeated main objectives from last session
3	Went through homework from last session
4	Addressed resistance towards homework, identified challenges and planned strategies
5	Starting activity/sustaining interest
6	Psychoeducation
7	Completed exercises
8	Active use of rewards
9	Other issues (open)
10	Defined homework for the following week
11	Adherence to treatment manual for current session (Visual Analogue Scale 0–100)

Results

Sample characteristics

There were 50 adolescents randomized to the intervention group and 48 of these (96%) completed the intervention and was included in the analyses. Reasons for dropout was low motivation ($n = 1$) and difficulties attending due to illness severity ($n = 1$). Among the 48 participants there were 28 girls (58%) and 20 boys (42%), with a mean age of 15.9 years (SD 1.3). Clinical characteristics are presented in Table 1.

Satisfaction and feasibility

Overall satisfaction with the CBT group therapy was high (Table 3). 79.2% rated that they were *somewhat satisfied* or *very satisfied*, 20.8% rated *neutral*, no one rated that they were *somewhat dissatisfied* or *dissatisfied*. The mean score on item 10 total satisfaction (rated 1–5) was 4.21 (SD 0.77) and the mean score on items 1–7 (rated 1–4) was 3.14 (SD 0.45). The highest scores on individual items of satisfaction were reported on items *being in a group with other adolescents* (mean 3.35, SD 0.73) and *usefulness of learning from peers* (mean 3.37, SD 0.73). The mean score of satisfaction was higher for the older participants (0.13 per year, $p = .007$) (Table 5). Also, higher score on the Clinical Global Assessment Scale at intake predicted higher score of mean satisfaction (0.021 per unit increase, $p = .035$). We found no other predictors of satisfaction neither on mean score nor single items on the evaluation questionnaire.

On the open questions about benefit of coaching 71% had positive comments, 8% described coaching as neutral/did not need, one participant described coaching as a

Table 5. Baseline predictors of satisfaction with group-CBT ($n = 48$).

Predictive factor	Coefficient (95% CI)	p -Value
Male gender	0.098 (−0.165, 0.362)	.46
Age in years	0.132 (0.038, 0.226)	.007
ADHD-presentation predominantly inattentive	0.061 (−0.201, 0.322)	.64
Children's Global Assessment Scale (C-GAS)	0.021 (0.002, 0.041)	.035
Clinical Global Impression, Severity (CGI-S)	−0.172 (−0.432, 0.089)	.19
No comorbidity	0.132 (−0.128, 0.393)	.13
Sessions attended	−0.035 (−0.127, 0.056)	.44

Results from linear regression analyses with mean satisfaction (item 1–7) as dependent variable.

negative experience and 18% had no comments. Among the comments were positive remarks about reminders of home assignments and next session and an added learning effect from being contacted between sessions.

Attendance rate was high among those completing the treatment (mean attendance 10.7 sessions, SD 1.4). We found no significant association between satisfaction and attendance (Table 5). 45 of the 48 participants (93.8%) used regular ADHD-medication at baseline, 42 of the 48 participants (87.5%) were still using regular ADHD-medication post-intervention. Reasons for discontinuation for the three participants were side effects ($n = 1$), change to mood stabilizing medication ($n = 1$) and unknown ($n = 1$). Of the 42 patients still using regular ADHD-medication nine (21.4%) had minor changes in dosage during this period.

The *group-leaders checklist* was completed after 97% of sessions by one or both group-leaders. Item 1 on the checklist regarding necessary preparations before the session was rated *yes* after 89% of sessions. On items 2–10 regarding adherence to specified elements of the treatment manual they were all rated *yes* on 90% or more of all sessions with one exception: Item 4, *addressed resistance towards homework*, was rated *yes* after 72% of sessions.

Discussion

This study aimed to evaluate satisfaction and feasibility of a group CBT program as add-on treatment for adolescents with ADHD. Overall, the participants in the intervention group reported being highly satisfied with the treatment. Drop-out rate was low and attendance rate high, all indicating that the program was well liked and feasible within this population. Furthermore, adherence to medication was good with only three participants discontinuing their medication during the intervention period. The study represents a contribution to the research field of psychosocial interventions in adolescent ADHD. More specifically it provides knowledge to the limited evidence-base of CBT for this group [13]. As resistance towards treatment, dropouts and discontinuation of medication is common among adolescents receiving psychiatric care we have argued that treatment satisfaction is an important measure in addition to treatment efficacy [25].

The group format has the potential of adding a positive dimension of peer support and a safe environment for practicing skills. Meeting others in a similar situation might also reduce stigma and provide normalization. This is especially important in this population as adolescents with ADHD might feel socially isolated and misunderstood by others [36]. Items regarding group format and learning from others

were rated high on the evaluation questionnaire, suggesting that the participants valued the group aspect of the treatment. Previous studies have shown similar results, Meyer and colleagues found in their evaluation of a structured skills training group that the participants emphasized the value of meeting other adolescents with ADHD and exchanging experiences and strategies [37]. Still, the group format comes with some limitations. It is more challenging to tailor the treatment to the individual needs in a group, and some participants might feel that the issues addressed are not relevant for them. In the research setting we were not able to consider age, gender, strengths, and difficulties when putting a group together as the participants were randomly assigned to treatment groups. This is considered important in real life settings.

The perceived usefulness of a phone-call between sessions was ranked lowest among the single items on the evaluation questionnaire. Still, most participants responded positively towards this element of the treatment program. The intention was to remind participants of their next treatment session and aid with homework, as homework compliance is considered an important part of CBT [38]. The phone-call might have had an impact on the good attendance rate, but a few participants also found the call excessive. This part of the intervention might have been considered more useful if one of the group leaders had made the phone-call instead of a research assistant, as they would know the participants and their individual homework assignment better.

As a secondary aim we wanted to analyse predictors of satisfaction. Although overall satisfaction was high, we found that higher age predicted even higher satisfaction in both females and males. This might indicate that the program is more suitable for the eldest participants. This could be due to motivational factors, e.g. related to school performance and skills for everyday functioning. Other possible explanation might be that the content and skills taught in this program is a better fit to the more mature participants. Higher rating on the Clinical Global Assessment Scale at baseline also predicted higher mean satisfaction. Although statistically significant the difference in CGAS is small and probably of limited clinical relevance. We did not find any other baseline predictors significantly associated with degree of satisfaction, neither on total satisfaction nor on single items.

This study was organized in a manner that facilitated attendance by organizing groups after school hours, aiding with transport if needed, serving food upon arrival, and contacting participants by phone between sessions. The high overall satisfaction might be, at least partly, influenced by these elements not directly related to the therapy. All these

elements may also have contributed positively through motivating and reinforcing adherence to therapy and medication. Although it will require some extra resources, we consider these elements feasible in a natural clinical setting of a CAP clinic.

Group leaders overall evaluated adherence to treatment manual positively but addressing resistance towards homework was reported as challenging. This occurred despite the added element of a phone call between sessions, following up on homework. As previously mentioned, the added phone-call between sessions might have had a greater impact on homework if one of the group leaders made this call instead of a research assistant. Homework is considered an important aspect of CBT [38] and the adolescents will benefit from learning to take responsibility and rehearse learned skills in a natural setting. The evaluation on item 'will be using skills' in the evaluation questionnaire is rated lower than mean satisfaction and strengthens the impression that the issue of practicing skills between sessions needs to be addressed in future revisions of the program.

Strengths and limitations

The present study has several strengths. The treatment was delivered close to a normal clinical setting with clinicians from the local CAP clinics. By including participants with common comorbid disorders the participants of this study are considered a representative selection of Norwegian adolescents with ADHD [39]. The results should therefore be clinically relevant for a CAP clinic. The study also has some weaknesses. Our evaluation questionnaire was developed for this study, which limits the ability to generalize and draw conclusions about the findings. Also, it was administered only once at the end of the last session and does not differentiate well between different aspects of the program. Only the participants number were added to the evaluation form, but even though participants were informed that their information would be treated confidentially there is a risk that this number might have caused uncertainty regarding anonymity and hence a potential information bias. For this study, we only used self-report to evaluate treatment satisfaction. An additional parent evaluation might have added a useful supplemental perspective.

Conclusions

The group CBT treatment program delivered in this study was well-liked by a population of Norwegian adolescents with ADHD. Attendance was high, drop-outs were few, and medical adherence during the intervention period was good. All participants were satisfied, but the oldest participants reported even higher satisfaction with the intervention. This might indicate that this program is better suited for the more mature adolescents, but further research is needed to address this issue. Treatment options that are accepted and well-liked by the targeted population have the potential of reducing resistance towards treatment, improving future health and adherence to medication. This might in turn improve the future prognosis for

a group of patients with a high risk of adverse outcomes. The available competence on CBT treatment is increasing in the CAP clinics, adding to the argument that this program represents a feasible treatment suitable for a clinical setting. In conclusion, we consider this program to offer a promising treatment supplement for adolescents with ADHD.

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AMS has received travel support and congress fee from MEDICE in the last 3 years. PHT has received speaker's fee from MEDICE and Shire in the last 3 years. SY has received honoraria for consultation and/or educational talks in the last 5 years from Janssen, HB Pharma and/or Shire. She is the author of "ADHD Child Evaluation (ACE) and ACE+ (for adults)", and lead author of "R&R2 for ADHD Youths and Adults". TSN has received a speaker's fee from MEDICE in the last 3 years.

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