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SKILLS – A psychoeducational group programme for children with ADHD

SOFIA LANTZ,1 CHARLOTTA FORNWALL,1 MÄNS LÖÖF2 and JOHAN ISAKSSON1,3

1Department of Neuroscience, Child and Adolescent Psychiatry Unit, Uppsala University, Uppsala, Sweden
2Child & Adolescent Psychiatric Clinic, Göteborg, Sweden
3Department of Women’s and Children’s Health, Centre for Psychiatry Research, Karolinska Institute Centre of Neurodevelopmental Disorders (KIND), Karolinska Institute, Stockholm, Sweden

INTRODUCTION

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development (American Psychiatric Association [APA], 2013). ADHD is associated with poor academic and educational outcomes (Loe & Feldman, 2007), a high prevalence of peer problems (Nijmeijer, Minderaa, Buitelaar, Mulligan, Hartman & Hoekstra, 2008) and familial conflicts (Harold, Leve, Barrett et al., 2013; Lifford, Harold & Thapar, 2009). Studies have estimated the prevalence of ADHD to approximately 5% in school-aged children and adolescents worldwide (Polanczyk, de Lima, Horta, Biederman & Rohde, 2007). Comorbidity is common, with a majority of those affected showing symptoms of at least one other psychiatric disorder, such as oppositional defiant disorder, conduct disorder, depression or anxiety (Gillberg, Gillberg, Rasmussen et al., 2004; Spencer, Biederman & Wilens, 1999).

Pharmacological treatment has been shown to be effective in reducing the core symptoms of ADHD (Cortese, 2020). However, medication does not help everyone (Faraone & Buitelaar, 2010) and is associated with side effects such as irritability, sleep disturbance, nervousness and reduced appetite (Cortese, 2020; Fredriksen, Halmøy, Faraone & Haavik, 2013). Some uncertainty remains about the long-term effects of ADHD medication and the need to monitor blood pressure and growth has been emphasized (Graham, Banaschewski, Buitelaar et al., 2011). Psychoeducation to the parents (Daley, Van Der Oord, Ferrin et al., 2017), as well as to the affected child, is recommended as a first line of intervention in both international (National Institute for Health & Care Excellence [NICE], 2018; Taylor, Döpfner & Sergeant, 2004) and Swedish national guidelines (Socialstyrelsen, 2014; SF BUP, 2016). Understanding of the condition and empowerment to manage the symptoms are important, as ADHD is often lifelong (Franke, Michelini, Asherson et al., 2018). In line with the health belief model (Champion & Skinner, 2008), knowledge about ADHD has been shown to increase the likelihood that parents accept treatment for their children and adhere to the treatment plan (Corkum, Rimer & Schachar, 1999). Psychoeducation involves giving information about an illness and its treatment to patients and their relatives and promoting understanding and individual management of the illness (Bäuml, Frobose, Kraemer, Rentrop & Pitschel-Walz, 2006). In order to be effective, a psychoeducational program should be structured, informative and adapted for the specific population, encourage discussion and participation, and be delivered in groups, at weekly sessions (Ferrin & Taylor, 2011).

In a systematic review of the literature on psychoeducational interventions in ADHD, it was concluded that psychoeducation has a positive impact on parent-reported ADHD symptoms and behavioral problems (Dahl, Ramakrishnan, Spears et al., 2020). The authors argued that this could be a consequence of parents having gained increased knowledge about ADHD and how the symptoms influenced their children’s behavior, increasing the likelihood of adhering to the treatment (Dahl et al., 2020).
However, a vast majority of the included studies were of interventions aimed at parents and teachers, with only one reporting on an intervention delivered to children with ADHD. In that study, by MacKay and Corkum (2006), 25 children with ADHD were given a two-hour psychoeducational intervention and the authors reported that the children gained increased knowledge about ADHD and a more positive attitude towards different treatment options.

Thus, it remains to be determined if interventions aimed at children are acceptable and effective. Therefore, we constructed a manual-based psychoeducational programme to be used for children with ADHD in a clinical setting. The aim of this study was to investigate acceptability (i.e., how the recipients reacted to the intervention) and conduct a limited testing of effectiveness (i.e., whether the intervention was associated with changes in rated symptoms, function and attitudes when performed in a clinical setting) using a mixed-method design combining quantitative and qualitative methods.

METHODS

Procedure and participants

The study was based on data from a multicentre study, in which children and their parents participated in SKILLS, a manual-based psychoeducational group intervention. The intervention was recommended to children, aged 6–12 years, diagnosed with ADHD (including attention deficit disorder [ADD]/ADHD unspecified type). Recruitment was conducted at the child and adolescent psychiatric (CAP) outpatient units in the Swedish counties of Uppsala, Gävleborg and Halland. No exclusion criteria were applied since the intention is that SKILLS will be offered to all children with ADHD (and their parents), regardless of any comorbidity. The study was conducted between the fall of 2018 and the spring of 2020. Self-ratings and parental ratings were collected via web-based questionnaires, filled out two weeks before and two weeks after the intervention. Clinical diagnosis/es, based on the International Classification of Disease (ICD-10), were collected via a parental questionnaire at baseline. The clinical diagnosis of ADHD was confirmed by a therapist before the first session.

In total, 142 families agreed to participate and completed the baseline questionnaires. Of these, 125 families (113 children and 125 parents) also completed the questionnaires after the intervention and thus constituted the study population (29.6% girls, mean age 9.42 years, SD = 1.61). Of the responding parents, 70% were mothers, 11% fathers, 13% unspecified and 1% other guardians. In 5% of cases, both parents responded. Sample demographics are presented in Table 1. Those who did not complete the post-measures did not differ from the study population in any of the demographical or outcome variables (see Supplementary Table S1). In the entire population, 64 parents (51.2%) wrote opinions about SKILLS in their responses to the open question at follow-up and were included in the qualitative analysis. Written informed consent was obtained for each subject prior to participation in the group intervention. Information was given to both the child and the parents regarding data collection and storage, that participation was voluntary, and that they could withdraw from the study at any time without giving a reason. The study was approved by the Ethical Review Board of Uppsala University (Reg. no. 2018/271 and 2019/00329).

Intervention

SKILLS is a psychoeducational program for children and adolescents with ADHD (for a description of the adolescent version, see Meyer, Ramklint, Hallerback, Löfö & Isaksson, 2019). The intervention for children was developed by ML and JI, and consisted of two sessions of 1.5 hours each,

| Participants | N = 125 |
|--------------|---------|
| Sex          |         |
| Sex          | 29.6%   |
| Age, year    |         |
| Mean (SD)    | 9.42 (1.61) |
| Range        | 6–12    |
| ADHD subtype¹ |        |
| ADHD combined| 84.0%   |
| ADD          | 15.2%   |
| ADHD unspecified type | 0.8% |
| Comorbidities² |      |
| Oppositional defiant disorder | 11.2% |
| Dyslexia     | 5.6%    |
| Language disorder | 4.0% |
| Autism spectrum disorder | 1.6% |
| Tourette syndrome | 0.8% |
| Time since diagnosis, months³ | Mean (SD) 11.19 (10.42) |
| ADHD-medication⁴ | 58.4% |
| Parents who had participated in parent-training | 72.0% |
| Educational level parents⁵ (range 2–6) | Mean (SD) 4.74 (1.05) |
| Parents living together | 69.6% |

Parents born in Scandinavia

Both parents | 81.6% |
One parent | 13.6% |
None of the parents | 4.8% |

Notes: ADHD = Attention-deficit/hyperactivity disorder; ADD = Attention deficit disorder.
¹Clinical diagnosis according to ICD-10.
²Methylphenidate, lisdexamfetamine, atomoxetine or guanfacine.
³Elementary school scored as 1, High school as 2 and University as 3 for each parent.

performed as informative lectures using pictures and short videos. Each session included up to 12 children (and 12 accompanying parents). In the first session, the participants were educated about ADHD, its aetiology and neurobiological basis, potential difficulties and strengths related to ADHD, and emotions. After the first session, the participants got a home assignment to observe their emotions. In the second session, the participants were educated in strategies to deal with everyday life and ADHD symptoms. The strategies had the following structure: stop and think, get organized (e.g., prepare and use to-do lists), use tools (e.g., mobile apps), and use support and coaching. The importance of sleep, food and physical activity was also emphasized. During the sessions, the children were invited to be active and participate in discussions and work with own examples. The sessions were led by two therapists working at the included CAP units, both educated in SKILLS by ML, who is a clinical nurse and psychotherapist trained in cognitive behavioral therapy. They were informed to stick strictly to the session manual and use the PowerPoint presentation created for each session. No formal adherence assessment was performed.

Instruments for assessments

The acceptability and effectiveness of the intervention was measured both quantitatively and qualitatively. The Client Satisfaction Questionnaire-8 (CSQ-8; Attkisson, 2012) was used for the quantitative assessment. CSQ-8 investigates client satisfaction with a service (in this case, SKILLS) and consists of eight items (e.g., “How would you rate the quality of the service you/your child received?”, “To what extent has our service met your/your child’s needs?” and “If a friend were in need of similar help, would you recommend our service?”), rated on a 4-point scale from 1 to 4. The total score ranges between 8 and 32, with a higher score indicating greater satisfaction. The questionnaire includes a child version (with four different smileys used for rating) and a parent version. The reliability and
positive questions were constructed by the research team. Symptoms of ADHD were measured through parent reports before and after the intervention using the Adult ADHD Self-Report Scale Adolescent version – parent (ASRS-AP; Sonnby, Skordas, Olofsson, Vadlin, Nilsson & Ramkint, 2015). The ASRS-AP has been validated in a Swedish population and showed good internal consistency and validity (Sjoland, Vadlin, Olofsson & Sonnby, 2016; Sonnby et al., 2015). The children in this study were younger than previous populations for which the ASRS-AP has been used, but because the scale is based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria for ADHD (APA, 2013), it can be applied to children as well. The questionnaire has 18 items with response options on a five-point scale (0 for ‘never’, 1 for ‘rarely’, 2 for ‘sometimes’, 3 for ‘often’ and 4 for ‘very often’). The total score ranges from 0 to 72, where a higher score indicates more symptoms. Cronbach’s alpha in this study was 0.92.

The degree of functional impairment was measured before and after the intervention using the Child Sheehan Disability Scale (CSDS) and the parent version Child Sheehan Disability Scale – Parent (CSDS-P; Sheehan, Harnett-Sheehan & Raj, 1996). The child version has shown good validity in a clinical sample of children and adolescents with psychiatric problems (Whitehead, 2009). The scales measure everyday adaptive functioning. CSDS consists of three questions concerning school, social life and family life and CSDS-P consists of five questions concerning the same areas, as well as parents’ work, and parents’ social activities. The answers are given on an 11-point scale from “not at all” to “a lot,” with a total score ranging from 0 to 30 on the child version and from 0 to 50 on the parent version. A higher score indicates greater functional impairment. Cronbach’s alpha in this study was 0.71 for the child version and 0.90 for the parent version.

Attitudes to diagnosis and medical and psychological treatment were reported by the children and parents before and after the intervention through open-ended responses to three separate questions (i.e., “How do you feel about your ADHD/medication for ADHD/talking with a professional about ADHD?”). The answers were assessed on a five-point scale: 1 for “mostly negative,” 2 for “a little negative,” 3 for “neutral,” 4 for “a little positive” and 5 for “mostly positive.” For children, the first, middle and last options were shown accompanied by illustrative smileys. These questions were constructed by the research team.

After the intervention, perceived gained knowledge about ADHD was assessed. The children and parents answered one question: “Do(es) you/ your child know more about ADHD?” The response options were “not at all,” “just a little,” “some” and “a lot.” The parents were also encouraged to write their opinions about SKILLS in the questionnaire after the intervention and their answers were used in the qualitative analyses, as a measure of acceptability.

### Data analyses

The analyses were based on both quantitative and qualitative data. The quantitative analyses were conducted using IBM Statistical Package for the Social Sciences Statistics (SPSS, version 25). Descriptive statistics were presented as percentages, means and standard deviations. As data were not considered to be normally distributed, pre- and post-intervention changes in participants’ symptoms and function and attitudes towards the diagnosis and treatment were calculated using the Wilcoxon matched-pairs signed-rank test. Cohen’s d was used as a measure of effect size.

The qualitative data were analyzed with qualitative content analysis, which is a method for identifying and categorizing patterns in data. Data were analyzed with an inductive method based on the process described by Elo and Kyngäs (2008). First, the written comments were read by two of the authors (SL and LF) separately, several times. Next, the authors discussed the contents and how to understand the comments in relation to the aim of the study. Then, the meaning units, defined as one or more sentences or just part of a sentence carrying a meaning connected to how the parents experienced the intervention, were identified from the written comments. These meaning units were condensed and given a labeled code.

Meaning units with a similar meaning or concerning a similar theme were grouped into mutually exclusive categories. The categories were then divided into subcategories based on differences in meaning. This analysis continued until all categories and subcategories were considered to be separated from each other. All but four meaning units could be placed in a category and subcategory. The senior author (JI) reviewed the categories and the meaning units. In reporting the qualitative data, the consolidated criteria for reporting qualitative research (COREQ) 32-item checklist was considered (Tong, Sainsbury & Craig, 2007). COREQ is a checklist of items that should be included in reports of studies using interviews and focus groups.

### RESULTS

#### Quantitative results

Self-ratings and parental ratings on the CSQ-8 are presented in Table 2. Most of the children (72.6%) and about half of the parents (56.8%) rated the intervention as having “good” or “excellent” quality. Though a majority responded that they had received the service they wanted, a substantial proportion (approximately 40%) did not, and half of the study population (47.8% of the children and 56.8% of the parents) indicated that none or only a few of their needs had been met. Most of the children (79.6%) and the parents (89.6%) would recommend the intervention to a friend. A majority of the children (64.6%) and parents (79.2%) thought that SKILLS had helped the children to deal with their problems somewhat to a lot more effectively. While most respondents were satisfied overall, a large group (41.6% of the children and 33.6% of the parents) were indifferent to or mildly dissatisfied with the intervention.

As shown in Table 3, there were no differences in pre- and post-measures on rated ADHD symptoms, functional impairment, or attitude towards treatment. However, the parents were more positive towards their children’s diagnosis after the intervention. There was also a trend that the children were more positive towards psychological treatment after the intervention. In addition, around half of the children and parents thought they had learned some or a lot more about ADHD.

#### Qualitative results

As shown in Table 4, the qualitative analysis resulted in five categories and 15 subcategories. These are presented below with quotes that reflect each subcategory. Frequencies are described either with a number or the word “some,” where “some” indicates at least two but less than the majority of the interviewees.

**Content.** The subcategory Comments about the content included several positive comments about learning more about ADHD, e.g., “I really think it’s a good thing that the children find out what it means to have ADHD and what they can do themselves.” Some participants said that the intervention did not include any new information: “He already knew most of what was said in SKILLS because we have talked about it at home.” Suggestions were made of themes that could be included, for example, “build self-esteem and find out why it’s important.”

In the subcategory Lack of identification, it was mentioned that children did not identify with the content, for example, “(the intervention) didn’t describe his challenges.”

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In Learning from the content, most comments concerned problems with assimilating the information, for example, "(he) had a hard time listening to the information that was given ... even if my son didn’t hear it all, I did – so I can guide him." One parent said: "he thought it was (interesting and) easy to understand."

Organization. The subcategory How the material was delivered consisted of negative comments about the material being presented in the form of a lecture. Examples include: "Disappointed in the organization ... I wanted more pictures. Less lecturing. Getting the children more included." "It was a little too much of a lecture and sitting still for long periods for concentration to last." Parts of the organization were deemed to be positive and some parents suggested more interaction: "Ask a teacher for advice. Fun and good with the short movies. Would like something more interactive, like games."

All comments in Wish for more interaction between the participants raised concerns that the intervention included too few opportunities for the children to talk to each other and exchange experiences. One parent wrote: “More group discussion about what it feels like to have ADHD, moderated by the psychologists.” Another proposed: “An activity for the children would have been good so that they could talk more to each other.”

In the next subcategory, Time and scheduling, one parent commented that “the length of one hour with a break was good”; another mentioned “too long sessions.” Some parents wrote that it would have been better if the intervention was scheduled in the mornings.

In Wish for more appointments, some parents stated that they would have liked more than two sessions. Some comments indicated that a reason for this was to increase the opportunities for interaction between the children.

Table 2. Ratings (113 children and 125 parents) on the Client Satisfactory Questionnaire-8

| Question                              | Response options                                                                 | Mean (SD) |
|---------------------------------------|----------------------------------------------------------------------------------|-----------|
| Quality of service                    | Poor                              | 6.2%      | 21.2% | 55.8% | 16.8% | 2.23 (0.78) |
| Child rated                           |                                    | 6.4%      | 36.8% | 45.6% | 11.2% | 2.26 (0.77) |
| Parent rated                          |                                    |           |       |       |       |           |
| Get the service you wanted            | No, definitely not                 | 5.3%      | 37.2% | 48.7% | 8.8%  | 2.61 (0.72) |
| Child rated                           |                                    | 4.0%      | 33.6% | 52.8% | 9.6%  | 2.68 (0.70) |
| Parent rated                          |                                    |           |       |       |       |           |
| Met need                              | None of my needs have been met     | 5.3%      | 42.5% | 42.5% | 9.7%  | 2.57 (0.74) |
| Child rated                           |                                    | 6.4%      | 50.4% | 34.4% | 8.8%  | 2.46 (0.75) |
| Parent rated                          |                                    |           |       |       |       |           |
| Recommend to a friend                 | No, definitely not                 | 3.5%      | 16.8% | 50.4% | 29.2% | 3.05 (0.78) |
| Child rated                           |                                    | 3.2%      | 7.2%  | 50.4% | 39.2% | 3.26 (0.73) |
| Parent rated                          |                                    |           |       |       |       |           |
| Amount of help                        | Quite dissatisfied                 | 2.7%      | 32.7% | 49.6% | 15.0% | 2.77 (0.73) |
| Child rated                           |                                    | 4.0%      | 27.2% | 53.6% | 15.2% | 2.80 (0.74) |
| Parent rated                          |                                    |           |       |       |       |           |
| Deal with problems more effectively   | No, they seemed to make things worse| 0.9%      | 34.5% | 54.0% | 10.6% | 2.74 (0.65) |
| Child rated                           |                                    | 0.8%      | 20.0% | 64.8% | 14.4% | 2.93 (0.61) |
| Parent rated                          |                                    |           |       |       |       |           |
| Overall satisfaction                  | Quite dissatisfied                 | 2.7%      | 41.6% | 39.8% | 15.9% | 2.69 (0.77) |
| Child rated                           |                                    | 3.2%      | 33.6% | 51.2% | 12.0% | 2.72 (0.71) |
| Parent rated                          |                                    |           |       |       |       |           |
| Come back for help                    | No, definitely not                 | 0.9%      | 17.7% | 59.3% | 22.1% | 3.03 (0.66) |
| Child rated                           |                                    | 0.8%      | 7.2%  | 45.6% | 46.4% | 3.38 (0.66) |
| Parent rated                          |                                    |           |       |       |       |           |
| Total score                           |                                    |           |       |       |       |           |
| Child rated                           |                                    |           |       |       |       | 22.29 (4.45) |
| Parent rated                          |                                    |           |       |       |       | 22.83 (4.64) |

Note: All questions concern the satisfaction with the services (SKILLS) directed to the child.
Comments concerning The leaders included both positive and negative assessments, for example, “the leaders were great and had a nice way of talking to the children” and “too bad the leaders weren’t able to start a discussion.”

The group. In the subcategory The importance of meeting others, parents mentioned that it was positive that their children got the chance to meet other children with ADHD. Parents expressed a wish that their children would have been given this opportunity earlier: “Good for the child to see other children who are similar and to hear what they have to say.”

In the subcategory Different symptoms, some parents commented that it was “not good to have a child with ADD together with kids who have hyperactivity” and “the only girl in the group . . . even better for our daughter if she would have been able to meet other girls. Her difficulties and symptoms can be different from the symptoms that are common among boys.”

In the subcategory Age gap, comments concerned negative aspects of not having other children of the same age in the group. **Consequences.** The subcategory Common knowledge encompassed positive comments about the parent and the child having gained a common understanding and being able to discuss what they have learned.

In Behavior change, the parents described that they behaved and thought differently after the intervention, for example, “(for us) something new was that we could eat food for breakfast, which has changed our mornings for the better.”

In Acceptance, parents described that the intervention had increased their child’s acceptance of his/her diagnosis, for example, “(she is) now more forgiving of herself and others, greater acceptance towards herself and others. Is not ashamed of her diagnosis, can explain to others that it is what it is and it’s because of my ADHD.”

In the subcategory Doubtful effect, some parents mentioned that it was uncertain whether the intervention would have any effect on their children.

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General opinions. In the comments in the fifth category, parents mentioned that their child did not want to come back for the second meeting. There were also positive comments about the intervention, such as “great education,” “good initiative” and “well-organized meetings.”

DISCUSSION

In this study, using a mixed-method design to explore the acceptability and effectiveness of a psychoeducational intervention aimed at children with ADHD, a majority of the participants were satisfied with the intervention, would recommend it to peers and around half thought that they had gained some or a lot more knowledge about ADHD. No effects on symptom reduction or function improvement were found in the ratings, and about half of the participants indicated that none or only a few of their needs had been met. The parents rated a more positive attitude to their child’s ADHD after the intervention. The qualitative analysis based on parental comments revealed an emphasis on the value of the group format and the opportunity for children to meet other children of the same age and with similar symptoms. The parents expressed an appreciation for having gained a common ground that enabled continued conversations at home. Parents wished for more interactive elements and more opportunities for the children to share experiences.

Most of the available psychoeducational interventions for children with ADHD are aimed at parents or teachers (Dahl et al., 2020), or include psychoeducation designed for both parents and children (Fields & Hale, 2011), or include mainly family-based intervention for adolescents and their caregivers (Schoenefelder, McCabe, Fife, Herzig & Ahrens, 2020). Only one previous study has focused on psychoeducation aimed specifically at children (MacKay & Corkum, 2006). The authors reported that the children gained increased knowledge about ADHD and a more positive attitude towards different treatment options (MacKay & Corkum, 2006). In line with findings of MacKay and Corkum, we found that a majority of the children were satisfied with the quality of the intervention, as measured with the CSQ-8, and around half of the children and parents thought they had learned some or a lot more about ADHD. An increased perceived knowledge about ADHD was also reported after a single-session psychoeducational family workshop in a small sample of adolescents and their caregivers (Schoenefelder et al., 2020). In contrast to the study by MacKay and Corkum (2006), we found no change in rated attitude towards treatment among children or parents, although there was a tendency that the children were more positive to psychological treatment after the intervention. Possible reasons for the differing findings include that MacKay and Corkum had greater focus on pharmacological treatment and that no children in our study were excluded due to comorbidity, which may have resulted in a more clinically impaired, but also a more ecological valid, sample. Another reason could be the relatively positive attitudes at baseline in our study; the parents in particular had highly positive attitudes towards treatment initially.

The results in our study showed no effect on rated ADHD symptoms or level of functional impairment. This is the first study investigating the effectiveness on core symptoms and functional measures of a psychoeducational intervention aimed specifically at children with ADHD. Our null findings may not be surprising, given that ADHD is a neurodevelopmental disorder which often remains throughout adulthood. An effect on core symptoms and functional impairment would rather be expected in the long term, as a result of increased adherence to treatment recommendations. The expected effect of psychoeducational interventions would primarily be increased knowledge about the condition and how to manage one’s difficulties better (Dahl et al., 2020). Most of the children and parents rated the intervention as having helped the children to deal more effectively with their problems and we found that the parents were slightly more positive towards their child’s diagnosis after the intervention. ADHD is a risk factor for familial conflicts (Harold et al., 2013; Lifford et al., 2009). A more positive attitude towards a child’s diagnosis might result in a better understanding for the child’s difficulties and have a positive impact on the family climate. In responses to the open question, some parents described that the intervention had increased their child’s acceptance of his/her diagnosis.

Some parents mentioned that the intervention created a common ground, enabling the child and the parent to have discussions at home. MacKay and Corkum (2006) also discussed the importance of a common ground and concluded that although parents could possess a lot of information about ADHD, that did not necessarily mean that they had shared it with their child. This underlines the importance of having an intervention aimed at the children themselves. Children who have more knowledge can make more informed decisions and gain more control of their own situation. According to the health belief model (Champion & Skinner, 2008), the likelihood for seeking treatment depends on what knowledge the patient has of their own condition. Given the increased risk for comorbidities such as anxiety and depression (Gillberg et al., 2004; Spencer et al., 1999), it is important that an affected child has an understanding of the diagnosis and the possible consequences of ADHD.

In its current format, the intervention challenges the core symptoms of ADHD by being presented as a lecture, with the children expected to sit still and listen. Although the participants are encouraged to stand up if they become restless, they still need to focus on listening to the information that is presented. In response to the open question, the parents gave some suggestions on how to improve the intervention; many requested a more interactive format. The need for more activating and experiential exercises has been emphasized in group treatment for adolescents with ADHD (Meyer et al., 2020). Several parents highlighted the value of the group format, as it gave the children the opportunity to see their own strengths and challenges reflected in other children and to exchange experiences. Many parents requested more time for the children to interact with one another. Some also commented on the importance of having groups of children of the same sex, age and similar symptoms, to increase the likelihood of identification. According to social learning theory, people tend to imitate other people who they identify with (Bandura, 1986).

In psychoeducational programs aimed at children, more focus should be on how the information is delivered. Participants should be able to interact with one another, and more opportunities should be given for the participants to be active, both in discussions and physically. To enable this, SKILLS could be developed to include more interactive elements, with the therapist also educated in using activating methods. This could be done by...
including more sessions, as suggested by the parents. On the other hand, including more sessions would be more time-consuming and demanding for the families and clinics. An alternative would be to include add-on sessions that could be offered to some or all participants, targeting specific problems that are common among children with ADHD, such as emotion regulation problems (Christiansen et al., 2019).

**Limitations and strengths**

This study had several limitations that need to be addressed. First, this study had no control group, which makes it difficult to draw any firm conclusions about the effect of the intervention. Second, the result was based on self- and parent-reported data, which could be vulnerable to bias. Any change in ratings before and after the intervention could hypothetically be explained by an increased awareness of one’s symptoms and difficulties (Rosenman, Tennekoon & Hill, 2011) or the attention paid by the personnel, in line with the Hawthorne effect (Sedgwick & Greenwood, 2015). Including more objective measures and clinical assessments would have increased the validity of our findings. For instance, actual knowledge about ADHD could have been assessed through use of a questionnaire before and after the intervention. In addition, when using blinded ratings, the results from non-pharmacological interventions are often attenuated (Cortese & Coghill, 2018). Third, the post-measures were assessed two weeks after the last session; a longer follow-up period might have given additional information. Including a measure of adherence to later treatment and using a more longitudinal approach would have strengthened the design, especially since degree of adherence is a possible outcome of a psychoeducational intervention. Fourth, several outcome measures were used, increasing the risk of type I errors. However, this study was mainly exploratory, investigating the acceptability of the intervention, and using a more conservative method to adjust for multiple comparisons, such as Bonferroni correction, would have increased the risk of type II errors (Perneger, 1998). Fifth, we had no exclusion criteria for this study, resulting in a heterogenous study population. On the other hand, this increased the ecological validity. Sixth, no analysis of data saturation was used in the qualitative analysis. However, many comments in the texts were found to relate to the same areas. Lastly, we do not know how many families were invited to the study, and information on how many families that declined participation could have enabled an estimation of how much the programme is likely to be used.

The strengths of the study include the child perspective of participating in a psychoeducational intervention and, for the first time, an assessment of any change in rated symptoms and functioning. The combination of quantitative and qualitative methods added value, and parental comments about the experience of their child participating in the intervention gave important input for further development.

**CONCLUSION**

The results of this study showed that a psychoeducational group intervention for children with ADHD was considered acceptable by a majority of the participants. The intervention had no effect on core symptoms or functional impairment. Parental attitudes towards their child’s diagnosis were slightly more positive after the intervention. Meeting others in a group and gaining the chance to exchange experiences was emphasized as an important and valuable element of the intervention. In creating groups, care should therefore be taken to include children of the same sex, age and with similar symptoms. More activating activities and interactive elements are needed in order to promote learning among participants. Future research should focus on long-term positive and negative effects of the intervention, using randomized trials with control groups, a research area that is regarded as crucial for treatment research in ADHD (Cortese & Coghill, 2018). In addition, any effect on adherence to later treatment should be investigated.

**DATA AVAILABILITY STATEMENT**

The data that support the findings of this study are available from the corresponding author on reasonable request. The data are not publicly available due to privacy or ethical restrictions.

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**COMPETING INTERESTS**

The authors declare that they have no competing interests.

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**SUPPORTING INFORMATION**

Additional supporting information may be found online in the Supporting Information section at the end of the article:

Table S1. Attribution analyses with independent sample t-test and Chi-squared tests.

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