

Caring in Chaos: a field experiment of a parent training program for parents of children with a diagnosis or symptoms of ADHD

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Background:

About two to three percent of all Danish families have a child with a diagnosis of ADHD (Damm and Thomsen, 2012). Problems, such as, inattention, hyperactivity, or impulsivity, which characterize these children's behavior, often burden the family relationship. Parents may feel anxious, unmotivated and frustrated in their role as parents because they lack the competences to change the child's behavior, and children may feel isolated or excluded from social life and experience severe learning problems.

Medical treatment may improve the child's behavior, but medication can have severe side effects or not have the expected effect on the child's behavior. Furthermore, some parents hesitate to medicate their children for behavior problems. As a consequence, many parents request tools to help them deal with daily challenges.

Parent training programs improve the child's behavior by giving parents insights into the causes of the child's problems and a toolkit to prevent and handle parent-child conflicts.

This paper describes the protocol for a trial of a parent training program, called Caring in Chaos. Purpose of the trial is to test the effect of Caring in Chaos on a small population before deciding whether it should be scaled up.

A major difference between this training program and other training programs is that this program is based on voluntary trainers. Voluntariness means that the cost associated with the training is kept on a minimum, making the program affordable for more parents.

The program is a manual based program, developed by ADHD-foreningen, a Danish NGO. Purpose of the training program is to teach parents how to handle the particular challenges associated with having a child with ADHD, and thereby improve the child's behavior and wellbeing of the family.

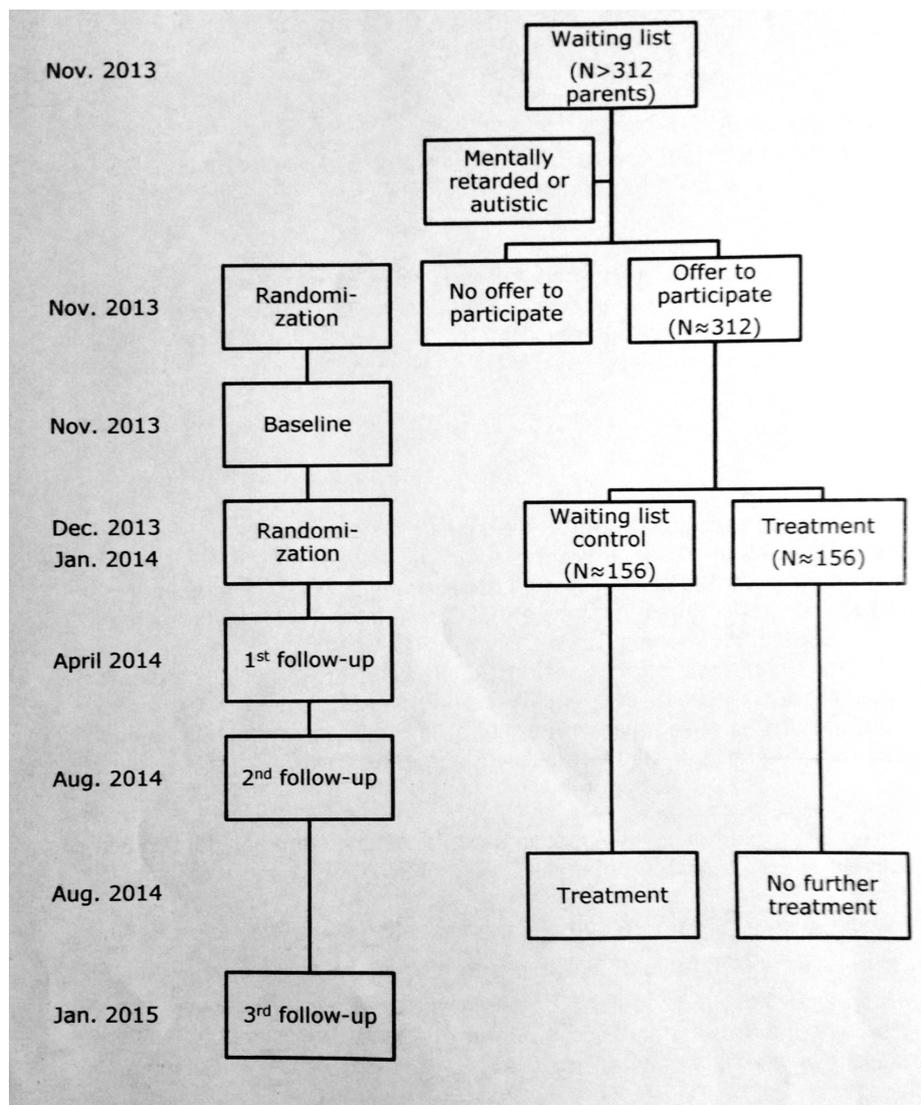
Parents who participated in the program during its development, in 2010-2011, experienced higher self-confidence, fewer conflicts, and a better parent-child relationship.

This protocol will continue with a short description of the trial design and suggested analysis. It will conclude with a discussion of limitations of the design.

Trial design

This trial relies on a field experiment, or randomized controlled trial (RCT); in particular, we apply a cluster randomized, two-armed, waiting list design. That is, families register for a local training course (cluster) and are randomized to either waitlist for or participate in parent training. Figure 1 shows the tentative flowchart and timeline of the experiment.

Figure 1: Tentative flowchart and timeline of progress through the experiment



Participants

In September and October 2013, we invited parents of children aged approximately 3-9 years with a diagnosis or symptoms of ADHD to register for the experiment and for parent training. Invitations were advertised in local and national newspapers and emailed to all Danish schools. Contrary to many other parent training programs, this program is also for parents of children with symptoms of ADHD. That is, parents who believe that their child may have ADHD, or at least has many of the symptoms. Generally, all applicants are parents who want to acquire new tools to reduce the number of parent-child conflicts that they experience. They will probably also be parents who want to acquire these tool early, before the child's behavior escalates into severe behavior problems. Most likely, they are among the more motivated and resourceful parents.

Parents who are interested in the program apply by completing a 15 minutes application form on a registration homepage. On this homepage they also received information about the structure of the training, locations, time schedule, and the experiment.

Single parents can apply together with another relative or related adult, as long as this person is involved in the child's upbringing. For example, a boyfriend or girlfriend, ex husband or ex wife, farther or mother, brother or sister, friend, or similar.

To ease networking among participants, which hopefully stretch beyond the scheduled training, we focus on a homogenous parent group, with children aged 3-9 years living in the same community. At this age children are in the last three years of pre-school or in the beginning three years of school, so these are all children who transition into a school, or a more academic, environment. Also during the registration, the applicant indicate a first, second, and third priority among training locations, so parents who eventually are grouped together in a training course live in the same community, which again facilitate networking.

We exclude families where the child has a diagnosis of mental retardation or autism spectrum disorder.

Intervention

The parent training program, Caring in Chaos, is based on social learning theory; that is, children are influenced by their parents, so a child's positive or negative behavior can be reinforced or changed through the parents. The program focus on developing parental capabilities by giving parents new knowledge and new tools through a mix of teaching, training, and exchange of experiences among participants.

The program is a manual based group intervention. The manual for the program is available from ADHD-foreningen. Between 12 and 14 parents (6-7 couples) meet once a week for 12 weeks. During these meetings, parents will get to understand the challenges that children with ADHD face. They will practice how to focus on their successes rather than their failures in their role as parents, how to acknowledge the child's positive behavior, and how to introduce routines and rules for the child. Meetings are scheduled in the evening during weekdays, after work hour, and last approximately 2,5 hours.

Parents who do not get the experimental intervention, the control group, will wait on a waiting list until they are offered the training course in the second wave, about eight months later. See Figure 1.

Measures

To measure family background characteristics and the effect of the parent training program, we rely on a registration form (that take about 15 minutes) and four questionnaire to the parents (approximately one hour). For both the registration and questionnaires, parents respond via an online system. For the four questionnaires both parents respond. These questionnaire include eight psychometric instruments, five related to parenthood and three about to the child. Furthermore, to ease measurement of child outcomes, parents who have more eligible children had to register one, primary child.

Registration information

During the registration, we ask parents to indicate background characteristics such as, family characteristics, self-report of whether the child is mentally retarded or autistic, and opinion about ADHD treatment. We translated and adapted opinions about ADHD treatment from the ADHD Knowledge and Opinion Scale (AKOS) (Rostain, 1993). Specifically, we include eight questions about the four dimensions: counseling acceptability, medication acceptability, feasibility of counseling, and parental competences.

Parent outcome measures

Parental competences: We assess parental efficacy and satisfaction with the Parenting Sense of Competence Scale (PSOC) (Johnston and Mash, 1989).

Discipline style of parents: We use the Parenting scale (PS) to determine changes in how parents deal with children's behavior problems (Arnold et al., 1993). Specifically, we look at laxness (permissive discipline), over-reactivity (displays of anger, meanness and irritability), and verbosity (lengthy verbal responses or reliance on talking).

Stress in the parent-child relationship: We determine parents positive and negative experiences of parenthood with the Parental Stress Scale (PSS) (Berry and Jones, 1995).

Parental depression: To determine parents' mood, we use the Major Depression Inventory (MDI) (Bech et al., 2001).

Parental ADHD: To look at correlations in parental and child ADHD and determine severity of parental ADHD, we use the adult ADHD Rating Scale (ADHD-RS) (Adler et al., 2006).

Child outcome measures

Development and behavior of children: We will use four scores from the Five to Fifteen (FTF) questionnaire to determine changes in ADHD symptoms and severity of overlapping, or co-morbid, conditions (Kadesjö et al., 2004). The four scales include, executive function (attention and impulsivity), language, social skills, and behavior problems (internalizing and externalizing).

Behavior in everyday settings: We use two instruments to assess development in children's compliance problems encountered in daily activities, the Home Situations Questionnaire-PDD (HSQ-PDD) (Barkley and Edelbrock, 1987; Chowdhury et al., 2010); and the Barkley Functional Impairment Scale – Children and Adolescents (BFIS-CA) (Barkley, 2012).

Randomization

Depending on the number of applicants for the training program in each locality, we will have either one or two randomizations. See Figure 1. Each local branch of ADHD-foreningen has the capacity to train 7 couples in each of the two wave of the training program. If more than 14 couples sign up for training at a local branch, we will first randomization applicants to get the program in 2014 or not get the program. Secondly, among those who get the program, we will randomizes parents to either parent training or a waiting list.

The randomization is a block randomization with 12 blocks, one block for each local branch.

Sample size

The major challenge in this project is recruitment of local branches and parents within local branches. This section looks at the number of local branches and parents that we need to recruit to statistically identify an effect of the training program.

The primary outcome for this study is PSOC. Previous experiments on parent training have shown large and significant effects on the PSOC-score of 0.64 standard deviations (Odom, 1996; Sonuga-Barke, 2001). Under the assumption of a more moderate effect size of 0.5, significance level of 0.05, power of 0.80, high inter-parent correlation of 0,9, and a small correlation between baseline and outcome scores of 0.25, we should include at least 90 families in the experiment, 45 in treatment and 45 in control. In September 2013, 12 local branches had agreed to offer the training course, which means that we can expect to enroll 156 families. That is, we expect to have sufficient sample size to detect the unknown effect of Caring in Chaos.

Analyses

The primary analysis is based on Intention-to-treat (ITT) regressions, controlling for baseline characteristics (Angrist and Pischke, 2009). ITT

regressions compare outcomes of treated parents to outcomes of parents on the waiting list. Controlling for baseline test scores significantly reduces the demand for observations. By collecting and controlling for baseline scores, the analysis is less demanding with respect to sample size (Duflo et al., 2007).

If the parent training changes parental competences, we would expect to see a spillover onto child behavior and general family wellbeing. The secondary analyses of the project will look at this spillover effect. Again these estimations will rely on Intention-to-treat (ITT) regressions of child behavior or family wellbeing on treatment. But besides ITT regressions, we also use instrumental variables (IV) regressions to investigate the underlying channel whereby parent training changes child behavior (Angrist and Pischke, 2009). We expect that parent training change parental competences and that better parental competences will improve child behavior. IV regressions can shed light on this mediating effect (Bloom, 2005).

Discussion

This section will discuss limitations and of the design and the circumstances under which the trial produces generalizable results.

The process of registration for the training course may hinder unresourceful parents from participating, if they find it too cumbersome to use 15 minutes to register via the internet. If that is the case then the registration process may result in a trial with a selective sample of resourceful families. On the other hand, this training program is not intended for unresourceful parents, neither the trial nor a potential scaled up version of program. Parents need some motivation or resources to complete a 12-week training program that rely on voluntary participation with voluntary instructors.

All data collection rely on self-reported data by the parents. Parents may untruthfully fail to report that the child has a diagnosis of mental retardation or autism. To prevent this we did not write on the registration homepage that children with a mentally retardation or autism would be excluded from the trial.

Results from this trial can determine whether Caring in Chaos has immediate (three month follow-up) and intermediate (eight month follow-up) effects on parental outcomes. And because we use well known outcome measures, effects from this experiment of a voluntary training program can be compared to other non-voluntary programs. That is, results can improve policy makers allocation decision.

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