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Schema therapy as treatment for adults with autism spectrum disorder and comorbid personality disorder: Protocol of a multiple-baseline case series study testing cognitive-behavioral and experiential interventions

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ABSTRACT

Background: To our knowledge treatment of personality disorder (PD) comorbidity in adults with ASD is understudied and is still in its infancy. This study investigates the effectiveness of schema therapy for PD-psychopathology in adult patients with both ASD and PD.

Methods/design: Twelve adult individuals (age > 18 years) with ASD and at least one PD are given a treatment protocol consisting of 30 weekly offered sessions. A concurrent multiple baseline design is used with baseline varying from 4 to 9 weeks, after which weekly supportive sessions varying from 1 to 6 weeks start with the study therapist. After baseline and 1 to 6 supportive sessions, a 5-week exploration phase follows with weekly sessions during which current and past functioning, psychological symptoms, and schema modes are explored, and information about the treatment is given. This is followed by 15 weekly sessions with cognitive-behavioral interventions and 15 weekly sessions with experiential interventions: patients are vice versa and randomly assigned to the interventions. Finally, there is a 10-month follow-up phase with monthly booster sessions. Participants are randomly assigned to baseline length, and report weekly during treatment and monthly at follow-up on Belief Strength of negative core beliefs, and fill out SMI, SCL-90 and SRS-A 7 times during screening procedure (i.e. before baseline), after supportive sessions, after exploration, after cognitive and behavioral interventions, after experiential interventions, and after 5- and 10- month follow-up. The SCID-II is administered during screening procedure, at 5- and at 10-month follow-up.

Trial registration: The Netherlands National Trial Register NTR5788. Registered 01 April 2016.

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1. Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental disorder with an early childhood onset and symptoms that persist throughout one's lifetime. In DSM-IV and in DSM-5, ASD is described on a behavioral level only. In DSM- IV [1], the core symptoms are qualitative impairments in social interaction, qualitative impairments in communication and restricted repetitive and stereotyped patterns of behavior. In DSM-5 [2], the core symptoms are persistent deficits in social communication and social interaction across multiple contexts and restricted, repetitive patterns of behavior, interests, or activities. The social disability is multifaceted with deficits in social-emotional reciprocity, in social non-verbal communication, and in developing, understanding and maintaining relationships.

Both clinical practice and epidemiological research show that more than 70% of individuals with ASD have concurrent and

Abbreviations: ABA, Applied Behavior Analysis; APA, American Psychiatric Association; ASD, autism spectrum disorder; AS, Asperger's disorder; CBT, Cognitive behavioral therapy; CET, Cognitive enhancement therapy; DSM, Diagnostic and Statistical Manual of mental disorders; IQ, Intelligence quotient; N.S., not significant; PDs, personality disorders; PD, personality disorder; RCT, randomized controlled trial; SCID-II, Structured Clinical Interview for Axis II Personality Disorders; SCL-90, Symptom Check List; SMI, Schema Mode Inventory; SRS-A, Social Responsiveness Scale – Adult version; VAS, visual analogue scales.

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impairing medical, developmental or psychiatric conditions (like anxiety disorders, mood disorders and personality disorders) [3–6]. As people with ASD become more aware of their limitations, the risk of developing these comorbidities increases. The prevalence of these disorders is significantly higher in high functioning people with ASD than in neurotypical adults [7–9]. In a study of Lugnegård, Hallerbäck, and Gillberg [10], approximately 50% of adults with ASD fulfilled criteria for a personality disorder. Four studies [11–14] found low scores on the character dimensions 'self-directedness' and 'cooperativeness', indicating personality pathology [15]. The high prevalence of psychiatric comorbidity and the negative impact of comorbidity on outcome and general functioning in society make treatment necessary [16].

The field of treatment research for adults with ASD is still in its infancy, and in the literature autism and psychotherapy are rarely combined, but it does not seem an impossible combination [17]. The focus of therapy must be the specific need of the patient with ASD whereby ASD can be seen as a basic persistent and pervasive disorder on which comorbid psychiatric disorders secondarily arise. Few treatment options are available so far and the effectiveness of existing treatment interventions for adults with ASD with and without comorbid disorders, such as cognitive-behavioral therapies (CBT) and pharmacological therapies, remains very limited and has yet to be demonstrated, with scant though promising results [18–26].

We have therefore developed a specific schema therapy program for adult patients with ASD and comorbid PD(s). We settled on schema therapy for several reasons. First, there is more and more evidence-based support for this therapy as a valuable treatment for PDs [27]. Second, the therapeutic relationship is active, consistent, supportive and directive with regard to both content and process, which we consider helpful for people with ASD who are characterized by low self-directedness [11–14,28]. Third, schema therapy is a structured and focused psychotherapy, which we consider to be suitable for people with ASD who benefit from structure and focus. The program consists of both cognitive-behavioral and experiential interventions. Cognitive-behavioral interventions are focused, structured, and goal-directed, and thus suitable with a view to the nature of the disorders in ASD and the associated need for clarity and structure. We apply the same approach to our experiential interventions: step by step, focused on a theme, structured by explanation and psycho-education, and goal-directed.

2. The present study

The aim of the study is to investigate whether schema therapy with cognitive-behavioral and experiential interventions will be effective for adult patients with ASD and at least one personality disorder (PD). The research question is: *'Can patients with comorbid ASD-PD benefit from schema therapy, more specifically its cognitive-behavioral and experiential interventions?*

The first objective is to study in detail the effects of the major technique groups of schema therapy – that is, the cognitive-behavioral techniques and experiential techniques – on belief strength of negative core beliefs in comorbid ASD-PD patients. We hypothesize that schema therapy leads to less belief strength of negative core beliefs. Furthermore, the short-term effects of both groups of techniques will be compared.

A secondary objective is to reduce the occurrence of dysfunctional schema modes (i.e. personality pathology in schema therapy terms). We hypothesize that schema therapy leads to a reduction in dysfunctional schema modes and an increase in functional modes.

A third objective is to reduce the occurrence of diagnostic criteria of personality disorders. We hypothesize that schema therapy leads to a reduced occurrence of personality disorder traits.

A fourth objective is a change in the severity of psychopathological symptoms, related to syndromic disorders like depression and anxiety disorders. We hypothesize that psychopathological symptoms will be diminished by the given treatment.

Lastly, we hypothesize that schema therapy will lead to an improvement in social interaction and communication. Our hypothesis is that more insight into one's own functioning through the given treatment will lead to an improvement in social interaction and communication.

3. Methods

3.1. Study design and procedure

This study is a concurrent multiple baseline design with a baseline varying in length from 4 to 9 weeks. In this study, there are two treatment conditions (cognitive-behavioral and experiential techniques) and two control conditions (baseline and exploration) in a within-subject design, without a control group. This treatment design precludes the randomization to groups and blinding of treatment. We randomize the baseline phase across participants to increase the internal validity of the case series design by varying the baseline duration from 4 to 9 weeks over participants. We also randomize the order of starting with either cognitive-behavioral or experiential interventions. The variation in baseline length and order makes it possible to differentiate between time effects and cognitive-behavioral and experiential intervention effects. During the baseline phase, the 'treatment as usual'(TAU) is continued until 6 supportive sessions start in week 5 for participants 1 and 2; 5 supportive sessions start in week 6 for participants 3 and 4; 4 supportive sessions start for participants 5 and 6 in week 7; 3 supportive sessions start for participants 7 and 8 in week 8; 2 supportive sessions start for participants 9 and 10 in week 9; and one supportive session is given in week 10 for participants 11 and 12. In this way we can check whether meeting the therapist and attending sessions have an influence. Table 1 shows the 10-week period with 4–9 weeks TAU-baseline and 6 to 1 weeks with weekly supportive sessions by study therapist.

After baseline and supportive sessions, which for each patient covers a 10 week period in total, a 5-week exploration phase follows with weekly sessions during which current and past functioning, psychological symptoms, and schema modes are explored, negative core beliefs are identified and explored, and information about the treatment is provided. The exploration phase is also used as a control for the effects of devoting attention to the participants' PD-related disabilities and problems. Then 15 weekly sessions with cognitive-behavioral interventions are given followed by 15 weekly sessions with experiential interventions (or vice versa). Finally, there will be a 10-monthly follow-up with monthly schema therapy booster sessions.

3.2. Ethical issues

The study procedure was reviewed and approved by the ethics committee of the University of Amsterdam (approved on 2 February 2016).

A brochure with information about the study has been prepared for the participants. Written consent will be requested from the participants.

The anonymity of the participants will be guaranteed by removing identity information when analyzing the data. After a period of 2 years all data with names and identity information will be destroyed.

As a treatment integrity check, all therapists in this study are

well trained and educated in cognitive-behavioral therapy and schema therapy, and are registered as a healthcare psychologist. To optimize treatment integrity, therapists received a four-day training in which the schema therapeutic interventions were studied and practiced. During the study, the therapists will be two-weekly supervised by a clinical psychologist, who is a registered specialist in schema therapy. All sessions will be audiotaped, and a random sample (at least 1 tape per patient per condition (baseline, exploration, CBT, experiential, follow-up) will be rated by a judge blind for condition on the type of techniques used to formally document treatment integrity.

3.3. Participants

The participants are 12 patients from the mental health care institute Sarr expertise center for autism in Rotterdam, the Netherlands. This institute is specialized in the psychodiagnostic assessment and psychotherapeutic treatment for children, adolescents and adults with ASD.

Inclusion criteria are a primary diagnosis of DSM-IV and/or DSM-5 ASD and PD, age 18–65 years, with an IQ indicating at least normal intelligence (IQ > 80), at least a completed primary and secondary education, having a reasonable degree of insight into their own personality and recognition of their (psychological) functioning, and a willingness to participate in the study for 2 years confirmed by a signed informed consent.

Exclusion criteria are schizophrenia or other psychotic disorders, antisocial PDs, eating disorders, psychiatric disorders secondary to medical conditions, mental retardation (IQ < 80), addiction (requiring clinical detox) and the presence of current suicidal ideation. Participants are not permitted to follow a concurrent psychological treatment at the same time. Pharmacotherapy can be used as a co-intervention during the treatment if already begun before the study intervention. This is no reason for exclusion from the study. In a longitudinal investigation of psychoactive and physical medication use among adolescents and adults with ASD, Esbensen, Greenberg, Seltzer, and Aman [29] found that 88% of adults used at least one medication and 40% used three or more different types of medication. If participants need to start with pharmacotherapy or another form of (support) therapy during the study intervention, for example in case of an acute crisis, this will not lead to exclusion from the study, as long as this therapy and the results are documented precisely.

Participants can quit the study at any time for any reason if they wish to do so without any consequences. The researcher can decide to withdraw a subject from the study for urgent medical reasons.

3.4. Screening procedure

The screening procedure consists of 2 sessions in which patients are screened for eligibility to participate, based on the inclusion and exclusion criteria and in which the negative core beliefs are formulated. This screening is conducted by a registered clinical psychologist, qualified for and experienced in diagnostic assessments.

The diagnosis of ASD will be verified by studying the diagnostic report including the diagnosis of ASD based on a clinical evaluation of autism-specific behaviors by direct observation, plus a report of developmental and behavioral history and current functioning provided by partner, parent or caregiver. The ASD must be diagnosed by a registered psychologist or psychiatrist. The Social Responsiveness Scale – Adult version (SRS-A; [30,31]) will be assessed for indications of severe shortcomings in social responsiveness, characteristic for adults with ASD.

Comorbid PD(s) will be assessed with the Dutch version of the Structured Clinical Interview for Axis II Personality Disorders (SCID-II; [32]). We further assess background information like sex, age, level of education, civil status, employment status, health and medication use.

3.5. Interventions

The treatment protocol consists of 30 sessions, offered weekly, followed by 10 monthly booster sessions. A concurrent multiple baseline design will be used with the baseline varying from 4 to 9 weeks, starting in week 5 and so on with weekly supportive sessions varying from 1 to 6 weeks. After baseline and supportive sessions, a 5-week exploration phase follows with weekly sessions during which current and past functioning, psychological symptoms, schema modes are explored, and information about the treatment is given. This is followed by 15 weekly sessions with cognitive-behavioral interventions and 15 weekly sessions with experiential interventions will be given. Finally, there is a 10-month follow-up with monthly booster sessions. Participants are randomly assigned to baseline length. To counter any possible carryover effects, 6 of them are randomly assigned to first cognitive-behavioral interventions followed by experiential interventions, whereas the other 6 participants start with experiential interventions followed by cognitive-behavioral interventions. Table 2 shows an overview of the interventions.

3.6. Instruments and outcome measures

3.6.1. Primary outcome measure

Idiosyncratic belief strength: in direct discussion with each

Table 1
Baseline and supportive sessions phase – 10-week period with 4–9 weeks TAU-baseline and 6 to 1 weeks with weekly supportive sessions by study therapist.

Participant	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10
1	TAU	TAU	TAU	TAU	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**
2	TAU	TAU	TAU	TAU	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**
3	TAU	TAU	TAU	TAU	TAU	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**
4	TAU	TAU	TAU	TAU	TAU	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**
5	TAU	TAU	TAU	TAU	TAU	TAU	**SUP**	**SUP**	**SUP**	**SUP**
6	TAU	TAU	TAU	TAU	TAU	TAU	**SUP**	**SUP**	**SUP**	**SUP**
7	TAU	TAU	TAU	TAU	TAU	TAU	TAU	**SUP**	**SUP**	**SUP**
8	TAU	TAU	TAU	TAU	TAU	TAU	TAU	**SUP**	**SUP**	**SUP**
9	TAU	TAU	TAU	TAU	TAU	TAU	TAU	TAU	**SUP**	**SUP**
10	TAU	TAU	TAU	TAU	TAU	TAU	TAU	TAU	**SUP**	**SUP**
11	TAU	TAU	TAU	TAU	TAU	TAU	TAU	TAU	TAU	**SUP**
12	TAU	TAU	TAU	TAU	TAU	TAU	TAU	TAU	TAU	**SUP**

TAU: treatment as usual; SUP: supportive session.

participant, three to five idiosyncratic beliefs are formulated that are central to the participant's problems. Participants will rate the degree to which they believe in each statement on 100 mm visual analogue scales (VAS; [33]) every week during treatment and monthly at follow-up. The average score constitutes the primary outcome. The VAS is a simple and frequently used scale measure and can be used for the assessment of variations in intensity of core beliefs. When responding to a VAS item, patients specify their level of agreement with a core belief by indicating a position along a continuous line between two end-points from 0 to 100. The core beliefs are formulated during the screening procedure by a registered clinical psychologist and participant before the baseline phase. All participants rate the VAS core beliefs weekly during TAU baseline and supportive sessions phase, exploration phase, cognitive-behavioral intervention phase, experiential phase, and monthly during follow-up phase.

3.6.2. Secondary outcome measures

The secondary outcomes include maladaptive schema modes assessed with the Schema Mode Inventory (SMI; [34]), and PD criteria assessed with the Structured Clinical Interview for Axis II Personality Disorders (SCID-II; [32]). The SMI contains 118 items that correspond to 14 schema modes, each rated on a 1–6 point scale for frequency. The Dutch version of the SMI will be used. All participants complete the SMI during screening procedure (i.e. before baseline), after baseline phase, after exploration phase, after cognitive-behavioral intervention phase, after experiential phase, during and after follow-up phase. The SCID-II is a structured clinical interview assessing the ten DSM-IV PDs [1]. Each SCID II criterion has a scoring range of 1–3. All participants are assessed by the SCID-II during screening (i.e. before baseline), at 5-month follow-up, and at 10-month follow-up.

Another secondary outcome is severity of psychological symptoms on Symptom Check List (SCL-90; [35]). The SCL-90 is a 90-item self-report questionnaire assessing psychological symptoms during the last week. Each item consists of five statements, rated on a 1–4 point scale for severity, resulting in a total score of 90–450. The Dutch version of the SCL-90 will be used. All participants complete the SCL-90 during screening procedure (i.e. before baseline), after supportive sessions phase, after exploration phase, after cognitive-behavioral intervention phase, after experiential phase, at 5-month follow-up, and at 10-months follow-up.

The last secondary outcome is an improvement of social responsiveness on the Social Responsiveness Scale – Adult version (SRS-A; [30,31]). The SRS-A is a 64-item self-report questionnaire measuring various dimensions of interpersonal behavior, communication and rigid, repetitive behavior and interests, characteristic for adults with ASD. The items correspond to 4 treatment scales i.e. Social consciousness, Social communication, Social motivation, and Rigidity and repetitiveness. Each item has four statements, rated on a 1–4 point scale. The Dutch version of the SRS-A will be used to assess improvement in social responsiveness by analyzing total scores and scores on the 4 treatment scales. All participants complete the SRS-A during screening procedure (i.e. before baseline), after supportive sessions phase, after exploration phase, after cognitive-behavioral intervention phase, after experiential phase, at 5-month follow-up, and at 10-month follow-up.

3.7. Study parameters

3.7.1. Primary study parameter

To test the first hypothesis, the following variable will be used: Belief Strength by VAS (negative core beliefs).

3.8. Secondary study parameters

To test the second hypothesis – i.e. to assess whether schema therapy leads to dysfunctional schema modes occurring less frequently, and functional modes occurring more frequently – the manifestations of schema modes will be assessed with the SMI. To

Table 2
Overview of the schema therapy phases and interventions.

Screening procedure – 2 sessions	
Session 1-2	Screening on the in- and exclusion criteria, administering SMI, SCL-90, SRS-A and SCID-II, formulating negative core beliefs, assessing background information.
Baseline and supportive sessions phase – 10-week period with 4–9 weeks TAU-baseline and 6 to 1 weeks with weekly supportive sessions by study therapist	
Week 5	Participants 1 and 2 start meeting therapist (6 supportive sessions).
Week 6	Participants 3 and 4 start meeting therapist (5 supportive sessions).
Week 7	Participants 5 and 6 start meeting therapist (4 supportive sessions).
Week 8	Participants 7 and 8 start meeting therapist (3 supportive sessions).
Week 9	Participants 9 and 10 start meeting therapist (2 supportive sessions).
Week 10	Participants 11 and 12 start meeting therapist (1 supportive session).
Exploration phase – 5 weekly sessions	
Session 1	Introduction to schema therapy, and cognitive-behavioral and experiential interventions. Bonding. Psycho-education about core needs, functional and dysfunctional behavior, links between present problems to childhood experiences.
Session 2	Psycho-education about core needs, functional and dysfunctional behavior, links between present problems to childhood experiences, and cognitive-behavioral and experiential interventions. Bonding.
Session 3-5	Conceptual mode model of the personality disorder: Schema-focused case conceptualization and childhood antecedents of PD-problems. Bonding.
Treatment phase – 15 weekly sessions of cognitive-behavioral interventions	
Session 1-11	Correcting negative core beliefs, making early maladaptive schema modes less present in daily life by completing schema mode sheet, and a choice of psycho-education, past and actual test, pros and cons analysis, writing a positive diary, making a flash card or a relapse prevention plan.
Session 12-14	Replacing negative core beliefs and behaviors with new, healthy cognitive and behavioral options, making early maladaptive schema modes less present in daily life, behavioral pattern breaking by behavioral experiment/role-play.
Session 15	Evaluation.
Treatment phase – 15 weekly sessions of experiential interventions	
Session 1	Psycho-education experiential interventions, introducing imagery rescripting and two-chair work, and starting an imagery of a safe place.
Session 2-14	Choice of two-chair work or imagery rescripting of childhood memories, present or future situations.
Session 15	Evaluation.
Follow-up phase – 10 monthly booster sessions	
Session 1-10	Maintaining and deepening changes.

answer the third hypothesis we will use the criterion score of the pertinent PDs assessed with the SCID-II. To answer the fourth hypothesis, we will use the total score of the SCL-90 (psychological symptoms). To answer the fifth hypothesis, we will use the total and four subscale scores of the SRS-A (social interaction and communication).

3.9. Statistical analysis

We have chosen a concurrent multiple baseline design, because, just like a RCT, it is able to demonstrate the occurrence of a change over time as being the result of an intervention [36,37]. The concurrent multiple baseline design is practical, because it requires fewer patients. The loss of power is compensated by the fact that participants serve as their own controls and by the large number of assessments of the primary outcome. We are not aware of a systematic way to perform power analysis for the concurrent multiple baseline design. As an indication, the study would have 80% power to detect a change of Cohen's $d = 1$ or higher at alpha = 0.05, two-tailed, if the paired *t*-test of the pre to post change were used to evaluate the treatment effect. A mixed regression analysis will be used for time, condition and time-within-treatment, which has been applied successfully in previous cases series studies. Mixed regression analysis will be used to assess the differences between the exploration, treatment (cognitive-behavior and experiential) and follow-up phases compared to the baseline phase. As an indication, we refer to the article of Arntz, Sofi and Van Breukelen [38].

The effect of time will be tested by the linear time trend over the whole study period, with first baseline assessment as zero time point. Condition will be tested by 5 levels: baseline and supportive sessions phase, exploration phase, cognitive-behavioral intervention phase, experiential intervention phase, and follow-up phase. Time-within-treatment will be tested by centered linear time effects within each of the conditions. For the analysis of core belief strength, we will follow a similar strategy as in Arntz, Sofi and Van Breukelen [38] and Videler, Van Alphen, Van Royen, Van der Feltz-Cornelis, Rossi & Arntz [39]. First, a full model with time, condition (with baseline as reference), and time within each condition will be run, with for the repeated part an AR1 or ARMA structure, and if possible random intercepts and slopes for participant. If the linear time effect becomes N.S., it will be eliminated from the model. Next, N.S. time-within-condition effects will be eliminated step by step. We expect that both active treatment conditions will differ significantly from baseline, as follow-up will do. We expect time-within-condition to be significant, reflecting gradual reductions in belief strength during the two active conditions, with a N.S. difference between the two active conditions. The other variables (except the PD-criterion scores) will also be analyzed with mixed regression, now with a simpler model as no weekly assessments are available. The reduction in number of symptoms for the initially diagnosed PD using the SCID-II between first (during screening procedure), second (at 5-month follow-up) and last (at 10-month follow-up) measurement will be tested using Wilcoxon's Signed Rank test.

4. Discussion

To the best of the authors' knowledge so far no study has been published on the application of schema mode focused interventions in adult patients with ASD and comorbid PD(s). The aim of this study is to investigate the effectiveness of schema therapy for PD-psychopathology in patients with both ASD and PD. Our study investigates whether these patients can benefit from both cognitive-behavioral and experiential interventions. We use cognitive-behavioral interventions to target dysfunctional cognitions and beliefs, and to work on developing (social) skills. We use experiential interventions to alter the meaning of the childhood experiences and of present and future situations that have caused or contributed to the negative core beliefs and schema modes (see Ref. [40]). In non-ASD patients with PDs, both sets of techniques have been found effective [39,41]. Clinicians often doubt whether experiential techniques can be used in ASD patients. As experiential techniques have a central place in schema therapy for PDs, it is important to test this.

The study is powered on the basis of paired *t*-test so that with 80% power a large pre-post effect size (Cohen's d = 1) can be detected at a significance level of 0.05. This effect size is based on previous studies into schema therapy for personality disorders. In ASD patients the effects might show to be weaker, but this can only be determined afterwards. On the other hand, the planned statistical analysis (mixed regression) and the many assessments of the primary outcome will lead to a higher power than a simple paired *t*-test of a twice assessed outcome.

A limitation of this study is that we did not consider using baseline length as a stratification factor when designing the study. As we already started the study, this cannot be revised. However, because we independently randomized TAU-baseline length and order, the combinations are random and we therefore don't expect substantial correlations between the two.

This study offers the first systematic test of administering schema therapy to adults with ASD. The results of this study will provide initial evidence for the effectiveness of schema therapy in treating adults with both ASD and PD(s). The study intends to provide valuable information for the future development and implementation of therapeutic interventions for adults with both ASD and PD(s).

Trial status

The trial started in April 2016 and data collection is expected to continue until April 2018.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

RV and AA designed the study. RV drafted the majority of this manuscript with critical input from the other author. RV obtained funding. developed SPSS database. All authors read and approved the final manuscript.

Authors' information

RV, MA, is clinical psychologist and postdoctoral researcher at Sarr expertise center for autism. AA is professor of clinical psychology at the University of Amsterdam.

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Human rights

The study will be carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki). Informed consent was obtained from participants.

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