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The Relationship Between the Level of Program Integrity and Pre- and Post-Test Changes of Responsive–Aggression Regulation Therapy (Re-ART) Outpatient: A Pilot Study

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Abstract

Responsive–Aggression Regulation Therapy (Re-ART) Outpatient is a cognitive behavioral–based intervention for adolescents and young adults (16–24 years) with severe aggressive behavioral problems. This pilot study ($N = 26$) examined the level of program integrity (PI; that is, the delivery of the intervention as it is originally intended) of Re-ART. We also investigated the pre- and post-test changes in several outcome variables, and the relation between the level of PI and these changes. Participants were recruited from three different outpatient forensic settings. Results showed that the PI of half of the treatments was not sufficient (e.g., the intensity of the program was too low and some standard modules were not offered). In addition, this pilot study demonstrated that sufficient PI was related to positive changes in aggression, cognitive distortions, social support, coping (reported by therapist), and distrust (responsiveness to treatment).

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Keywords

adolescents, young adults, aggression problems, forensic outpatient treatment, program integrity

Introduction

Aggressive and violent behavior of adolescents and young adults is a widely acknowledged societal problem. In the Netherlands, the percentage of criminal prosecutions for violent behavior involving adolescents has increased by 4% from 2002 to 2009 (Wartna et al., 2011). Aggression problems among these adolescents and young adults are often associated with psychosocial problems or a psychiatric disorder (Colins et al., 2010; Vermeiren, 2003; Vermeiren, Jaspers, & Moffitt, 2006; Vreugdenhil, Doreleijers, Vermeiren, Wouters, & van den Brink, 2004) and with a moderate or high risk for violent recidivism. Adolescents and young adults with severe aggression problems and violent behavior increasingly receive (compulsory) outpatient treatment instead of residential care (van der Laan, Blom, Tollenaar, & Kea, 2010). These (justice-involved) adolescents and young adults often seem unsuitable for group therapy, because group learning is too threatening for them and/or aggressive behavior can increase due to deviancy training (Dodge, Dishion, & Lansford, 2006; McGloin, Sullivan, Piquero, & Bacon, 2008; Souverein, van der Helm, & Stams, 2013). Meta-analyses confirm these findings: Lipsey, Landenberger, and Wilson (2007), and McGuire (2008) have shown that the effectiveness of interventions targeting serious and persistent criminal behavior increases if treatment is partly individualized. Nevertheless, group treatment remains one of the most prominent modalities in both residential and outpatient (forensic) treatment of adolescents and young adults with severe aggression problems and violent behavior (Hoogsteder, 2014). Therefore, there is a need for additional largely individualized outpatient treatment for this group.

There is also abundant empirical evidence showing that interventions that are based on three basic what-works principles of effective judicial interventions, designated as the risk-need-responsivity (RNR) principles, have a positive impact on reducing severe aggressive behavior (Andrews & Bonta, 2010; Wong, Gordon, & Gu, 2007), especially in high-risk youth (Koehler, Losel, Akoensi, & Humphreys, 2013; Lipsey, 2009). The *Risk Principle* informs therapists about who needs treatment and at what level of intensity. High-risk offenders should receive intensive treatment, whereas low-risk offenders should be given minimal or no care (Andrews & Bonta, 2010). The *Need Principle* refers to the importance of targeting dynamic criminogenic needs related to aggressive and violent behavior, such as antisocial personality (e.g., impulsiveness, poor coping), antisocial attitudes (e.g., cognitive distortions), and poor family relationships or negative parent-child interactions (Andrews & Bonta, 2006). The *Responsivity Principle* consists of two guideline categories: general responsivity and specific responsivity. General responsivity represents the use of the most effective techniques to change the criminogenic needs. Specific responsivity means that the intervention should be tailored to the motivation, learning style, and specific capabilities and limitations of the person, and that there should be a match between the client

and the therapist (Bonta & Andrews, 2007). Non-adherence to the RNR principles may even result in detrimental outcomes (Lowenkamp & Latessa, 2005).

It can be assumed that youths displaying aggressive behavior will be more receptive (more responsive) to largely individually tailored interventions, because these interventions can more easily target the specific criminogenic needs and learning style of the offender, and thus comply with the RNR principles of effective judicial interventions (Andrews & Bonta, 2010). Responsive–Aggression Regulation Therapy (Re-ART) Outpatient is a newly developed responsive intervention that offers treatment to juveniles (16- to 24-year-olds) with severe aggression problems (Hoogsteder, 2009). Re-ART Outpatient is largely individualized (Landenberger & Lipsey, 2005) and based on the RNR principles, with a special focus on both categories of the responsivity principle (Andrews & Bonta, 2010). Re-ART Outpatient uses cognitive-behavioral techniques, because international research shows that cognitive-behavioral therapy (CBT) effectively reduces severe aggressive behavior (e.g., Hatcher et al., 2008; Hollin & Palmer, 2009; Litschge, Vaughn, & McCrea, 2010; Özabaci, 2011). Re-ART Outpatient particularly focuses on developing cognitive skills, such as cognitive restructuring (recognizing and adapting adequate rational cognitions), and training interpersonal problem-solving skills (Landenberger & Lipsey, 2005; Lipsey et al., 2007; McGuire, 2008; Wilson, Bouffard, & MacKenzie, 2005). Re-ART also uses drama-therapeutic techniques (e.g., skills training, role playing; Sukhodolsky, Kassinove, & Gorman, 2004) and customized mindfulness exercises (to practice paying attention and non-judgmental observation; Pellegrino, 2012). Mindfulness in combination with CBT elements appears to positively contribute to the effectiveness of interventions that target aggression problems in children, adolescents, and (young) adults (e.g., Deffenbacher, 2011; Kazemeini, Ghanbari-e-Hashem-Abadi, & Safarzadeh, 2013; Kelly, 2007; Pellegrino 2012).

Interventions that also offer family treatment have been shown to be effective in the treatment of (severe) aggression problems in adolescents and young adults (Kawabata, Alink, Tseng, van IJzendoorn, & Crick, 2011; Pellegrino, 2012; Weisz, Hawley, & Doss, 2004). Re-ART Outpatient also involves family treatment because negative parent–child interactions increase the risk for aggressive behavior (De Haan, Prinzie, & Deković, 2010; Eichelsheim, 2011).

To meet with the risk principle, the duration and frequency of the Re-ART Outpatient sessions increase when the risk for violent recidivism is higher (Andrews & Bonta, 2010). The duration of the total intervention may vary from 5 to 18 months dependent on the level of risk (risk principle; >9 months for high risk; Hoogsteder, 2009). The standard frequency is at least once a week up to a maximum of 3 times per week (>once per week for high risk; Hoogsteder, 2009). The need principle is being met by providing a set of standard and optional modules targeting various criminogenic risk factors pertaining to the personal, family, and environmental domain (see “Method” section).

To improve specific responsivity, Re-ART invests in motivating adolescents and young adult offenders (Van Yperen, Booy, & van der Veldt, 2003) and in increasing self-efficacy and learnability (Bandura, 1997). The treatment can be adjusted to the

intelligence, age, learning style, pace, preferred learning strategy (using an easy explanation or doing more exercises), and/or needs (optional modules) of the youths. To increase the responsiveness of the adolescent and young adult to the Re-ART treatment, obstructive factors, such as demotivation, distrust, and low-impulse control (Fishbein et al., 2009), are dealt with. Attention to these aspects links in well to the learning style of the judicial target group (Andrews & Bonta, 2010; Sukhodolsky et al., 2004).

Obtaining and maintaining a sufficient level of program integrity (PI) is an important part of Re-ART, because research shows that a lack of positive treatment outcomes can be explained by insufficient PI (e.g., Goense, Boendermaker, Van Yperen, Stams, & van Laar, 2014; Helmond, Overbeek, & Brugman, 2012). PI refers to the delivery of the intervention as it is intended, including its content, duration, frequency, and scope (Duerden & Witt, 2012). To assess the level of PI, it has been recommended to measure different elements of PI, among which are the level of exposure, adherence, participant responsiveness, and quality of delivery (Caroll et al., 2007; Durlak & DuPre, 2008). Exposure pertains to the duration and frequency of the treatment sessions and the total treatment duration (also risk principle). Adherence refers to the extent to which all indicated modules and program meetings are conducted as described (also need principle). Participant responsiveness deals with the degree to which participants are engaged and involved in the meetings (specific responsiveness principle). Participants' level of engagement and involvement can be changed depending on which motivation techniques are applied, but also depending on the degree to which treatment sufficiently fits the learning style of the participants. Quality of delivery is the way in which therapists use the techniques and methods as prescribed in the program. The level of PI of Re-ART Outpatient was investigated in this pilot study by analyzing the aforementioned elements.

A sufficient degree of PI is a necessary pre-condition because it is otherwise impossible to draw valid conclusions whether or not a program is successful in changing behavior (Durlak & DuPre, 2008; Mowbray, Holter, Teague, & Bybee, 2003). Involvement of the level of PI increased the validity of outcome findings, and gives a better picture of how programs are implemented and a greater understanding of program outcomes. Furthermore, a higher degree of PI has been shown to be related to more positive treatment outcomes (Durlak & DuPre, 2008; Landenberger & Lipsey, 2005). Based on previous study results showing that PI cannot be separated from treatment effectiveness, in this pilot study, the following main research questions were formulated:

Research Question 1: What is the level of PI for Re-ART Outpatient?

Research Question 2: Is Re-ART Outpatient associated with positive changes in risk for violent recidivism, aggression, coping skills, cognitive distortions, responsiveness to treatment, and family functioning?

Research Question 3: Are these changes associated with the level of PI?

Given that Özabaci (2011) found a reduction of violent behavior in juveniles who followed outpatient CBT, it is anticipated that positive changes will be found at

post-test. Especially given the fact that research into the effectiveness of the residential version of Re-ART demonstrated significant improvements (moderate to large effects; Hoogsteder, Hendriks, van Horn, & Wissink, 2012; Hoogsteder, Kuijpers, et al., 2014). We also assumed that a higher level of PI will result in larger changes between pre- and post-test than a lower PI level (e.g., Durlak & DuPre, 2008).

Method

Procedure

Pilot study of the intervention. Data regarding the PI and the treatment content were collected at three departments of a forensic outpatient facility. This forensic outpatient center purports to contribute to a safer society by working to achieve lasting changes in the behavior of clients. These clients, aged 12 and older, exhibit aggressive and/or criminal behavior and often have (severe) psychological problems. Adolescents and young adults were included who were referred to Re-ART and had been treated between March 2011 and September 2013 and for whom pre- and post-intervention data were available. The juveniles and the therapist filled in questionnaires during the intake phase (T1) and again after finishing the program, but before aftercare (T2); this resulted in pre- and post-intervention data.

PI. Sixteen therapists from three forensic settings were involved in assessing PI (male $n = 4$; female $n = 12$). The examination of PI was undertaken in the period from February 2012 to August 2013. The PI was measured using self-report, structured interviews, and direct observation by three independent researchers, a multi-method approach used by several researchers (Durlak & DuPre, 2008; Lillehoj, Griffin, & Spoth, 2004; Vartuli & Rohs, 2009). The independent researchers received information on the Re-ART program, and were trained by observing Re-ART sessions with a checklist.

To assess the PI, information from several sources was collected on the degree to which the treatment met the Re-ART pre-conditions (e.g., the extent to which the therapists met the caseload, education, and role requirements). First, all Re-ART therapists ($N = 16$) were interviewed using a structured questionnaire). Second, based on case file data, the Re-ART indication criteria checklist was completed by the researchers for each juvenile to investigate whether the indication criteria were met: that is, a moderate or high risk for violent recidivism, problems in dealing with anger, poor coping, negative attitude (measured with the Risk Assessment for outpatient Forensic Mental Health [RAF MH]; see "Instruments" section), as well as aggressive behavior in different settings.

Subsequently, a questionnaire examined to what extent the therapists met the quality assurance at a meta-level (i.e., whether the duration and intensity of all the Re-ART treatments of a therapist satisfied the risk principle, monthly provision and completion of supervision, provision of aftercare according to the protocol, completion of the required evaluation instruments, and ensuring pre- and post-intervention data). Next, the way in which the Re-ART sessions were conducted was assessed by the

investigators and the therapists (adherence and quality of delivery: see “Instrument” section for detailed information).

In this pilot study, the PI across the entire treatment program for each client was also assessed. To this purpose, the researchers used the Re-ART final evaluation list (a structural component of Re-ART), which the therapists and clients completed at the end of treatment. This list was used to test whether the RNR principles, the application of action exercises, and the realization of a therapeutic relationship were met. On the evaluation list, therapists also registered whether the treatment consisted of the standard program and indicated optional modules (adherence).

A PI score for each individual treatment was deemed inadequate if the therapist and the treatment did not satisfy the pre-conditions, and/or if there were negative responses to more than three items of the final evaluation list, and/or the final evaluation lists had not been completed or these data could not be retrieved from the standard registration system. The PI+ group consisted of adolescents and young adults receiving Re-ART with sufficient treatment integrity, whereas the PI- group consisted of adolescents and young adults receiving Re-ART with insufficient treatment integrity.

Participants

The sample consisted of two groups of offenders between 16 and 23 years of age, who received Re-ART within an outpatient forensic setting: The PI+ group (PI+; $n = 13$) and the PI- group (PI-; $n = 13$). The PI+ group comprised adolescents and young adults receiving Re-ART with sufficient treatment integrity. For adolescents and young adults in the PI- group, treatment integrity was insufficient. From a series of chi-square and t tests (Table 1), it was shown that the PI+ and PI- groups did not differ on various background variables (age, gender, and cultural background), treatment motivation, risk for violent recidivism, mental disorders (diagnosed by therapist or psychiatrist: oppositional defiant disorder [ODD], conduct disorder [CD] or not otherwise specified [NOS], or attention deficit hyperactivity disorder [ADHD]), mental disability, substance abuse, poor impulse control, level of education (level finalized or following), offense type, and duration of treatment.

The t tests were also used to determine whether the PI+ group differed significantly from the PI- group at pre-test on aggression, cognitive distortions, coping skills, and responsiveness to treatment. The groups only significantly differed on self-control (reported by the therapist; PI+: $M = 30.15$, $SD = 3.39$; PI-: $M = 23.08$, $SD = 4.48$; $p = .00$).

Features of Re-ART Outpatient

Re-ART Outpatient was developed for boys and girls aged 16 to 24 years with an IQ > 70 . The Re-ART target group has severe (persistent) aggression regulation problems in different settings (e.g., school, at home, sports club) and a moderate to (very) high risk for violent recidivism. Re-ART uses the Transactional Model (Sameroff, 2009) to explain the development of aggressive behavior. The transactional model asserts that

Table 1. Characteristics of PI+ Group and PI- Group.

	Re-ART group PI+	Re-ART group PI-
	(n = 13)	(n = 13)
Average age (by start intervention)	18.54 (1.7)	18.54 (2.2)
Gender (male)	76.9% (n = 10)	92.3% (n = 12)
Non-native Dutch ^a	15.4% (n = 2)	23.1% (n = 3)
Motivation treatment pre-test (\leq better)	2.46 (1.05)	2.08 (1.04)
Risk for violent recidivism	4.08 (0.50)	3.85 (0.90)
Disorder/criminogenic factors		
CD	30.8% (n = 4)	38.5% (n = 5)
ODD	23.1% (n = 3)	0%
ADHD	15.4% (n = 2)	0%
NOS	38.5% (n = 5)	46.2% (n = 6)
PTSD	15.4% (n = 2)	0%
Poor impulse control	46.2% (n = 6)	61.5% (n = 8)
Mental disability	7.7% (n = 1)	15.4% (n = 2)
Substance abuse	38.5% (n = 5)	38.5% (n = 5)
Other disorder	46.2% (n = 6)	38.5% (n = 5)
Education (finalized or following)	100% (n = 13)	100% (n = 13)
Special education	7.7% (n = 1)	7.7% (n = 1)
Pre-vocational education	30.8% (n = 4)	53.8% (n = 7)
Secondary vocational education Level 1	23.1% (n = 3)	7.7% (n = 1)
Secondary vocational education Level 2	15.4% (n = 2)	15.4% (n = 2)
No education finalized or following	23.1% (n = 3)	15.4% (n = 2)
Offense type		
Reporting violence crimes	92.3% (n = 12)	76.9% (n = 10)
Reporting other crimes	69.2% (n = 9)	69.2% (n = 9)
Conviction for violence	61.5% (n = 8)	46.2% (n = 6)
Conviction for domestic violence	7.7% (n = 1)	7.7% (n = 1)
Conviction for crime against property with violence	0%	15.4% (n = 2)
Conviction for crime against property	15.4% (n = 2)	15.4% (n = 2)
Conviction other	0%	7.7% (n = 1)
Average duration treatment in weeks	45.69 (18.23)	49.08 (22.29)

Note. PI = program integrity; Re-ART = Responsive–Aggression Regulation Therapy; CD = conduct disorder; ODD = oppositional defiant disorder; ADHD = attention deficit hyperactivity disorder; NOS = not otherwise specified; PTSD = post traumatic stress disorder, PTSS = post traumatic stress disorder.

^aAdolescents were defined as not being native Dutch if at least one of their parents was born in a country other than the Netherlands.

an individual's development is the sum of ongoing bidirectional influences between the juvenile (biological dispositions) and his or her environment (e.g., sociocultural context, experiences with parents, peers, and school). Aggression problems are, therefore, thought to originate from a transactional process in which child factors, in

particular impulsiveness, poor coping and emotion regulation, cognitive distortions, and socialization factors, including antisocial attitudes, play an important role (Granic & Patterson, 2006). Coercive cycles of interactions between child and parent have been associated with the development of externalizing problems (Gross, Shaw, & Moilanen, 2008; Zhang, Chen, Zhang, Zhou, & Wu, 2008) and a lack of self-regulation (Brody & Ge, 2001).

Re-ART Outpatient contains a set of standard and optional modules depending on the criminogenic problems at the individual level (need principle). Re-ART offers the following standard treatment modules: Intake and Motivation, Aggression Chain (psycho-education for self-comprehension, relapse-prevention plan), Controlling Skills, Influence of Thinking, and Assertive Behavior, and the module Family and/or Partner. The family module is focused on teaching family management skills, limit setting and supervision, problem solving, and improving family relationships and communication patterns. The optional modules consist of Stress Reduction, Impulse Control, Emotion Regulation, Observation and interpretation, and Handling Conflicts.

The juvenile receives largely individual training combined with a group module. The juvenile participates in the group module every other week, unless there is a contraindication (e.g., severe unadjusted behavior in a group). The group module consists of at least 12 to 14 sessions, while each session lasts 1½ hr. The group module can start as a juvenile begins with the individual module Influence of Thinking. The group module focuses on cognitive distortions that are associated with several themes, such as revenge and insulted family members.

Instruments

PI. The instruments used to test the PI provided information on four domains (exposure, adherence, participant responsiveness, and quality of delivery; Carroll et al., 2007), which were relevant for assessing the PI. Exposure was measured by controlling whether the average duration and frequency (intensity) of a treatment corresponded to the severity of the risk for violent recidivism (risk principle). Information from the Electronic Patient Record System (EPRS) was used as it captures patient data such as personal data, diagnostic information, and therapy session reports and the final evaluation lists.

Subsequently, to assess adherence and quality of delivery, first, the quality assurance at a meta-level was examined with a questionnaire (see the "Method" section for more information). Second, the way in which the Re-ART sessions were conducted was checked by the researchers and the therapists with the Re-ART session checklist. This list consists of 12 important components that need to be applied during a session to safeguard the PI (e.g., "Does the therapist validate the juvenile sufficiently?" "Does the therapist's language sufficiently match that of the juvenile when providing an explanation?" "Was at least one situation or skill practiced or another action-exercise undertaken?"). The inter-rater reliability of this list was satisfactory, with Kappa values ranging from .62 to 1 (Cyr & Francis, 1992). Finally, the Re-ART final evaluation lists (completed by the therapists and juveniles) were used to measure the quality of treatment delivery at each individual level.

The participant responsiveness was evaluated on the basis of specific components of the Re-ART checklist (i.e., “Did the therapist adapt to the juvenile’s learning style?” “Use language that was comprehensible to the juvenile?”), and the Re-ART final evaluation form (i.e., “Did the juvenile feel he was taken seriously?”). In addition, the degree of motivation was monitored during the intervention pilot study using the RAF MH (treatment domain).

All these results (of the interviews and evaluation lists) were compared with information from EPRS.

Risk for violent recidivism. The RAF MH (van Horn, Wilpert, Bos, & Mulder, 2008; van Horn, Wilpert, Eisenhower, Scholing, & Mulder, 2012) consists of a youth and adult version. The RAF MH is a structured clinical risk assessment instrument that was developed to identify risk domains and assess recidivism risk of delinquents who are treated in a forensic outpatient facility. The RAF MH was used to collect information on the offender’s criminogenic characteristics. It combines several actuarial and structured professional judgment instruments, supplemented with factors relevant for an outpatient treatment population. Both versions of the RAF MH consist of 12 domains: Previous and current offenses (8 items), School/Job (9 items), Finances (3 items), Accommodation/Living environment (3 items), Family (12 items), Social network (5 items), Leisure time (3 items), Substance (7 items), Emotional/Personal (16 items), Attitude (5 items), Motivation for treatment (8 items), and Sexual problems (15 items). Items are scored according to explicit guidelines provided in the accompanying manual. The extended classification scale of five categories (low, 1; low-moderate, 2; moderate, 3; moderate-high, 4; high, 5) instead of the customary three (low, moderate, high) results in a more differentiated risk profile over time (maximum score is 5).

The RAF MH is scored by trained therapists based on file information and interviews. The files consist of an extensive intake report including diagnostics (see *Diagnostic and Statistical Manual of Mental Disorders [DSM]* classification for more information) and data from judicial reports, other (forensic) mental health care centers, and/or warrants. For this pilot study, the violent risk score was used as an indication of the youth’s risk level for re-offending with a violent offense. Results show reliable agreement between evaluators and good predictive validity of general and violent recidivism within 1 year after treatment (van Horn, Wilpert, Bos, Eisenberg, & Mulder, 2009). The predictive validity (represented by the Area Under the Curve [AUC]) for violent recidivism increased with each step in the risk procedure, resulting in a significant AUC value of .77 (confidence interval [CI] = [.640, .899], $p < .001$), which can be qualified as good (Sjostedt & Grann, 2002). The inter-rater reliability coefficients were also sufficient (single measure intra-class correlation coefficient [ICC] of .88 concerning scoring RAF MH items; van Horn et al., 2009).

Aggression

Aggression-related skills: Self-control and assertiveness. Cognitive and social skills related to aggression were assessed with the juvenile self-report and therapist-report versions of the Re-ART List (Hoogsteder, 2012). The Re-ART List assesses skills that

are needed to decrease an aggression problem according to the theoretical model of Re-ART. These skills are divided into the Self-Control scale (juveniles: 10 items; T1: $\alpha = .92$, T2: $\alpha = .96$, therapist: 10 items; T1: $\alpha = .88$, T2: $\alpha = .74$) and the Assertiveness scale (juveniles: 8 items; T1: $\alpha = .77$, T2: $\alpha = .83$, therapist: 6 items; T1: $\alpha = .73$, T2: $\alpha = .74$). Each item is rated on a 5-point Likert-type scale ranging 1 (*this is not true at all*) to 5 (*this is completely true; high score is positive*). Examples of items from the therapist-report version are “The juvenile is able to control his aggressive feelings” (self-control; maximum score = 90) and “The juvenile handles conflicts in an assertive manner” (assertiveness; maximum score = 30).

Dealing with anger. The item of the RAF MH “Dealing With Anger” was also used to measure externalizing behavior (maximum score = 2). A low score is positive.

Coping skills. The Utrecht Coping List (UCL; Schreurs, van de Willige, Brosschot, Tellegen, & Graus, 1993) was used to measure coping behaviors. The UCL is a 47-item Dutch self-report questionnaire that assesses coping on seven scales with sufficient reliability (Schreurs, van de Willige, Brosschot, Tellegen, & Graus, 1993), and satisfactory construct and predictive validity (Schaufeli & van Dierendonck, 1992). Each item is rated on a 4-point Likert-type scale ranging from 1 (*never*) to 4 (*very often; a high score is positive*). Four of these styles were used in the present pilot study: Problem-Focused (active) Coping (7 items, maximum score = 28; T1: $\alpha = .69$, T2: $\alpha = .71$), Palliative Coping (8 items, maximum score = 32; T1: $\alpha = .59$, T2: $\alpha = .74$), Social Support (6 items, maximum score = 24; T1: $\alpha = .76$, T2: $\alpha = .71$), and Reassuring Thoughts (5 items, maximum score = 20; T1: $\alpha = .68$, T2: $\alpha = .59$).

Cognitive distortions. The Brief Irrational Thoughts Inventory (BITI) was used to measure cognitive distortions. The BITI is a self-report questionnaire that consists of 18 statements describing different kinds of irrational (dysfunctional) thoughts (Hoogsteder, Wissink, et al., 2014). The BITI uses edited versions of some of Ellis’ irrational basic thought categories and is subdivided into three subscales. Each item of the BITI is rated on a 6-point Likert-type scale ranging from 1 (*I totally disagree*) to 6 (*I totally agree; low score is positive*). A recent study showed favorable psychometric properties of the BITI. Convergent, divergent, and concurrent validity were established, while measurement invariance was indicated across gender and different ethnic origin groups (native vs. non-native Dutch respondents) by means of confirmatory factor analysis, supporting construct validity of the BITI (Hoogsteder, Wissink, et al., 2014). In the current pilot study, reliability was established for Aggression and Justification (9 items, maximum score = 54; for example, “If someone touches me, I should hit him”; T1: $\alpha = .80$, T2: $\alpha = .87$), Sub-Assertiveness (5 items, maximum score = 30; for example, “I think that people get angry with me because I often say no”; T1: $\alpha = .86$, T2: $\alpha = .82$), and Distrust (4 items, maximum score = 24; for example, “Everyone is against me”).

Responsiveness to treatment. The domain Motivation for treatment (8 items, maximum score = 5; for example, motivation for treatment; commitment to treatment) and the

item Impulsivity (maximum score = 2) of the RAF MH and the Distrust scale (see above information about the BITI) were used to measure responsiveness to treatment. A low score is positive.

Family functioning. The domain Family of the RAF MH was used to measure family functioning (12 items, maximum score = 5; for example, relationship with parents). A low score is positive.

Statistical Analysis

Descriptive statistics (frequencies and percentages) were used to describe the degree of PI of the three forensic departments (see the “Procedure” section for the cutoff score of each specific client). The adherence and quality of delivery were assessed by scoring the Re-ART checklist. The following formula was used for this: total score per guideline satisfied / total score for all guidelines \times 100. A percentage $\geq 60\%$ was interpreted as sufficient (Durlak & DuPre, 2008; Hoogsteder, 2009). The questionnaire for scoring the quality assurance at a meta-level (i.e., exposure, adherence, and quality of delivery) using a cutoff score $< 80\%$ given that this concerned relevant, integral quality requirements (Hoogsteder, 2009). A paired *t* test was used to determine whether there was a statistically significant difference between the T1 and T2 scores. We used ANCOVA to examine the relation between PI and pre- and post-test changes in the outcome variables between the PI- and PI+ group. Covariance analysis (ANCOVA) was used on the T2 (dependent variables) scores, controlling for T1 scores and length of stay (using them as covariates in the ANCOVA). We included PI, sufficient (PI+ group) versus not sufficient (PI- group), as the independent variable. Effect sizes were computed in terms of Cohen’s *d*, based on post-test means and standard deviations of the Re-ART PI+ and the Re-ART PI- group, corrected for pre-test means and standard deviations of these groups. Cohen (1988) categorized ES as follows: $.19 < d < .49$ = small effect, $.50 < d < .79$ = moderate effect, $d > .80$ = large effect.

Results

PI

Basic pre-conditions. The results of the interview (which were also checked by using the information in the EPRS) demonstrated that all therapists satisfied the minimal educational requirements (academic or post-professional training) and had sufficient knowledge of and experience with CBT techniques. All therapists ($N = 16$) participated in the Re-ART training program, and all therapists had undergone an annual performance review; their treatment skills were deemed sufficient at a minimum. Three therapists (out of 16) indicated that they had not received an adequate instruction and had missed the structural work guidance program (none of their clients were included in the pilot study).

A total of 24 adolescents and young adults from the total pilot study group ($N = 26$) satisfied the Re-ART indication criteria. In two cases, it was decided to deviate from

the general inclusion criteria: two adolescents were still 15 years old when they started the intervention. These youngsters were admitted to Re-ART because the therapists—based on their clinical judgment—concluded that they had sufficient cognitive capacities to profit from the treatment.

Quality assurance (quality of delivery, adherence, exposure, and participant responsiveness). An average score of 70.3% (range = 33%-100%) was achieved on the questionnaire of quality assurance at a meta-level (i.e., exposure, adherence, and quality of delivery). Only six therapists (out of 16; 37.5%) scored sufficiently on this component (>80%). It is remarkable that five therapists (31.3%) explicitly indicated that—against protocol guidelines—they did not provide any aftercare (adherence). In respect of “the exposure,” also five therapists (out of 16; 31.1%) scored insufficient in terms of tailoring treatment duration and frequency to the severity of the recidivism risk. However, data from the standard registration system revealed that—irrespective of recidivism risk—juveniles were treated once per week (or less) in the majority of cases. The juveniles in the PI+ group ($n = 13$) differed significantly (t test; $p = .02$) in terms of frequency of treatment (average hour of treatment per week) from the PI- group (PI+, $M = 1.12$, $SD = 0.22$; PI-, $M = 0.77$, $SD = 0.44$).

Final evaluation lists had been completed by the therapist and the juvenile for 16 of the 26 client and these were used to assess PI (PI+, $n = 13$; PI-, $n = 3$). The lists from only three treatments did not meet the PI. The overall scores of the final evaluation list of the juveniles were positive (some had scored a single item as negative). The overall scores from the therapists were also positive with the exception of some items. Five therapists (out of 16; 31.1%) indicated that no structural action exercises had been carried out during the Re-ART sessions. Eight therapists (out of 16; 50%) indicated that there was insufficient knowledge transfer between collaborators. Finally, five therapists (31.1%) had not sufficiently applied the risk principle.

The EPRS revealed that all of the juveniles of the PI- group did not receive all standard and/or indicated optional modules. The most remarkable finding was that none of the PI- group had been offered the standard group module (the content of this module was also not individually received) and 84.6% had not been offered the family module.

The results of the Re-ART session checklist (quality of delivery) can be considered sufficient with an average score of 86.6% (range = 63%-100%). Focal points included the evaluation and summary of the main theme of a meeting. It was also apparent that responsiveness was appropriate. The therapists scored positively in terms of using language that was understandable to the juvenile and linking in to the juvenile's learning style with the exception of one observed treatment session. A total of 78.6% of juveniles felt they were being taken seriously by their therapist.

Pre- and Post-Test Changes in Outcome Variables and the Relation With PI

A series of paired t tests (Table 2) showed—as expected—positive changes in the PI+ group at post-test on risk for violent recidivism, aggression, coping skills, cognitive

Table 2. Means, SDs, and Effect Size on Risk on Violent Recidivism, Aggression, Coping Skills, Cognitive Distortions, Responsiveness to Treatment, and Family Functioning for Re-ART Group PI+ and Re-ART Group PI- Pre- and Post-Test and Total Group.

	PI+						PI-						Total group (N = 26)							
	T1		T2		T1		T2		T1		T2		T1		T2		PI mean effect			
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	F(1, 23)	ES	ES ^c	
Risk for violent recidivism																				
RAF MH	4.08	0.50	2.00**	0.82	3.85	0.90	2.38*	0.65	2.19**	2.98	0.51	0.83								
Risk for violent recidivism ^b																				
Aggression																				
Re-ART list ^d																				
Adolescent	51.85	14.4	67.85**	12.5	48.00	7.83	55.46*	8.12	61.65**	6.97*	1.17	0.84								
Self-control	19.38	5.11	24.92*	3.09	18.85	4.69	21.38	3.48	23.15**	6.42*	1.08	0.97								
Assertiveness																				
Therapist																				
Self-control	30.15	3.39	42.15**	3.58	23.08	4.48	32.85	4.51	37.50**	12.39*	2.29	0.51								
Assertiveness	12.23	3.22	19.00**	1.58	13.23	3.27	16.15	2.82	17.58**	18.10**	1.25	1.56								
RAF MH																				
Dealing with anger ^b	1.85	0.38	1.00**	0.00	1.85	0.38	1.31*	0.48	1.15**	5.64*	0.91	0.91								
Coping skills																				
UCL ^c																				
Problem focused	15.38	3.04	19.31*	2.29	16.31	3.73	18.31*	2.75	18.80**	1.93	0.40	0.67								
Palliative coping	17.00	3.00	20.77**	3.14	19.00	2.89	19.46	4.37	20.12*	2.73	0.34	1.02								
Social support	10.69	3.04	15.15*	2.15	11.00	3.00	11.77	2.24	13.46*	15.84*	1.54	1.64								
Reassuring thoughts	11.15	2.48	13.46*	1.90	11.15	3.00	12.46	2.44	12.96*	1.89	0.46	0.46								

(continued)

Table 2. (continued)

	PI+				PI-				Total group (N = 26)						
	T1		T2		T1		T2		T1		T2		PI mean effect		
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	F(1, 23)	ES	ES ^a
RAF MH	1.38	0.65	0.69*	0.48	1.38	0.51	1.23	0.44	0.96*				8.96*	1.17	1.17
Poor coping ^b															
Cognitive distortions															
BITI															
Aggression and justification	26.23	8.14	18.54**	6.44	27.69	8.05	27.92	4.84	23.23*				41.17**	1.65	1.44
Sub-assertiveness	14.08	5.69	10.54*	3.84	11.85	6.34	13.38	3.84	11.96*				14.49*	0.74	1.11
RAF MH															
Negative thoughts ^b	0.85	0.69	0.31*	0.48	1.08	0.76	1.15	0.56	0.73				20.32**	1.61	1.29
Responsiveness to treatment															
RAF MH															
Impulsiveness	1.00	0.91	0.69	0.48	1.31	0.75	1.23	0.73	0.96				2.12	0.87	0.50
Motivation ^b	2.46	1.05	1.23*	0.73	2.08	1.04	1.54	0.66	1.38*				1.15	0.45	0.81
BITI															
Distrust	8.38	3.48	6.85	2.12	9.85	4.93	11.38	3.84	9.11				10.87*	1.46	1.35
Family functioning															
RAF MH															
Family functioning ^b	3.08	1.26	1.77*	0.60	2.85	0.80	2.23	0.73	2.00*				1.87	0.69	0.91

Note. Re-ART = Responsive-Aggression Regulation Therapy; PI = program integrity; ES = effect size; RAF MH = Risk Assessment for outpatient Forensic Mental Health; UCL = Utrecht Coping List; BITI = Brief Irrational Thoughts Inventory.

^aES on adjusted means.

^bScoring range 0 to 5.

^cScoring range 0 to 2.

^dA higher score is better.

* $p < .05$. ** $p < .001$.

distortions, and family functioning compared with pre-test. We also found a significant improvement in motivation for treatment (not in impulsiveness and distrust). The ANCOVA results (Table 2) showed—as expected—a significant main effect of PI at post-test on all items of aggression and cognitive distortions, on some coping skills (i.e., social support, poor coping) and on the item distrust. We found no significant main effect of PI on the risk for violent recidivism, some coping skills (such as problem focused, palliative coping, reassuring thoughts), and the item motivation for treatment (responsiveness of treatment).

Discussion

This pilot study investigated the level of PI for Re-ART. Subsequently, we examined changes in outcomes variables between pre- and post-test, and the relation between the level of PI and the effect size of these changes. The results showed that PI was not adequate on all points. The pre-conditions (e.g., the extent to which the therapists met the caseload, training, and role requirements) were sufficient. However, the criteria for quality assurance (e.g., exposure and adherence) were not properly observed (70.3%). Only six therapists (out of 16; 37.5%) received a score above 80%. In particular, the treatment did not appear to be adequate in terms of exposure (the intensity of the program was too low) and adherence (not all of the standard and indicated optional modules were offered). This means that two of the RNR principles had not been sufficiently applied. The treatment sessions offered, however, had been carried out as intended (the quality of delivery was adequate), and the same applied to participant responsiveness. All in all, the results of this pilot study showed that the PI of half of the individual treatments was sufficient.

In addition, it was found that Re-ART PI+ group (i.e., the group with the sufficient level of PI) showed positive changes in risk for violent recidivism, aggression, coping, cognitive distortions, and family functioning. Changes in responsiveness to treatment were only found in motivation (not in a decrease of impulsiveness or distrust). Finally, this pilot study showed that sufficient PI was related to positive changes in aggression, cognitive distortions, social support, poor coping (reported by therapists), and distrust. Despite the fact that the level of PI did not relate to the results on all treatment goals, the PI+ group showed a moderate or large effect for the majority of the outcome measures compared with the PI- group. The results of this pilot study confirm the findings of Durlak and DuPre (2008) that higher levels of PI are related to higher levels of program effectiveness.

The examination of the level of PI indicated that participant responsiveness was partly present (motivation) in both the Re-ART PI+ group and the total group ($N = 26$). Participant responsiveness deals with the degree to which participants are engaged and involved in the meetings, which can depend on the level of motivation, impulsiveness, and distrust (specific responsiveness principle). Nevertheless, the level of PI was related to the level of distrust. The level of distrust increased in the PI- group, whereas the degree of distrust decreased in the PI+ group. A possible explanation for this could be that a higher level of treatment intensity (PI+ group) leads to better treatment

contact. Better contact has been shown to result in more motivation and less distrust (van der Helm, Klapwijk, Stams, & van der Laan, 2009).

Noteworthy is that the family module was not significantly related to family functioning (e.g., having a better relationship with family members and less conflicts). It is possible that the inclusion of family members in the treatment is related to other outcome variables. For instance, inclusion of family members with the family module can be related to greater continuity in treatment. This module focused also on a better relationship (with fewer conflicts) between parent and juvenile, which has been shown to be associated with less risk for delinquent behavior in juveniles (Hair et al., 2005; Hoeve et al., 2009; Keijsers, Loeber, Branje, & Meeus, 2011).

The results of this study also demonstrated that a higher level of PI was associated with more positive changes in a number of treatment targets. It is apparent that non-compliance with the risk- and need principle (providing standard and indicated modules), lack of monthly supervision (including practicing specific Re-ART skills) and not ensuring a sufficient transfer between various partners in the network were associated with poorer (or even no) results. Higher levels of PI were found particularly in more experienced Re-ART therapists, indicating that an organization/therapist needs a great deal of time to achieve higher levels of PI.

The standard group module is primarily aimed at the reduction of persistent cognitive distortions related to aggression problems. It is likely that the absence of the group module in the PI- group negatively influenced the reduction of cognitive distortions, because we found differences in cognitive distortions between the PI+ group and PI- group to be moderate to (very) large. Possibly the content of the group module is important to achieve positive outcomes.

It is noticeable that a large reduction in the risk for violent recidivism was found in all groups. This can be explained for the PI+ group, as there were positive changes on virtually all of the program objectives. However, this change is less easily explained for the PI- group, as positive changes were only found on a number of program objectives (i.e., self-control, dealing with anger, and problem-focused coping). It is possible that positive changes on these program objectives are enough for the reduction in the risk for violent recidivism. Moreover, some third confounding variable may have had an effect regardless of treatment, but this cannot be examined due to the absence of a treatment as usual (control) group.

There are some methodological limitations of the present pilot study that should be taken into account. The first limitation is that the post-test reliabilities for palliative coping and reassuring thoughts were relatively low. Finally, it should be acknowledged that the large number of comparisons made between the PI+ group and the PI- group may have resulted in significant effects by chance alone. On the other hand, all outcomes that were examined represented different treatment goals and showed moderate to large significant effects.

This pilot study demonstrated that a sufficient level of PI is related to positive treatment results. This supports the argument that more attention should be paid to PI (both the operationalization and observance) when implementing interventions. Furthermore, a sufficient level of PI is necessary to draw valid conclusions regarding the effectiveness of intervention programs (Carroll et al., 2007). Given that more positive changes

were achieved in the PI+ group, there is some indication that the changes observed were caused by the Re-ART methods and techniques employed (Tennyson, 2009). It seems relevant for Re-ART Outpatient to invest in improving PI and in determining which specific components of the program are essential for achieving positive intervention effects. Furthermore, more convincing evidence is required: this may be achieved through increasing the sample size and the use of a treatment as usual control group. However, this is only useful if a higher level of PI has been reached.

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