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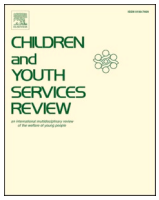

The development of adolescents in a non-residential alternative educational facility, including the prevention of secure residential placement

S. Pronk [a,b,*], G. van den Berg [c], E.A. Mulder [d,e], C. Kuiper [a,b], G.J.J.M. Stams [b], A. Popma [d]

[a] iHUB, Amsterdam, the Netherlands
[b] University of Amsterdam, Department of Child Development and Education, Amsterdam, the Netherlands
[c] Netherlands Youth Institute, Utrecht, the Netherlands
[d] Amsterdam UMC, Free University Amsterdam, Department of Child and Adolescent Psychiatry & Psychosocial Care, Amsterdam, the Netherlands
[e] LUMC Curium, Department of Child and Adolescent Psychiatry, Leiden University Medical Center, the Netherlands

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ABSTRACT

Summary: This study examined the development of 74 adolescents (13 to 17 years old, 62% boys) after their placement in the non-residential alternative educational facility School2Care, including the prevention of secure residential placement.
Findings: Results showed that 70% of the adolescents were not placed in a secure residential facility up until six months after leaving the educational facility. Adaptive emotion regulation strategies and feelings of empowerment showed positive changes and parent-reported externalizing problems decreased. No improvements were found in adolescents' future-time perspective, family functioning and parenting stress. Differences in family functioning, treatment motivation and teacher-reported therapeutic alliances predicted secure residential placement.
Applications: Findings of this study provide some preliminary evidence that School2Care can possibly contribute to positive outcomes, which should be tested in (quasi-)experimental research, but also show that further improvement of the intervention may be required.

1. Introduction

Effective non-residential programs for youth with complex problems are urgently needed given their risk for residential out-of-home placement (Souverein, Van der Helm, & Stams, 2013; Van IJzendoorn et al., 2020; Whittaker et al., 2016). Non-residential alternative educational facilities for youth with complex problems can contribute to positive youth outcomes (Pronk, Kuiper et al., 2020), which in turn may prevent school drop-out and secure residential placement. In the present study, we examined the development of adolescents up to six months after their placement in the Dutch non-residential alternative educational facility School2Care, and if secure residential placement was prevented. In addition, we studied the association between treatment motivation, therapeutic alliance, program integrity and later secure residential placement. Thereby, we aim to provide input for the improvement of alternative educational facilities and the prevention of secure residential care.

1.1. Prevention of secure residential care

In the Netherlands, following civil law, adolescents with complex problems can receive mandated care and treatment in non-forensic secure (i.e., locked) residential facilities, to protect them against severe individual risk factors (e.g., running away, aggression, suicidal behavior, treatment refusal) or severe contextual risk factors (e.g., abusive parents, lover boys) (Bruning, Liefaard, & Volf, 2004; Harder, Knorth, & Kalverboer, 2013; Nijhof, Van Dam, Veerman, Engels, & Scholte, 2010). Due to the intrusive character of secure residential facilities and research indicating less positive youth outcomes of residential treatment compared to non-residential treatment (Addink & Van der Veldt, 2021; Gutterswijk et al., 2020), these residential facilities have been the subject of debate for years (Dozier, Kaufman, Kobak, O'Connor, Sagi-Schwartz, Scott, Shauffer, & Smetana, 2014; Souverein et al., 2013; Van IJzendoorn et al., 2020; Whittaker et al., 2016). Therefore, attention increased for interventions that may prevent a path towards secure residential placement by means of less restrictive

* Corresponding author at: iHUB, Rode Kruisstraat 32, 1025 KN, Amsterdam, the Netherlands.
E-mail address: sanne.pronk@iHUB.nu (S. Pronk).

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ambulant alternatives, an ambition that is part of a nationwide action plan of the Dutch Government and youth care organizations (BGZJ, 2019). Alternative educational facilities are nationally seen as promising to achieve this ambition. Some facilities, such as School2Care, have even been specifically developed as a response to the growing numbers of adolescents who are placed in secure residential facilities in The Netherlands (Pronk, Mulder et al., 2020).

1.2. Non-residential alternative educational facilities

Alternative educational facilities, such as School2Care, offer a school-based care program focused on all life domains for adolescents with severe problems in terms of social, behavioral, and school functioning, often associated with serious problems in their families. The main objective of School2Care is to prevent school drop-out and secure residential placement by means of improving school attendance, reducing internalizing and externalizing behavior problems, strengthening protective factors and improving family functioning (Pronk, 2015).

The focus on school is of critical importance, since education allows adolescents to enter the workforce and advance economically, as well as to share in the social, health, and other benefits associated with education and productive careers (Wilson, Tanner-Smith, Lipsey, Steinka-Fry, & Morrison, 2011). Furthermore, the focus on protective factors such as feelings of empowerment and a positive future-time perspective are important, since literature indicates that building strengths is likely to be just as (or even more) important than repairing what is problematic (e.g., Seligman & Csikszentmihalyi, 2000).

School2Care applies widely recognized important common therapeutic factors, which may have a direct impact on intervention outcomes (Cuijpers, Reijnders, & Huibers, 2019; Karver, Handelsman, Fields, & Bickman, 2005; Lipsey, 2009), such as building a structured and nurturing environment (Beld, 2019; Deeds & DePaoli, 2017; Tobin & Sprague, 2000), and fostering a positive therapeutic alliance (Friedlander, Escudero, Welmers-van de Poll, & Heatherington, 2018; Karver, De Nadai, Monahan, & Shirk, 2018; Roest, Welmers-Van de Poll, Van der Helm, Stams, & Hoeve, 2022; Welmers-Van de Poll et al., 2018). The services offered are tailored to the motivation, personality, learning style and particular characteristics (i.e., cultural background, gender, educational level and care history) of the adolescents and families involved, in recent years referred to as personalized care or treatment (Andrews & Bonta, 2010; Bijlsma, Van der Put, Overbeek, Stams, & Assink, 2021; Ng & Weisz, 2016), targeting particular risks that are associated with school drop-out and secure residential placement (e.g., Gubbels, Van der Put, & Assink, 2019; Harder, Knorth, & Kalverboer, 2015).

Apart from the common therapeutic factors, School2Care applies certain specific therapeutic factors, which are unique to each intervention, such as the use of a positive behavioral intervention and support (PBIS) framework (Nelson, Sprague, Jolivette, Smith, & Tobin, 2009), functional behavioral assessment to identify antecedents and consequences for challenging behavior in order to fine-tailor treatment to the needs of the adolescent (Flower, McDaniel, & Jolivette, 2011), and the use of a cognitive behavioral approach to change maladaptive cognitions and behaviors (De Lange, Addink, Haspels, & Geurts, 2015; Litschge, Vaughn, & McCrea, 2010). Also, interventions such as modeling, roleplaying, performance feedback, and group trainings are important intervention components in order to stimulate positive behavior and effective learning strategies (Landrum, Tankersley, & Kauffman, 2003; Tobin & Sprague, 2000).

School2Care also applies interventions that aim at increasing positive family functioning and reducing parenting stress (e.g., by the use of intensive family therapies, arranging practical care such as help with debts, and increase parenting skills by psycho-education, modeling and practicing skills; De Lange et al., 2015; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009). This focus is unlike most alternative educational facilities and non-systemic behavioral, social work or educational interventions that target adolescents, which are mainly focused on the involvement of parents in the treatment of their child instead of family functioning, and may be a valuable addition to any alternative educational facility (Flower et al., 2011; Pronk, Kuiper et al., 2020).

A recent multi-level meta-analysis on the outcomes of adolescents with complex problems attending non-residential alternative educational facilities indicate that positive youth outcomes (i.e., improvement of social-emotional functioning, academic achievement and attitude, reduction of externalizing and internalizing problems) can be achieved in these facilities, with an overall small but significant effect of $d = 0.153$ (Pronk, Kuiper et al., 2020). However, this meta-analysis identified a lack of studies on the outcomes of alternative educational facilities. Moreover, low study quality (i.e., insufficient reliability of assessment instruments, use of self-report measures only, absence of comparable control groups), and lack of measuring program integrity set limits to drawing valid conclusions about the outcomes of alternative educational facilities (Caroll et al., 2007; Pronk, Kuiper et al., 2020).

1.3. Objectives of this study

The primary aim of this study is to examine the development of adolescents up to six months after their placement in the Dutch non-residential alternative educational facility School2Care. We examine (1) the reduction of internalizing and externalizing behavior problems, and the improvement of emotion regulation strategies of adolescents, (2) the increase of empowerment and perceived future-time perspective of adolescents as protective factors, and (3) the improvement of positive family functioning and reduction of parenting stress.

A second aim of this study is to examine the prevention of secure residential placement of adolescents up to six months after their placement in the alternative educational facility. We study (4) if the development of adolescents and families is associated with less secure residential placements. Lastly, we study (5) if treatment motivation, the therapeutic alliance and program integrity are associated with secure residential placements.

The findings of this study can be used to improve alternative educational programs, as well as other school-based preventive programs, and to design future (quasi-)experimental research, if results seem (sufficiently) promising given the changes in adolescent and family functioning, and percentages of adolescents for whom secure residential placement is prevented.

2. Method

2.1. Participants

The sample consisted of Dutch adolescents (12 to 18 years old) admitted to a non-residential alternative educational facility. Of the 108 adolescents who had been admitted to the studied facility in the study period, 29 adolescents (26.9%) were excluded from our study because they did not meet the inclusion criteria (see paragraph 2.2 for the full inclusion criteria), mainly due to participation of less than six weeks in the program. Five adolescents or parents (4.6%) did not give informed consent, and therefore were excluded from the study. The remaining 74 adolescents (68.5% of the admitted adolescents) were included in the analyses. No significant differences between the included and the excluded group were found in gender, age at admission, migration background, previous living situation and previous schooling situation. Table 1 presents an overview of the included participants.

The included group of adolescents consisted for 62.2% of boys and had a mean age of 15.2 years ($SD = 0.98$, min. 12.8, max. 17.3). For 29.7% of them both parents were born in the Netherlands, 73.0% lived within their own family previous to their allocation to one of the studied settings, and 87.8% recently attended school. The time they were

Table 1
Included participants.

	n (%)
Admitted	108 (100%)
Excluded due to inclusion criteria	29 (26.9%)
Excluded due to no informed consent	5 (4.6%)
Included	74 (68.5%)

enlisted in the program varied considerably, ranging from 1.9 to 22.8 months ($M = 10.3$, $SD = 4.8$). A total of 23% of adolescents were enlisted shorter than six months, 45% between six and twelve months and 32% longer than twelve months. Enlistment did not always mean full participation, as some adolescents had periods in which they hardly showed up at school. The obligation for Dutch schools to keep adolescents enlisted when there is no other day program may have influenced the data. Table 2 presents an overview of the characteristics of the included adolescents. These data were collected from the official school registration system.

2.2. Design and procedures

For this longitudinal study all adolescents admitted to the studied facility in the study period were asked to participate in the study, with the following inclusion criteria (1) start of School2Care between September 2016 and December 2018, (2) program participation of at least six weeks (the first phase), and (3) completion of the program before the ending of data collection (February 2020). Adolescents participating less than six weeks in the program were excluded, because they had not actually started the program, or temporarily attended School2Care pending a placement in another (more suitable) setting. Parents or substitute caregivers of the adolescents were asked to participate if they mastered the Dutch or English language, or had a person who could translate for them.

Potential participants received an extensive oral and written explanation of the study by one of the involved researchers. Participation in the study was voluntary and based on written informed consent for participation. Adolescent and parents were informed that their answers could be used by the professionals on the basis of Routine Outcome Monitoring. The study was conducted with ethical clearance from and according to the guidelines of the Ethics Review Board of the University of Amsterdam (2017-CDE-7736). If no informed consent was given adolescents were excluded from the study. If informed consent was given, data were collected at three points in time: prior to treatment (T1, pre-test assessment), after treatment within the facility (T2, post-test), and 6 months after post-test (T3, follow-up).

Data were collected by means of standardized questionnaires, which were administered to the adolescents and parents or substitute caregivers in an individual appointment at a location of their choice with one of the research assistants, and digitally to involved teachers. The pre-test assessment with adolescents and parents was conducted as soon as possible after admission. Teachers completed the pre-test assessment between four to six weeks after admission, because they first had to get to know the adolescent. The teacher who was involved at pre-test differed from the teacher who was involved at post-test due to the adolescents changing classes during their placement. Most questionnaires for parents were available in multiple languages. Table 3 presents the response rates for each group of respondents. No significant differences between the response and non-response groups (i.e., for adolescents and parents) were found in gender, age at admission, migration background, previous living situation and previous schooling situation.

Table 2
Characteristics of the included adolescents (N = 74).

	n (%)
Gender	
Boys	46 (62.2%)
Girls	28 (37.8%)
Age at admission, *M (SD)*	15.2 (0.98)
Migration background	
Both parents born in Netherlands	22 (29.7%)
A parent not born in Netherlands	50 (67.6%)
Unknown	2 (2.7%)
Previous living situation	
Within their family	54 (73.0%)
In a residential setting	10 (13.5%)
In their network	5 (6.8%)
In a professional family-based situation	5 (6.8%)
Previous schooling situation	
Recently attending school[a]	65 (87.8%)
Recently not attending school[b]	9 (12.2%)
Duration of enlistment, *M (SD)*	10.3 (4.8)

[a] With or without some truancy.
[b] Fully absent.

2.3. Setting

We studied the non-residential alternative educational facility School2Care, located in Amsterdam, the Netherlands. It was developed in 2011 as a response to concerns about the growing number of residentially placed adolescents, especially in secure settings. The main goal is to prevent school drop-out and secure residential placement, that is, having a positive structured daytime activity (i.e., school, internship, work) and living in a family-based setting (i.e., if possible with parents, or otherwise within their own social network, with a foster parent, or in family-style group care). It is a school that provides education and integrated care for a maximum of 44 adolescents between 12 and 18 years old at the same time, who are at risk for school dropout and placement in a residential setting (Pronk, Mulder et al., 2020).

Placement in School2Care is based on established indication criteria, such as severe individual problems (e.g., behavioral, emotional, cognitive), problematic family functioning (e.g., lack of parenting skills, parenting stress), and problems in the social context (e.g., truancy, criminality) (Pronk, 2015). The program is focused on all life domains (i.e., at school, home, during leisure time). Adolescents participate in a diverse 8 a.m. to 8p.m. program at school, during which they attend academic classes as well as individual and group trainings to build skills and acquire a sense of competence (e.g., social, academic skills). They attend mental health therapies, workshops to discover their talents and competences, and participate in diverse group activities (e.g., cooking, eating and exercising together) to practice their skills and experience a positive class atmosphere or group climate.

Professionals work as coaches, both teaching as well as working as youth counselors. Therapeutic alliance between the coach (i.e., teacher) and adolescent is an important element of the program. In order to build this alliance and motivate the adolescent for future change, the coach spends a lot of time with the adolescent and applies the principles of motivational interviewing. He or she also supports parents, by motivating them to be involved in their child's life and by helping them increasing their parental skills. The coach works together with specialized family workers for intensive family treatment, and other involved professionals (e.g., child protection, parole or attendance officers). The

Table 3
Response rates for each group of respondents (n = 74).

	T1 [a] *n (%)*	T2 *n (%)*	T3 *n (%)*
Adolescents	72 (97.3)	54 (73.0)	39 (52.7)
Parents (or substitute caregivers)	52 (70.2)	40 (54.1)	37 (50.0)
Teachers	74 (100.0)	70 (94.6)	

T1 = Pre-test, T2 = Post-test, T3 = Follow-up.
[a] Adolescents and parents (or substitute caregivers): 0–2 weeks after admission; teachers: 4–6 weeks after admission.

program usually ends after around six to nine months, after which the coach stays involved for at least six months to support the adolescent, his or her parents, and the school (i.e., aftercare).

2.4. Measures

2.4.1. Behavior problems and emotion regulation strategies

Behavior problems of adolescents were measured with the *Brief Problem Monitor* for youth (BPM-Y), parents (BPM-P) and teachers (BPM-T) (BPM; Achenbach, McConaughy, Ivanova, & Rescorla, 2011). The questionnaires are shortened versions of the *ASEBA* questionnaires (Achenbach & Rescorla, 2001). The items are divided into three scales of which we used the scales (a) internalizing problems (e.g., *'I worry a lot'*), and (b) externalizing problems (e.g., *'I argue a lot'*). The BPM-Y and BPM-P have an additional item for disobedience at home. Multicultural norms are available, based on T-scores ($M = 50$, $SD = 10$), in which a T-score of 65 or higher indicates cause of concern (i.e., 93rd percentile). The internal consistency have shown to be $\alpha = 0.78$ (BPM-Y), $\alpha = 0.80$ (BPM-P), and $\alpha = 0.80$ (BPM-T) for internalizing problems and $\alpha = 0.75$ (BPM-Y), $\alpha = 0.88$ (BPM-P), and $\alpha = 0.88$ (BPM-T) for externalizing problems. In the present study internal consistency coefficients between $\alpha = 0.80$ and $\alpha = 0.91$ for internalizing problems and between $\alpha = 0.70$ and $\alpha = 0.85$ for externalizing problems were found.

Emotion regulation strategies of adolescents were measured with the Dutch *Emotion Regulation Questionnaire of Children and Adolescents* (FEEL-KJ; Braet, Cracco, & Theuwis, 2013). The FEEL-KJ covers the emotions anger, fear, and sadness. The items contain regulation strategies which are divided into three subscales of which two subscales are used, (a) adaptive strategies (e.g., *'Solving the problem or seeking distraction'*) and (b) maladaptive strategies (e.g., *'Giving up or becoming aggressive'*). Norms for the Dutch general youth population are available, based on T-scores, in which a T-score of 40 or lower indicates a below average, a T-score of 41 to 59 an average, and a T-score of 60 or higher an above average use of the strategies. The internal consistency has shown to be $\alpha = 95$ and $\alpha = 0.92$ for the two subscales respectively (Braet et al., 2013). In the present study internal consistency coefficients between $\alpha = 0.95$ and $\alpha = 0.97$ for adaptive and between $\alpha = 0.87$ and $\alpha = 0.91$ for maladaptive strategies were found.

2.4.2. Protective factors

Empowerment of adolescents was measured by the Dutch *Empowerment Questionnaire* (EMPO 3.1; Damen et al., 2017). The items are divided into two scales of which we used the scale intrapersonal empowerment (e.g., *'I handle problems easily'*). Norms for the Dutch general youth population are available. A score lower than 21 indicates 'needs attention' and a score lower than 17 indicates 'needs treatment'. The internal consistency has shown to be $\alpha = 0.89$ (Damen et al., 2017). In the present study internal consistency coefficients between $\alpha = 0.87$ and $\alpha = 0.92$ were found.

Perceived future-time perspective of adolescents was measured with the scale study and professional career of the Dutch *Future-Time Perspective Questionnaire* (FTPQ; Peetsma, 1992). The items can be divided into two scales, (a) short-term perspective (e.g., *'What I learn at school is important to me'*), and (b) long-term perspective (e.g., *'I think I have a good chance at getting a job later'*). The internal consistency has shown to be $\alpha = 0.83$ for the short-term perspective scale, and $\alpha = 0.71$ for the long-term perspective scale (Stouthard & Peetsma, 1999). In the present study internal consistency coefficients between $\alpha = 0.84$ and $\alpha = 0.91$ for short-term perspective and between $\alpha = 0.74$ and $\alpha = 0.84$ for long-term perspective were found.

2.4.3. Family factors

Positive family functioning was measured with the Dutch *Family Functioning Questionnaire* (*FFQ*; Veerman, Kroes, De Meyer, Janssen, Nguyen, & Vermulst, 2016). The items are divided into five subscales, (a) basic care (e.g., *'My house is maintained well'*), (b) parental skills (e.g., *'I encourage my children and support them'*), (c) social contacts (e.g., *'My family and friends support me in difficult times'*), (d) childhood experiences (e.g., *'I had a nice childhood'*), and (e) marital relationship (e.g., *'I feel supported by my partner in the care for the children'*). For this study only the total score was used. Some items were rescored so higher scores indicate less problems. Norms for the Dutch general youth population are available, based on T-scores ($M = 50$, $SD = 10$), in which a T-score of 40 or lower indicates 'mild problems' (i.e., 10th to 16th percentile), and a T-score of 36 or lower indicates 'severe problems' (i.e., 9th percentile). The internal consistency was $\alpha = 0.90$ for the total scale (Veerman et al., 2016). In the present study internal consistency coefficients between $\alpha = 0.80$ and $\alpha = 0.88$ were found.

Parenting stress was measured with the Dutch *Parenting Stress Questionnaire* (*PSQ*; Vermulst, Kroes, De Meyer, Nguyen, & Veerman, 2015). The items are divided into five subscales, (a) parent-child relationship problems (e.g., *'I feel happy with my child'*), (b) parenting problems (e.g., *'My child listens to me'*), (c) depressive mood (e.g., *'I have positive feelings about my future'*), (d) parental role restriction (e.g., *'Due to my child I can't leave the house very often'*), and (e) physical health issues (e.g., *'I feel tired'*). For this study only the total scale was used. Some items had to be rescored so a higher score indicates more problems. Norms for the Dutch general youth population are available, based on T-scores ($M = 50$, $SD = 10$), in which a T-score of 60 or higher indicates 'mild problems' (i.e., 85 to 90th percentile) and a T-score of 64 or higher indicates 'severe problems' (i.e., 91th percentile). The internal consistency was $\alpha = 0.89$ for the total scale (Vermulst et al., 2015). In the present study internal consistency coefficients between $\alpha = 0.90$ and $\alpha = 0.93$ were found.

2.4.4. Secure residential placement

Secure residential placement was operationalized as being placed in a secure residential facility (i.e., including juvenile justice facilities), up until six months after their placement in the non-residential alternative educational facility. These data were collected from the official school registration system, complemented with information from adolescents, parents and coaches at the follow-up measurement.

2.4.5. Common therapeutic factors

Treatment motivation of adolescents was measured with the Dutch *Adolescent Treatment Motivation Questionnaire* (ATMQ; Van der Helm, De Jongh, & De Valk, 2017) (e.g., *'I think my treatment makes sense'*). The internal consistency has shown to be $\alpha = 0.84$ (Van der Helm et al., 2017). In the present study internal consistency coefficients of $\alpha = 0.80$ (T1) and $\alpha = 0.81$ (T2) were found.

Therapeutic alliance between the adolescent and their teacher (i.e., coach) was measured with the Dutch version of the *Short Working Alliance Inventory* (WAI-S; Horvath & Greenberg, 1989; Tracey & Kokotovic, 1989; Vertommen & Vervaeke, 1990). The items are divided into three subscales, based on Bordin's working alliance theory (Bordin, 1979), (a) bond (e.g., *'There is mutual respect between the therapist and me'*), (b) agreement on goals (e.g., *'The therapist and I have established a good understanding of the changes that would be good for me'*), and (c) agreement on tasks (e.g., *'The therapist and I agree on what is important for me to work on*). The internal consistency has shown to be $\alpha = 0.82$, $\alpha = 0.83$ and $\alpha = 0.85$ for the scales respectively (Stinckens, Ulburghs, & Claes, 2009). In the present study internal consistency coefficients of $\alpha = 0.96$ (adolescent reports) and $\alpha = 0.93$ (teacher reports) were found.

Program integrity was measured with the *Program Integrity Checklist School2Care* (PICS; Pronk, Wessels, & Checklist, 2016), which we constructed for the purpose of this study. We included information about multiple aspects of program integrity, following the conceptual framework for implementation fidelity as proposed by Carroll and colleagues (2007). The content of the instrument was based on the treatment manual of School2Care (Pronk, 2015), and feedback of professionals. The items were scored by the teacher (i.e., coach) at post-test, and cover the whole period the adolescent was enlisted. The items are divided into

four scales, (1) exposure (e.g., class and workshop attendance, individual coach contacts, parent and coach contacts), (2) adherence (e.g., specific techniques, such as positive rewarding), (3) participant responsiveness (e.g., active participation in the program), and (4) quality of delivery (e.g., open-mindedness towards the adolescent). We created a composite program integrity score by taking the average of the four scales in which each program integrity aspect was weighted equally, resulting in a score between 0% and 100% for treatment integrity. An internal consistency coefficient of $\alpha = 0.83$ was found. Table 4 presents an overview of domains, concepts, instruments, assessments, and informants.

2.5. Data analyses

The Statistical Package for Social Sciences (SPSS) 25 software was used to conduct the statistical analyses. On adolescent-reported internalizing problems we replaced two extreme scoring subjects (i.e., more than three standard deviations above the mean) by the highest score within the normal range. For some variables the assumption of normality was violated, indicated by a significant result on the Kolmogorov-Smirnov (KS) test. Quadratic or logarithmic transformations did not result in normality. After additional visual inspection of the data we chose to report non-parametric tests in addition to the parametric tests for the scales of the Brief Problem Monitor (BPM).

We tested pre-test to post-test improvements using dependent sample T-tests, and in addition Wilcoxon signed-rank test for the BPM. We assessed follow-up improvements using repeated measures analysis of variance (ANOVA), in which the scores at pre-test, post-test and follow-up were specified as within subjects factors. If the assumption of sphericity was violated, we reported the results of the Greenhouse-Geisser test. We calculated effect sizes (i.e., Cohens d and η^2) using formulas from Lipsey and Wilson (2001), and added the percentages scoring below or above the reference range, based on normed scores (i.e., the problematic range).

Because it is known that group effects may be unduly influenced by variations in individual change, we also studied development at the individual level (Zahra & Hedge, 2010). Therefore we calculated reliable change indexes (RCI) (Jacobson & Truax, 1991), for which we used the reliability coefficients of the test-manuals (i.e., Cronbach's Alpha or McDonald's omega), and standard measurement errors calculated with T-scores ($SD = 10$). For the Future-Time Perspective Questionnaire, we used these parameters from the study of Stouthard and Peetsma (1999).

We assessed differences between adolescents placed in a secure residential facility and adolescents who were not (i.e., they completed the School2Care program and kept living at home, within their own network or in foster care), using repeated measures analysis of variance (ANOVA) in which secure residential placement up to six months after placement (i.e., follow up) was included as the between-subject factor (i.e., secure residential placed versus not secure residential placed). Scores at pre-test and post-test were included as within subjects factors. Furthermore, we conducted independent sample T-tests with secure residential placement as grouping variable for treatment motivation (i.e., pre-test, post-test, change score), therapeutic alliance (i.e., adolescent perspective, teacher perspective), and program integrity.

Given our expectations about the direction of results (i.e., hypotheses) we conducted all tests as one-tailed tests. Due to multiple comparisons we applied Bonferroni corrections. However, because some argue that the Bonferroni method is overly conservative (e.g., Feise, 2002), we also report significant findings without correction in the results section. Given considerable variations in duration of enlistment in the program, we assessed if this was associated with later secure residential placements using ANOVA.

Post-hoc power analyses were conducted in G*Power 3.1.9.7. For most variables there was adequate power to detect small-to-medium effects, using T-tests or repeated measures ANOVA.

3. Results

3.1. Behavior problems and emotion regulation strategies

At pre-test, the majority of the respondents did not score the behavior problems of the adolescents in the problematic range, varying from 8% (i.e., adolescent-reported internalizing problems) to 43% (i.e., teacher-reported externalizing problems). 21% of the adolescents reported severe problems on either the internalizing or externalizing scale, 52% of the parents, and 54% of the teachers. For 51% at least one of the three respondents scored severe internalizing problems, for 61% at least one scored severe externalizing problems, and for 75% at least one scored either severe internalizing or severe externalizing problems. At pre-test, 33% of the adolescents scored below average adaptive emotion regulation strategies and 13% above average maladaptive strategies.

Parents reported a significant reduction of externalizing behavior problems of the adolescents from pre-test to post-test, and in repeated measure analysis, while teachers reported a significant increase of externalizing problems at post-test, although the last result was no longer significant after Bonferroni correction. Adolescents reported a

Table 4
Concepts, instruments, assessments, and informants.

Concept	Instrument	Scales	# Items	Measurement scale	Informant	T1	T2	T3
Behavior problems	Brief Problem Monitor (BPM)	Internalizing	6	Three point scale	Adolescent	X	X	X
		Externalizing	6		Parent	X	X	X
					Teacher	X	X	
Emotion regulation strategies	Emotion Regulation Questionnaire Adolescents (FEEL-KJ)	Adaptive	42	Five point scale	Adolescent	X	X	X
		Maladaptive	30					
Empowerment	Empowerment Questionnaire (EMPO)	Intrapersonal	8	Five point scale	Adolescent	X	X	X
Future-time perspective	Future-Time Perspective Questionnaire FTPQ)	Short-term	6	Five point scale	Adolescent	X	X	X
		Long-term	6					
Family functioning	Family Functioning Questionnaire (FFQ)	Total score	28	Four point scale	Parent	X	X	X
Parenting stress	Parenting Stress Questionnaire (PSQ)	Total score	34	Four point scale	Parent	X	X	X
Secure residential placement			1	Dichotomous	Official records [a]		X	X
Treatment motivation	Adolescent Treatment Motivation Questionnaire (ATMQ)	Total score	12	Three point scale	Adolescent	X	X	
Therapeutic alliance	Short Working Alliance Inventory (WAI-S)	Total score	12	Five point scale	AdolescentTeacher (i.e., coach)		X X	
Program integrity	Program Integrity Checklist School2Care (PICS)	Total score	47	Percentages, two and three point scale	Teacher (i.e., coach)		X	

T1 = Pre-test, T2 = Post-test, T3 = Follow-up.
[a] Complemented with information from adolescents, parents and teachers on the follow-up measurement (T3).

significant reduction of internalizing behavior problems at post-test and in repeated measure analysis, which after Bonferroni correction both were no longer significant. Adolescents reported a significant increase of adaptive emotion regulation strategies from pre-test to post-test, and in repeated measure analysis, although the last result was no longer significant after Bonferroni correction. Table 5 presents an overview of test results.

3.2. Protective factors

At pre-test 18% of the adolescents scored below average empowerment. Adolescents reported more long term than short-term future-time perspective. However, no norms were available for this questionnaire. The repeated measure analyses showed a significant increase of empowerment and long-term future-time perspective, although the last result was no longer significant after Bonferroni correction. For short-term future-time perspective no significant difference was found. Table 6 presents an overview of test results.

3.3. Family factors

At pre-test, almost half of the parents (46%) reported problematic family functioning, and 60% problematic parenting stress at pre-test. No significant improvement on those factors was found. Table 7 presents an overview of test results.

3.4. Reliable change indexes

For the majority of the adolescents no significant change was found on behavior problems (ranging from 68% to 98% at post-test, and from 62% to 95% at follow-up). Parents reported the most improvements for externalizing behavior problems (32% at follow-up), and teachers reported the most deterioration for internalizing behavior problems (20% at post-test). Positive change was found for 40% on adaptive emotion regulation strategies at post-test, and for 52% at follow-up while respectively 11% and 12% deteriorated.

Regarding protective factors, on short-term future time perspective 26% improved while 26% deteriorated at post-test, and 32% improved while 29% deteriorated at follow-up. For most adolescents no significant change was found on long-term future-time perspective.

Regarding family functioning, 45% improved while 29% deteriorated at post-test, and 26% improved while 43% deteriorated at follow-up. On parenting stress 32% improved while 32% deteriorated at post-test, and 40% improved while 26% deteriorated at follow-up. Table 8 presents an overview of all test results.

3.5. Secure residential placement

A total of 22 adolescents (30%) were placed in a secure residential facility up until six months after their placement in the non-residential alternative educational facility (i.e., 18 at post-test, four during the six months up to follow-up) and 52 adolescents (70%) were not (i.e., they completed the School2Care program and kept living at home, within their own network or in foster care). At follow-up, 47 (90%) of those 52 adolescents attended education, job training or worked.

No significant difference was found in duration of enlistment between the secure residentially placed group ($M = 10.02$, $SD = 5.7$) and the group that was not secure residentially placed ($M = 10.4$, $SD = 4.45$), ($F(1,74) = 0.090$, $p = .766$). Improvement of behavior problems or emotion regulation strategies (Table 5), protective factors (Table 6), or parenting stress (Table 7) were not associated with secure residential placement. Family functioning improved significantly less for adolescents placed in residential care compared to those who were not placed in secure residential care (Table 7).

3.6. Common therapeutic factors

No significant differences in initial treatment motivation or changes of treatment motivation, adolescent-reported therapeutic alliance and program integrity were found between adolescents placed in secure residential care and adolescents who were not placed in secure residential care. Statistically significant differences between both groups were found in post-test treatment motivation and in teacher-reported therapeutic alliance. Treatment motivation was greater and teacher-reported therapeutic alliance was of less quality for the group of adolescents placed in secure residential care compared to those who were not placed in secure residential care. Table 9 presents a summary of test results.

4. Discussion

In the present study we examined the development of adolescents after their placement in a non-residential alternative educational facility, and what factors were associated with secure residential placement. Results showed that 70% of the adolescents were not placed in a secure residential facility up until six months after their placement (i.e., they completed the School2Care program and kept living at home, within their own network or in foster care). Adolescent self-report of adaptive emotion regulation strategies and feelings of empowerment showed positive changes. Parent-reported externalizing problems decreased. Furthermore, parents did not report improvements in family functioning and parenting stress, and adolescents did not report improvements in perceived future-time perspective. Differences in family functioning, treatment motivation and teacher-reported therapeutic alliances predicted residential placement.

The positive changes in adaptive emotion regulation strategies and feelings of empowerment are important, since literature indicates that building strengths is likely to be just as (or even more) important than repairing what is problematic (e.g., Seligman & Csikszentmihalyi, 2000). However, although the setting may have helped adolescents to demonstrate their emotions in a proper way during placement (e.g., small groups, structured program), results indicate they may not have been able to retain what they have learned in the months after placement.

The modest reduction in parent-reported externalizing problems ($d = 0.39$) was a positive finding, in particular given the very small and non-significant effect of $d = 0.06$ for externalizing problems in the *meta*-analysis on the outcomes of non-residential alternative educational facilities by Pronk and colleagues (2020). However, adolescents and teachers did not report improvement in externalizing problems. Notably, informants can show great differences in their perception of behavior problems, for example, because they observe different contexts or make different comparisons based on different reference groups (e.g., Breuk, Clauser, Stams, Slot, & Dorelijers, 2007; Weisz et al., 2017). This may be illustrated by a previous study on School2Care, in which teachers of *previous* regular schools reported severe externalizing behavior problems at the time of admission to School2Care for far more adolescents (83%; Pronk & den Berg, 2022) compared to the 43% with severe externalizing problems as reported by School2Care-teachers in the present study.

Considering the focus on family-based care, it is surprising that parents did not report more positive about their families' functioning and the parenting stress they experienced. Moreover, the fact that quite some parents reported severe family problems at post-test and follow-up is worrisome and requires attention, especially because a lack of positive changes in family functioning during placement was associated with secure residential placements. Other research also emphasizes the importance of family functioning and the need for family-based care (e.g., Carr, 2019; Sondeijker, Sarti, & Geenen, 2020), which is currently affecting Dutch youth care policy and practice, especially residential care with its traditional main focus on adolescents themselves instead of

Table 5
Test results for behavior problems and emotion regulation strategies.

	T1			T2			T3			T1-T2				T1-T2-T3				Secure residential placement	
	N	M (SD)	PR (%)	N	M (SD)	PR (%)	N	M (SD)	PR (%)	N	Test [a]	*p*	*d*	N	Test [b]	*p*	η^2	Test [c]	*p*
Behavior problems																			
Adolescent																			
Internal.	72	0.27 (0.38)	8	52	0.20 (0.26)	2	39	0.25 (0.39)	8	51	$t(50) = 1.96$ [*1]	0.028	0.20	32	$F(1.67, 51.55) = 2.53$ [*1]	0.049	0.08	$F(1,49) = 0.053$ [ns]	0.409
External.	72	0.48 (0.38)	14	52	0.42 (0.33)	10	39	0.39 (0.30)	8	51	$t(50) = 1.07$ [ns]	0.145	0.15	32	$F(2, 64) = 1.78$ [ns]	0.088	0.05	$F(1,49) = 0.531$ [ns]	0.235
Parent																			
Internal.	52	0.58 (0.46)	33	40	0.45 (0.54)	18	36	0.52 (0.45)	25	37	$t(36) = 0.68$ [ns]	0.249	0.08	27	$F(2, 52) = 0.10$ [ns]	0.453	0.00	$F(1,35) = 0.00$ [ns]	0.488
External.	52	0.81 (0.43)	39	40	0.62 (0.34)	25	36	0.56 (0.39)	19	37	$t(36) = 2.85$ [**]	0.004	0.39	27	$F(2, 54) = 4.53$ [**]	0.008	0.14	$F(1,35) = 0.11$ [ns]	0.371
Teacher																			
Internal.	74	0.51 (0.51)	32	69	0.61 (0.51)	44				69	$t(68) = -1.24$ [ns]	0.109	−0.19					$F(1,67) = 0.01$ [ns]	0.465
External.	74	0.69 (0.47)	43	69	0.85 (0.53)	54				69	$t(68) = -2.59$ [*1]	.012[d]	−0.34					$F(1,67) = .0.86$ [ns]	0.179
Emotion regulation strategies [d]																			
Adaptive	54	2.96 (0.75)	33	45	3.21 (0.83)	24	36	3.12 (1.08)	31	31	$t(34) = -2.75$ [**]	0.005	0.43	19	$F(1.49, 26.80) = 3.61$ [*1]	0.027	0.17	$F(1,34) = 0.09$ [ns]	0.383
Maladapt.	54	2.47 (0.71)	13	45	2.56 (0.53)	7	36	2.48 (0.85)	14	31	$t(34) = -0.94$ [ns]	0.177	−0.14	19	$F(2, 36) = 0.17$ [ns]	0.423	0.01	$F(1,34) = 2.18$ [ns]	0.075

T1 = Pre-test, T2 = Post-test, T3 = Follow-up, PR = problematic range.
* p <.05, ** p <.01. One-tailed. [1] No longer significant after Bonferroni correction.
[a] T-test for T1-T2. All found effects for behavior problems were also significant when non-parametric Wilcoxon Signed Ranks Tests were conducted.
[b] Repeated measure anova. For adolescent internalizing and adaptive strategies the assumption of sphericity was violated, therefore the Greenhouse-Geisser test is reported.
[c] Repeated measure anova with secure residential placement as between-subject factor.
[c] Two-tailed given the found result being in the unexpected direction.
[d] Not all questionnaires could be included because, interestingly, multiple adolescents did not fill in the questions on fear and sadness, or the scores had to be removed due to unrealistic answer patterns (e.g., 30 times score 1, even for items that should be recoded). On multiple occasions adolescents explained to the researcher that they never experience emotions such as fear or sadness. We tried to include only the questions on the emotion 'anger' for these adolescents, however we decided not to continue with this because this led to a severe decrease in internal consistency scores.

Table 6
Test results for protective factors.

	T1			T2			T3			T1-T2					T1-T2-T3			Secure residential placement	
	N	M (SD)	PR (%)	N	M (SD)	PR (%)	N	M (SD)	PR (%)	N	Test	*p*	*d*		Test	*p*	η^2	Test [a]	*p*
Empowerment	71	3.49 (0.91)	18	52	3.63 (0.74)	8	38	3.70 (0.89)	16	51	$t(50) = -1.49$ [ns]	0.071	0.22	31	$F(2, 60) = 4.41$ [**]	0.008	0.13	$F(1,50) = 0.60$ [ns]	0.222
Future-time perspective [a]																			
Short-term	70	3.37 (0.98)		50	3.35 (1.06)		36	3.26 (1.22)		50	$t(49) = 0.41$ [ns]	0.341	0.06	29	$F(2, 56) = 1.17$ [ns]	0.159	0.04	$F(1,50) = 1.34$ [ns]	0.127
Long-term	70	3.63 (0.80)		50	3.83 (0.69)		36	3.78 (0.83)		50	$t(49) = -1.48$ [ns]	0.073	0.21	29	$F(2, 56) = 3.46$ [*1]	0.019	0.11	$F(1,50) = 0.02$ [ns]	0.443

T1 = Pre-test, T2 = Post-test, T3 = Follow-up, PR = problematic range.
* p <.05, ** p <.01. One-tailed. [1] No longer significant after Bonferroni correction.
[a] No norms available.

Table 7
Test results for family factors.

	T1			T2			T3			T1-T2				T1-T2-T3				Secure residential placement	
	N	M (SD)	PR (%)	N	M (SD)	PR (%)	N	M (SD)	PR (%)	N	Test	*p*	*d*	N	Test [b]	*p*	η^2	Test [a]	*p*
Positive family functioning	52	3.16 (0.48)	46	40	3.23 (0.42)	30	37	3.10 (0.41)	38	38	$t(37) = -1.14$ [ns]	0.132	−0.17	29	$F(2, 56) = 1.49$ [ns]	0.117	0.05	$F(1,36) = 5.06$*	0.016
Parenting stress	53	1.77 (0.48)	60	40	1.65 (0.42)	45	37	1.64 (0.38)	46	38	$t(37) = 0.74$ [ns]	0.233	−0.13	29	$F(2, 56) = 0.55$ [ns]	0.291	0.02	$F(1,36) = 0.68$ [ns]	0.207

T1 = Pre-test, T2 = Post-test, T3 = Follow-up, PR = problematic range.
* p <.05, ** p <.01. One-tailed.

the family (BGZJ, 2019; Geurts, Boddy, Noom, & Knorth, 2012; Merritts, 2016; Simons et al., 2017).

Because it is known that group effects may be unduly influenced by variations in individual change, development at the individual level was also studied. On many factors, for the majority of adolescents no significant change was found. However, while the conditions of some adolescents improved, others experienced negative changes, especially with respect to family factors. The focus on family-based care by means of for example intensive family therapies, practical care (e.g., help with debts) or psycho-education, was expected to be a valuable addition to alternative educational care, but for some families such an approach may not have been enough to improve family functioning.

Greater post-test treatment motivation was associated with secure residential placements, which may be explained by the fact that adolescents placed in secure care often filled out the post-test questionnaires during their first week in the secure residential facility. The more restrictive setting may have triggered them to think more positively about their motivation during their time spent in the less restrictive alternative educational facility. Furthermore, less positive teacher-reported therapeutic alliances with adolescents were associated with secure residential placements. This was in line with expectations, because a positive therapeutic alliance is a widely recognized correlate of positive youth outcomes (Friedlander et al., 2018; Karver et al., 2018; Roest et al., 2022; Welmers-Van de Poll et al., 2018), especially if reported by a helping professional, such as a therapist (McLeod, 2011; Shirk & Karver, 2003). Moreover, lack of positive bonding and agreement on tasks and goals is associated with intervention drop-out and less satisfaction by clients (Bartelink, 2013). It is also known that establishing a good therapeutic alliance is difficult with adolescents showing serious behavioral problems (Florsheim, Shotorbani, Guest-Warnick, Barratt, & Hwang, 2000; Harder, 2018; Van Binsbergen, 2003).

Unlike expectations, higher levels of program integrity were not associated with less secure residential placements, which was likely due to the lack of variability in program integrity (Durlak & DuPre, 2008). A total of 95% of teachers scored above the minimum level for an intervention to be effective (i.e., 60%; Durlak & DuPre, 2008). This indicates that the program was likely delivered as intended, which is widely recognized as a necessary condition for positive intervention outcomes (Durlak & DuPre, 2008; Goense, Assink, Stams, Boendermaker, & Hoeve, 2016; Wilson & Lipsey, 2007).

In conclusion, the results of this study provide preliminary evidence that non-residential alternative educational facilities may have a positive impact on externalizing problems according to parents and adaptive emotion regulation strategies according to adolescents, and can strengthen protective factors such as empowerment, and thus can possibly contribute to the prevention of secure residential placement. It is a positive finding that 70% of the adolescents were not placed in secure residential care six months after having completed School2Care, while 90% of these adolescents still attended education, job training or worked six months after having completed School2Care. However, it is

Table 8
Reliable change indexes.

	T1-T2			T1-T3		
	Deteriorated (%)	Unchanged (%)	Improved (%)	Deteriorated (%)	Unchanged (%)	Improved (%)
Behavior problems and emotion regulation strategies						
Behavior problems						
Adolescent						
Internalizing	0	98	2	0	95	5
Externalizing	2	92	6	0	95	5
Parent						
Internalizing	5	84	11	6	79	15
Externalizing	3	84	14	6	62	32
Teacher						
Internalizing	20	68	12			
Externalizing	17	74	9			
Emotion regulation strategies						
Adaptive	11	49	40	12	36	52
Maladaptive	17	66	17	28	48	24
Protective factors						
Empowerment	16	49	35	8	58	34
Future-time perspective						
Short-term	26	48	26	29	38	32
Long-term	10	72	18	9	74	18
Family factors						
Positive family functioning	29	26	45	43	31	26
Parenting stress	32	37	32	26	34	40

T1 = Pre-test, T2 = Post-test, T3 = Follow-up.

Table 9
Associations of common therapeutic factors with secure residential placement.

	Total		No secure residential placement		Secure residential placement			
	N	M (SD)	N	M (SD)	N	M (SD)	Test [a]	*p*
Treatment motivation								
Pre-test	71	2.01 (0.44) [b]	49	1.96 (0.42)	22	2.13 (0.46)	$t(69) = -1.51$ [ns]	0.068
Post-test	50	2.00 (0.43) [b]	38	1.90 (0.41)	12	2.30 (0.36)	$t(48) = -3.03$ [**]	0.002
Change score (T1-T2)	50	0.01 (0.45)	38	−0.04 (0.45)	12	0.17 (0.44)	$F(1,48) = 0.20$ [ns]	0.081
Therapeutic alliance								
Adolescent	50	3.65 (1.05) [c]	38	3.62 (1.08)	12	3.75 (0.99)	$t(48) = -0.38$ [ns]	0.354
Teacher	69	3.63 (0.77) [c]	48	3.77 (0.76)	21	3.29 (0.71)	$t(67) = 2.49$ [**]	0.008
Program integrity	64	0.80 (0.09)	46	0.79 (0.09)	18	0.81 (0.09)	$t(62) = -0.69$ [ns]	0.243

* p <.05, ** p <.01. One-tailed.
[a] T-test or repeated measure anova with secure residential placement as between-subject factor.
[b] r(50) = 0.49, p =.00.
[c] r(50) = 0.36, p =.01.

unclear if lack of positive changes in parenting stress constitutes risks for school drop-out, residential placement and other negative outcomes in the long term. Notably, improved family functioning was found to be associated with less secure residential placements.

We emphasize that results of the present study cannot be interpreted as intervention effects given the absence of a control group, and therefore the inability to rule out alternative explanations for possible effects of School2Care. It should be remembered that the aim of the present study was not to test effectiveness of School2Care, but to examine how adolescents develop over the course of their stay in the alternative educational facility, and what factors may contribute to the prevention of residential placement. Findings of this study may provide some preliminary indications that School2Care can contribute to positive outcomes in some respects, which should be tested in a controlled study, but also raise some critical questions that need to be addressed in further research and clinical practice.

4.1. Limitations and strengths

This study has some limitations that need to be addressed. First, adolescents and parents may have underreported their problems due to the hesitation to share personal information, potentially strengthened by the felt pressure of a secure residential placement. Especially the fact that relatively few adolescents could be classified in the problematic range at pre-test was remarkable considering the stringent indication criteria of School2Care, although this phenomenon is reported in other studies too (e.g., Breuk et al., 2007; Vermaes, Konijn, Nijhof, Strijbosch, & Domburgh, 2012). Low problem scores at pre-test may have interfered with the ability to detect (more substantial) changes. Second, the small sample size and large standard errors of the BPM scales negatively affected statistical power, which proved to be insufficient to identify small effects, but sufficient to detect the more clinically meaningful small-to-medium effect. Last, the experimental stage of the program integrity instrument makes careful interpretation of results necessary (Perepletchikova, Treat, & Kazdin, 2007), even more because of the known positive bias of self-evaluations regarding program integrity

(Durlak & DuPre, 2008; Helmond, 2013). Observations of program integrity are preferable, but are difficult to obtain during an intensive program that targets multiple life domains.

Apart from its limitations, the present study has several strengths. First, in line with recommendations of Pronk, Kuiper and colleagues (2020) and Tabachnick and Fidell (2019), various data-sources (e.g., multiple informants) and valid and reliable instruments (wherever possible) were used to assess protective factors as well as externalizing and internalizing problems up to six months after placement in the alternative educational facility under clinically representative conditions (Weisz, Krumholz, Santucci, Thomassin, & Ng, 2015). Given that adolescents with complex problems, who are at risk for out-of-home placement, are difficult to reach and motivate for treatment and care, and therefore also for participation in scientific research, the achieved response rates can be considered as satisfactory.

In line with recommendations by Durlak and DuPre (2008) and Goense and colleagues (2016), we studied program integrity, for which we developed a comprehensive multi-aspect instrument (Caroll et al., 2007; Helmond, 2013). Moreover, we studied the association between secure residential placement and several common therapeutic factors that are known to influence intervention outcomes (i.e., treatment motivation, therapeutic alliance and program integrity; e.g., Durlak & DuPre, 2008; Friedlander et al., 2018; Goense et al., 2016; Karver et al., 2018; Roest et al., 2022; Van der Helm et al., 2017; Welmers-Van de Poll et al., 2018; Wilson & Lipsey, 2007).

4.2. Implications for future research and practice

Notwithstanding its limitations, the findings of the present study are highly relevant considering the inherent risks of secure residential youth care (Addink & Van der Veldt, 2021; Gutterswijk et al., 2020; Souverein et al., 2013, De Valk, Kuiper, Van der Helm, Maas, & Stams, 2016). Non-residential alternative educational facilities are not only less intrusive, they also pose less risk for network disruptions (i.e., to family, school, neighborhood and friends), resulting in smaller and less supportive social networks (Gabriel, Keller, & Bombach, 2021; Melkman, 2017; Schofield et al., 2017). Notably, recent literature on natural mentoring shows that positive social networks constitute a major protective factor for adolescents with different levels of risks (Van Dam et al., 2018, Van Dam et al., 2021).

Apart from the promising results of this study, just as important is the fact that parents did not report significant change on family factors, and some even reported negative change. This emphasizes the importance of strengthening families, even more so because lack of improved family functioning was associated with secure residential placement. Alternative educational facilities can potentially increase their impact by adequately screening for, and subsequently targeting family problems in order to create stability (in terms of housing and finances), to work on a supportive network, and delivery of therapies for parents themselves. Thereby conditions may be created for a supportive family environment to prevent adverse outcomes (e.g., Kotchick & Forehand, 2002; McCurdy & Daro, 2001; Van der Steege, De Veld, & Zoon, 2020; Zoon, 2014).

Furthermore, alternative educational settings could improve their long-term impact by enabling adolescents to retain their learned emotion regulation strategies after placement. This transfer requires attention while attending the program, as well as during the involvement of the teacher after placement. It may also be fruitful to invest in building positive alliances with adolescents in order to prevent secure residential care, for example by stimulating adolescents' motivation for (behavior) change (Miller & Rollnick, 2002). Therefore, meeting the three basic psychological needs of human self-determination (i.e., autonomy, relatedness and competence) (Harder, 2018; Ryan & Deci, 2000), and applying the motivational interviewing approach (Bartelink, 2013; Miller & Rollnick, 2002) may be helpful tools.

Results of this study warrant future research on School2Care and other alternative educational facilities. It is recommended to study both changes at the group level and individual change (e.g., reliable change indexes), because treatment may have different effects on adolescents, in particular in highly heterogeneous groups of adolescent who receive School2Care for highly divergent reasons. Furthermore, instruments with high sensitivity to detect therapeutic change (e.g., the full ASEBA questionnaires), and a combination of qualitative and quantitative research data-collection methods are advisable, using a multi-informant approach. Also, future (quasi-)experimental studies should have sufficiently long follow-up times of multiple years.

Ethical statement

Ethical approval for this project was given by the Ethics Review Board of the University of Amsterdam (2017-CDE-7736).

CRediT authorship contribution statement

S. Pronk: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Visualization, Project administration, Funding acquisition. **G. van den Berg:** Conceptualization, Methodology, Writing – review & editing, Supervision. **E.A. Mulder:** Conceptualization, Methodology, Writing – review & editing, Supervision. **C. Kuiper:** Conceptualization, Methodology, Writing – review & editing, Supervision. **G.J.J.M. Stams:** Conceptualization, Methodology, Writing – review & editing, Supervision. **A. Popma:** Conceptualization, Methodology, Writing – review & editing, Supervision.

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: The first author is an employee of an organization delivering youth care and special education, of which the studied facility is part of. All authors declare to endorse and have acted upon the Netherlands Code of Conduct for Research Integrity (2018) and the European Code of Conduct for Research Integrity (2017), and declare not to have been influenced by potential conflicts of interests with respect to the authorship or publication of this article.

Data availability

The authors do not have permission to share data.

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