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ORIGINAL PAPER

Family-Centeredness in Secure Residential Treatment and Its Relationship With Parental Involvement and Adolescent Behavioural Outcomes

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Abstract

Various Dutch secure residential youth care (SRYC) institutions are implementing a family-centered approach aiming to increase parental involvement and improve treatment outcomes. However, it remains unclear if and how family-centeredness (FC) is related to increased parental involvement and to improved treatment outcomes of adolescents. In this study, we unravelled the relation between FC, parental involvement, and behaviour problems of adolescents in SRYC. Families of 404 adolescents admitted to one of seven participating Dutch SRYC institutions completed a survey (at the start, at the end, and at 6-months follow-up) on problem behaviour of adolescents. In addition, 411 group care workers filled out a questionnaire about their residential group's level of FC every 6 months. Moreover, the mentor of each adolescent filled out a questionnaire about the level of parental involvement. We analysed the data using multiple mediator models. Associations were found between FC and parental involvement. However, no relation was found between FC and adolescent problem behaviour, and no mediation and no moderation effects of parental involvement were found. Overall, results showed that most parents were involved during the residential stay, and, independent of FC, adolescent problem behaviour decreased over time. Implementing FC in SRYC institutions seems to be helpful in involving parents during the residential stay, but was not found to be associated with adolescent behavioural outcomes. Our results indicate that institutions could improve their level of FC by offering more informal contact moments for parents and by addressing barriers to FC among residential staff.

Keywords Family-centered · SRYC · Behaviour problems · Parental involvement · Adolescents

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Highlights

- Most parents visit their child in secure residential youth care and attend formal meetings.
- Higher levels of family-centeredness are related to more parental involvement but not to adolescent behavioural outcomes.
- Improvements in family-centeredness could be made by offering more informal contact moments and by addressing barriers to family-centeredness among residential staff.

Traditionally, the treatment of adolescents in residential care has mainly focused on child problems rather than on problems experienced by parents (Leichtman, 2006). However, progress made during individual treatment has often not been maintained when the adolescent returned home (Knorth et al., 2008). Research since 2009 has shown that engaging parents during the stay of their child in residential care is necessary in order to make a successful transition to the home environment (Affronti & Levison-Johnson, 2009; Geurts et al., 2012; Whittaker et al., 2016). Due to the severity of their problems and the role of parents therein, this also applies to and is perhaps even more important for adolescents placed in *secure* residential youth care (hereinafter SRYC) institutions ("Youth Care Plus" institutions in Dutch).

In the Netherlands, when other forms of youth care have failed and adolescents with severe behaviour problems are a danger to themselves or to their environment, a judge can authorise the placement of an adolescent in an SRYC institution (Nijhof et al., 2010). SRYC aims to provide treatment in a safe environment and to establish a behavioural change that would allow the adolescent to participate in society again (Jeugdzorg Nederland [Youth Care Netherlands], 2015). Adolescents are placed in *secure* residential groups where they receive specialised and multidisciplinary treatment. Daily care and supervision is provided by group care workers. Contrary to an open residential youth care institution, the doors of a secure institution can be locked, and, when locked, adolescents can only leave the institution with permission. Most adolescents attend education on site (Jeugdzorg Nederland, 2015).

Treatment in secure residential institutions is seen as a "last resort" when neither treating adolescents within the family context is possible nor treatment in an open residential setting, the latter due to major safety risks for the youth themself or their environment (Bartelink et al., 2023). Consequently, the problems of adolescents referred to secure residential care and their families are complex and often comorbid. For example, Nijhof and colleagues (2010) have shown in their case-file study that 98% of the adolescents in secure residential treatment display externalizing behaviour problems, such as aggressive behaviour, disobeying rules, or stealing. Furthermore, 67% of the adolescents suffer from internalizing problems, such as being withdrawn, depressed, or anxious behaviours. These externalizing and internalizing behaviour problems are often intertwined with family problems, such as domestic violence, parental neglect, abuse, parental delinquency, financial problems, parental psychopathology, or parental substance abuse (Frensch & Cameron, 2002; Griffith et al., 2009; Nijhof et al., 2010). In addition, these problems are often intergenerational (Kendler et al., 2018; Tausendfreund et al., 2016). Families whose children are admitted to SRYC institutions often have a long history of care in which earlier treatment efforts have failed (e.g., Griffith et al., 2009). Because of this complex interplay of multiple and long-term pre-existing problems, these institutions need to consider all options to optimise treatment results.

In order to avoid family separation and to optimise treatment outcomes, many secure residential institutions are implementing a family-centered vision throughout the treatment approach. As stated, problems of adolescents in SRYC are not stand alone; they develop within a certain context. Treating adolescents in the context of a secure or open residential institution only works when considering the context in which the problems have developed (Merritts, 2016). Retaining and strengthening the connection between parents and the adolescent is necessary in order to treat these adolescents with long-term and sustainable results (Merritts, 2016). Family-centeredness of institutions requires a family-focused vision and a specific way of thinking and acting by all professionals. In daily practice, this means that group care workers go above and beyond to involve parents, build a partnership with them, view the child's problems in light of family problems, and incorporate this in professional thinking and acting. Law et al. (2003, p. 357) described family-centeredness as "a philosophy and method of service delivery for children and parents which emphasizes a partnership between parents and service providers, focuses on the family's role in decision-making about their child, and recognizes parents as experts on their child's status and needs". However, how to measure such a complex construct as family-centeredness, in practice, is challenging. Most studies have focused on a particular family-centered programme and examined the treatment outcomes of adolescents, not considering the degree of program delivery (Geurts et al., 2007; Landsman et al., 2001; Leichtman et al., 2001; McConnell & Taglione, 2016; Rovers et al., 2019). Also, these studies were conducted within a relatively small study sample ($N = 26$–136).

Other researchers measured family-centered care by the perspectives of parents (Graves & Shelton, 2007) or the family-centered policies and practices of institutions by the perspective of the directors or managers (Brown et al. (2010)). Tang et al. (2023) concluded in a literature review that when researchers measured to what extent an programme was family-centered, family-centeredness was operationalized as family involvement, while when the method of an programme was described, researchers operationalized family-centeredness as actions of youth care workers or family-centered practice. In this paper, we consider the self-perceived family-centered behaviour, competence, attitudes and thoughts of group care workers when measuring family-centeredness. In this way it was possible to conduct a large scaled national study in which all forms of family-centered programmes could be included. Family-centered behaviour refers to practical actions, such as having telephone contact with parents, involving parents in treatment decisions, or invite parents to have a coffee or meal at the residential group. Family-centered attitudes includes beliefs and thoughts about the contribution of parents in the treatment process of their child, such as the belief that parents are indispensable for achieving and maintaining positive behaviour from the adolescent. The term "parents" refers to biological parents as well as to other primary caregivers of the adolescent (such as other family members, foster parents, or combinations of persons).

By implementing family-centeredness in SRYC, it is assumed that the connection between the adolescent and the parents will be restored or maintained and that parents will be more involved in their child's treatment process. Over the years, various studies have shown that treatment effects are stronger when parents are involved during their child's residential stay (Geurts et al., 2012; Knorth et al., 2008; Merritts, 2016). For example, a review by Sen and Broadhurst (2011) stated that adolescents with more parental contact during treatment are more likely to return home after treatment. Other studies have found positive effects of parental involvement on adolescent emotional and behavioural improvements (Leichtman et al., 2001; Robst et al., 2013). Hair (2005) conducted a review of research conducted between 1993 and 2003 on outcomes of children and adolescents following residential treatment. It was shown that parental involvement in the treatment process was related to sustainable emotional and behavioural improvements in adolescents after discharge. Additionally, Huefner et al. (2015) found a relationship between adolescent home visits during residential stay and less disruptive adolescent behaviour upon their departure from residential care. Furthermore, the use of systemic interventions in which parents are involved in the treatment have proven to be effective in reducing adolescent problem behaviours (Henggeler et al., 2009; Merritts, 2016). Parental involvement in residential treatment possibly strengthens the bond and attachment between the parent(s) and the adolescent and, therefore, can have a positive influence on the problem behaviour of the child (Bowlby, 1979). Although it may be likely that most of the found effects in open residential treatment may also hold in secure residential treatment, research on this topic in the context of secure residential institutions is scarce. Vermaes and Nijhof (2014) compared adolescents receiving open and secure residential treatment and found some differences. Adolescents in secure residential treatment more often had single or divorced parents, were less connected with school and more truant, were more likely to engage in risky behaviour, and displayed more risky behaviours (such as having a negative self-image and poor emotion regulation; Vermaes & Nijhof, 2014). Given these differences, is it not clear if the positive effects of parental involvement found in studies within open residential youth care will hold for adolescents in secured youth care. However, research in *Juvenile Justice Institutions* (JJI's, also a closed context) showed positive effects of parental involvement on improved outcomes for adolescents in terms of treatment engagement, behaviour and recidivism (Burke et al., 2014; Garfinkel, 2010; Monahan et al., 2011: Woolfenden et al., 2002), so it is expected these mechanisms also applies to adolescents in secure residential treatment.

How parental involvement is operationalized differs between studies and settings. There is a wealth of studies conducted on the impact of parental involvement in other settings, such as for instance schools (Barger et al., 2019) or various mental health settings (focussing on care for depressive disorders, obesity treatment, and Autism Spectrum Disorder [Bean et al., 2020; Dardas et al., 2017; Haine-Schlagel & Escobar Walsh, 2015; Musetti et al., 2021]).In short, these studies show that there are multiple forms and definitions of parental involvement which can have different effects on various dimensions of child adjustment. Parental involvement in residential treatment has previously been defined as the number of visits, with distinctions made between the relationship of each visitor to the child (e.g. mother, grandparent) and the purpose of each visit (e.g., family therapy, treatment planning, non-treatment-related visits and home visits by the adolescent (Robst et al., 2013). A literature review by Sen and Broadhurst (2011) categorized contact as 'direct' contact in the form of face-fo-face (supervised or unsupervised) meetings and as 'indirect' contact through letters, telephone, e-mail and so forth. Huefner and colleagues (2015) also recognize these different types of family involvement (face-to-face contacts and telephone contacts) and emphasise the importance of different forms of face-to-face contact. i.e., family visits to the institutions compared with home visits. In this study we defined parental involvement as the number of formal and informal parental visits to the institution

(which will be elaborated on under *Measures*). As stated, parental visits can take on different forms, such as formal visits to attend a treatment plan meeting, participation in therapy sessions, or informal visits to spend time with their child. It is important to investigate which forms of parental involvement are related to positive outcomes. This will provide staff of secure residential institutions with knowledge on which forms of parental involvement should be promoted.

Given the above, it is expected that family-centeredness is related to parental involvement and to the level of adolescent problem behaviour. Some studies have focused on the outcomes of a family-centred programme (Geurts et al., 2007; Landsman et al., 2001; Rovers et al., 2019; Simons et al., 2017a) but not on family-centeredness defined as the self-perceived family-centered behaviour, competence, attitude and hindering thoughts of group care workers. Furthermore, previous research has not made a distinction between different forms of parental involvement. Therefore, it is still unclear whether and how family-centeredness in SRYC is related to more formal and informal parental involvement and to positive treatment outcomes for adolescents.

Current Study

Research suggests that parental involvement as well as the family-centeredness of group care workers may affect the generalisability of treatment effects for both child and family functioning of adolescents placed in residential care. However, little is known about these effects in SRYC (Blankestein et al., 2022). Therefore, the present study aims to determine the level of family-centeredness of SRYC institutions and the level of parental involvement in SRYC (aim 1) and its relationship with treatment outcomes (aim 2). It may be that more family-centered behaviour by group care workers makes parents feel welcome and taken seriously, which could lead to more parental involvement. Sen and Broadhurst (2011) indeed stated that group care workers play a central role in influencing both the level and quality of contact of biological parents with their children. Parents of adolescents placed in Dutch JJIs under penal law have described that the behaviour of group care workers can either promote or hinder the level of parental participation (Simons et al., 2019). Based on these research findings, it is assumed that the levels of family-centeredness and parental involvement are related. Previous research carried out in JJIs has also suggested that parental involvement might mediate the relationship between the level of family-centeredness of group care workers and problem behaviour of the adolescents (Simons et al., 2019). Therefore, our third aim is to determine whether parental involvement mediates this relationship in families of adolescents placed in SRYC. We hypothesised that the more group care workers work in a family-centered way, the more parents will be involved and that the involvement of parents is associated with less problem behaviour of the adolescents. Finally, parental involvement may reinforce the relationship between the level of family-centeredness and adolescent problem behaviour and, therefore, act as a moderator. Thus, the study's fourth and last aim is to assess whether parental involvement moderates the relationship between family-centeredness and adolescent outcomes. Little is known about the underlying processes as previous research has often focused on a specific family-centered programme or parental involvement in relation to adolescent problem behaviour. Therefore, our third and fourth study aims are explorative.

In summary, and based on the aforementioned aims, the current study addressed the following question: Is the level of family-centeredness related to problem behaviour of adolescents and does parental involvement mediate and/or moderate this relationship?

Method

Participants

Data were collected from group care workers and from families with an adolescent placed in one of seven participating Dutch SRYC institutions between February 2016 and June 2018. In this period, 664 adolescents between the ages of 12 and 18 years were placed in one of 36 participating residential groups in these institutions. Adolescents were excluded from this study when parents (or caregivers) were not or could not be involved in treatment and when the adolescent could never return to their family. Other reasons for exclusion from this study are shown in Fig. 1. Not all eligible families chose to participate in the study (reasons for this are also shown in Fig. 1). As a result, 83% of the eligible families ($N = 404$) participated in this study.

Procedure

Parents were asked to answer a set of questionnaires in the first 6 weeks of the placement (T1), at the end of the placement (T2), and 6 months after the end of the placement (T3). Questionnaires were answered at the institution with assistance of a professional or a member of the research team, or at home with assistance of one of the researchers (by phone or during a home visit). Some parents answered the questionnaires indepently and returned the questionnaires by mail. Parents received a small incentive (e.g., chocolates or a voucher) for their participation. In addition, the mentor (one of the group care workers) of the adolescent

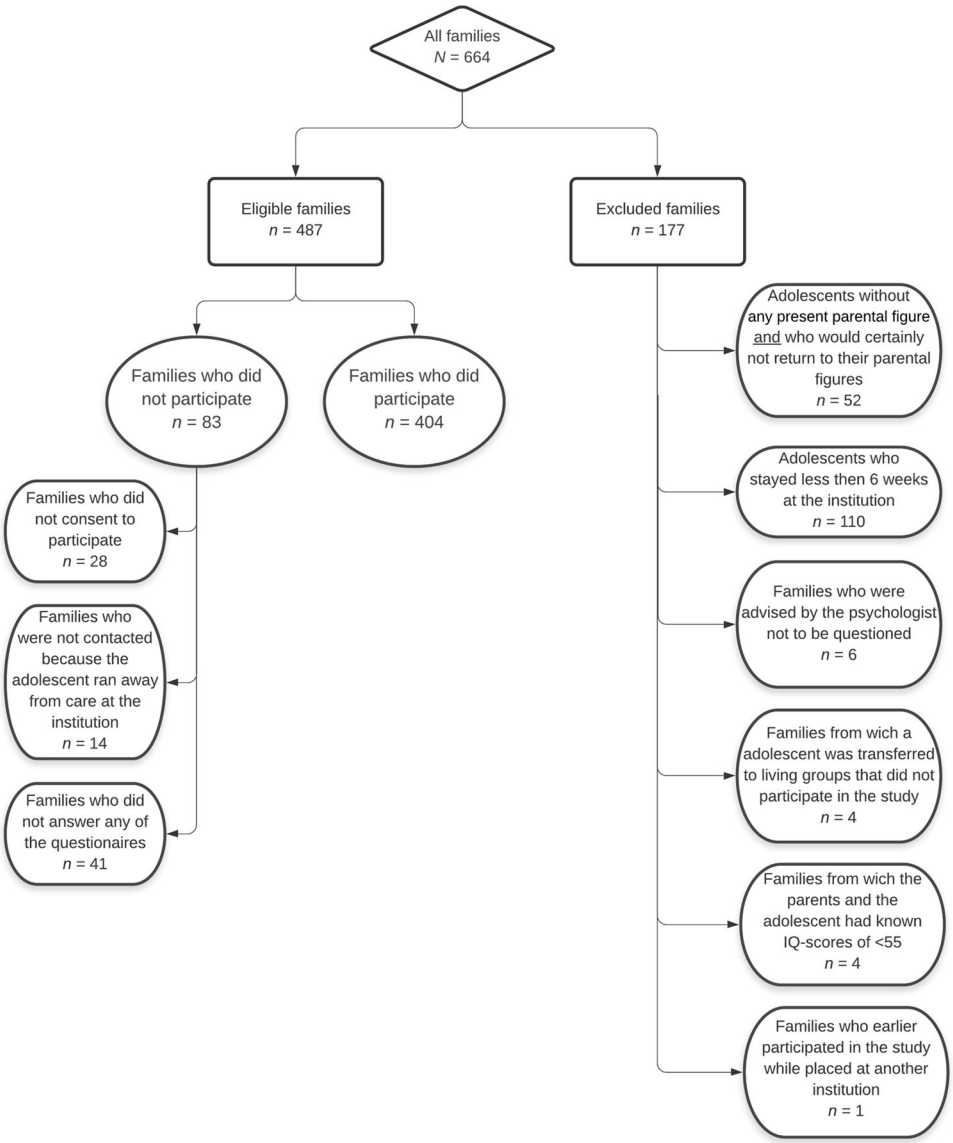

Fig. 1 Flowchart of Participants

answered questions about parental involvement during the adolescent's residential stay at T2. Furthermore, every 6 months, the group care workers ($N = 411$) of each participating residential group completed a questionnaire about the level of family-centeredness of their team.

Depending on the institution's existing procedures, parents and adolescents were asked for permission either actively (by signing a consent form) or passively (through an information letter with contact information for the researchers in case of objection) for the use of data for scientific research. Group care workers received an information letter about the research and mentors were asked for consent to use their data in this study. Respondents were allowed to withdraw their consent at all times without giving a reason. The Medical Ethics Review Committee of the VU University Medical Centre reviewed the study and concluded that it falls outside the realm of the WMO (Dutch Medical Research in Human Subjects Act) and that it conforms to Dutch law, including ethical standards.

Measures

Demographics

The following demographics were collected from the case files of the adolescents: age, gender, country of birth of adolescents, country of birth of parents, and the duration of the residential treatment. If the adolescent themselves or both birth parents were born in the Netherlands, the cultural background of the adolescent was coded as "Dutch". If at least one biological parent was born outside of the Netherlands, the cultural background of the adolescent was coded as "migrant".

Family-centredness (Determinant)

An adapted version of a questionnaire that has been used in previous research on family-centered care in Dutch adolescent justice institutions (Simons et al., 2016) was used to measure the level of family-centeredness of each residential group. This 31-item questionnaire was filled out by group care workers. The first fourteen questions could be answered on a 5-point scale ranging from 1 "*Never*" to 5 "*Always*". The other seventeen questions were answered on a 10-point scale ranging from 1 "*Completely disagree*" to 10 "*Completely agree*". In order to calculate a total score based on the 31 items, negatively formulated questions were recoded to a positive formulation and the 5-point scale answers were recoded to a 10-point scale.

A confirmatory factor analysis was performed and identified four subscales (CFI = 0.85, TLI = 0.83, RMSEA = 0.05, SRMR = 0.06): (1) Family-centred behaviour of group care workers (e.g., "*Are all the parents invited for extra activities in the residential group such as cooking activities?"*; range of alpha's across 6-months of measurements $\alpha = 0.54$–0.87), consisting of 18 items; (2) self-perceived competence of group care workers (e.g., *"How well can you deal with parents' negativity?"*; range $\alpha = 0.70$–0.89), consisting of 3 items; (3) attitude of group care workers towards family-centeredness (e.g., *"By working together with the parents, I have a better understanding of the problems of the adolescent"*; range $\alpha = 0.75$–0.87), consisting of 7 items; and (4) perceived barriers of group care workers towards family-centeredness (e.g., *"Parents are difficult to work with"*; range $\alpha = 0.57$–0.71), consisting of 3 items.

The questionnaire was completed every six months during the 3 years of data collection, with a maximum of six time points. First, an average score was calculated for each time point and each subscale per group care worker. Analyses showed little variance in scores over time. Hence, a mean of all measurement moments per residential group was calculated for the total score and for the four subscales for each adolescent. A higher score reflects a higher overall level of family-centeredness during SRYC.

Parental involvement (Mediator/Moderator)

The parental involvement score was based on an interview with the mentor of each adolescent. The interview consisted of six questions. Two types of contact were distinguished: (1) parental attendance of formal meetings at the institution and (2) parental visits to the institution for informal meetings. Parental attendance of formal meetings was measured using the following questions: "*Did a family intake take place?*" (yes or no), "*Did parents attend treatment plan discussions?*" (yes or no), and "*Did parents visit the institution to participate in treatment interventions for the adolescent?*" (yes or no). Parental visits to the institution for informal meetings were measured using the following questions: "*Did parents visit the adolescent at the institution?*" (if yes, how many times a week), "*Did parents visit the institution for any other activities (e.g., a parent evening or day, cooking activities, or having a shared dinner)?*" (yes or no). The answers pertaining to number of times a week were dichotomised into "low involvement" (i.e., less than once a week) and "high involvement" (i.e., once a week or more). For each type of contact, a mean score of the dichotomous answers was calculated, with a higher score indicating higher overall levels of parental involvement during SRYC (range 0–1).

Problem behaviour (Outcome)

The problem behaviour of the adolescent was based on parent reports of the adolescent's behaviour on the Brief Problem Monitor for Parents (BPM-P; Achenbach et al., 2011). Two subscales were used: the externalizing problem behaviour scale, which consists of 7 items (e.g., *"Destroys things belonging to their family or others")*, and the internalizing problem behaviour scale, which consists of 6 items (e.g., "*Unhappy, sad, or depressed"*). Externalizing problem behaviour includes aggressive, antisocial, and disruptive behaviour while internalizing problem behaviour refers to feelings of anxiety and depression. Answers were given on a 3-point scale, with 0 = "*Never*", 1 = "*Sometimes"*, and 2 = "*Often*". Higher scores indicate more adolescent problem behaviour according to parents. The reliability of the subscales was at least acceptable for all time points in this study (T1: internalizing problem behaviour $\alpha = 0.732$, externalizing problem behaviour $\alpha = 0.818$; T2: internalizing problem behaviour $\alpha = 0.822$, externalizing problem behaviour $\alpha = 0.833$; T3: internalizing problem behaviour $\alpha = 0.827$, externalizing problem behaviour $\alpha = 0.816$). Raw scores were used for the descriptive, bivariate, and multivariate analyses. *T* scores were used in the *t* tests for adolescent problem behaviour over time.

Statistical Analyses

Missing data

In order to use the data of all 404 families, we conducted multiple imputation in R (R Core Team, 2017). Missing data were imputed 10 times based on 10 iterations.

Data were missing on some variables. For adolescent problem behaviour, 36%, 41%, and 44% of the data were missing at T1, T2, and T3, respectively. Furthermore, 19% of the data pertaining to the cultural backgrounds of the adolescents were missing. For formal and informal parental visits to the institution, 11% of the data were missing. In total, 72% of the families had missing information on at least one variable.

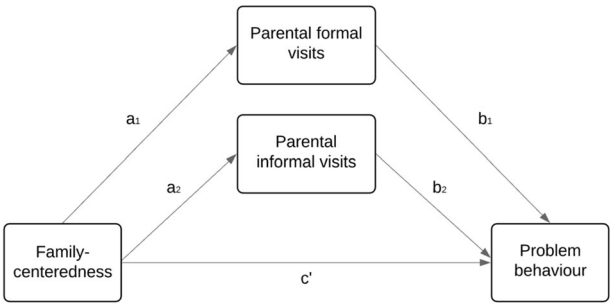

Fig. 2 Mediation Model. $a_1 = a$-path for formal parental visits (M1); $a_2 = a$-path for informal parental visits (M2); $b_1 = b$-path for M1; $b_2 = b$-path for M2

To check whether non-responders (with missing information on at least one variable) differed from responders (no missing information), a Chi-square test was performed for categorical variables and independent *t* tests for continuous variables. Non-responders and responders did not differ in terms of age, gender, duration of residential stay, adolescent externalizing problem behaviour at T1, and informal parental visits. However, *t* tests showed that there were lower levels of formal parental visits in non-responders when compared to responders ($M_{difference} = 0.07$, $SD_{of\ M\ difference} = 0.03$, $t(277) = 2.87$; $p < 0.01$). Furthermore, on average, non-responders reported fewer internalizing problem behaviours at T1 than responders ($M_{difference} = 0.88$, $SD_{of\ M\ difference} = 0.36$, $t(258) = 2.42$; $p < 0.05$).

Mediation and moderation analyses

Statistical analyses were performed in IBM SPSS Statistics version 26. To investigate the relationship between family-centeredness (FC) and internalizing and externalizing problem behaviour (T2-T3) of adolescents and to determine whether formal and informal parental involvement mediated this relationship, we estimated parallel multiple mediator models. Separate models were estimated for the FC total and the separate subscales of FC (independent variables) and for adolescent internalizing and externalizing problem behaviour (the dependent variables). To deal with multicollinearity, FC, the subscales of FC, and formal and informal parental visits were centred in all analyses. In total, we estimated four multiple mediator models: 1) FC total as the exposure variable and internalizing problem behaviour as the outcome variable, 2) FC total as the exposure variable and externalizing problem behaviour as the outcome variable, 3) FC total as the exposure variable and externalizing problem behaviour as the outcome variable, and 4) subscales of FC as exposure variables and externalizing problem behaviour as the outcome variable. In each of these mediation models formal and informal parental visits were treated as the mediator variables. Hereafter, we will use FC as a general term for both FC total and the subscales of FC.

The individual pathways in each multiple mediator model were estimated using two linear regression models to estimate the *a*-paths (see Fig. 2) and one linear-mixed model analysis to estimate the *b*- and c'-paths (see Fig. 2). The *a*-paths in Fig. 2 represent the effect of FC (IV) on formal (a_1) and informal (a_2) parental visits (mediators/moderators). The *b*-paths represent the effect of formal (b_1) and informal (b_2) parental visits (mediators/moderators) on the internalizing or externalizing problem behaviour of adolescents (the dependent variables), while adjusting for FC. The direct *c*'-path represents the effect of FC on the internalizing or externalizing problem behaviour of adolescents while adjusting for formal and informal parental visits. To examine whether formal and informal parental visits moderated the relationship between FC or the subscales of FC and internalizing and externalizing problem behaviour of the adolescents, exposure–mediator interaction terms between FC or the subscales of FC and formal and informal parental visits were added to each of the mixed models. In all mixed models, a random intercept was added for the adolescent level to adjust for clustering within the individual. The interclass correlation coefficients (ICCs) for the residential group level (<13.41%) and organisation levels (< 6.88%) were low, indicating that both the residential group level and organisation level explained very little of the variation in formal and informal parental visits, and internalizing and externalizing problem behaviour. Therefore, residential group level and organization level were not included in the mixed models. To assess whether formal and informal parental involvement were mediators of the total effect of FC on internalizing or externalizing problem behaviour of the adolescents, mediator-specific indirect effects were estimated as the product of the pooled *a*- and *b*-paths. All indirect effect estimates were accompanied by 95% percentile Monte Carlo confidence intervals based on 50,000 draws (Selig & Preacher, 2008). All models were adjusted for age, gender, cultural background, duration of stay, and the T1 scores on internalizing or externalizing problem behaviour (confounders). Analyses were adjusted for time (T1-T2-T3), and time was additionally assessed as a moderator of the estimated b- and c'-paths. All analyses were based on two-tailed tests and had a significance level of 0.05. The pooled estimates from the imputed datasets were reported.

Results

Descriptives

The sample consisted of 55% boys and 46% girls. The mean age at the start of the placement was 15.9 years (total range 11.8–18.1 years). On average, adolescents stayed for 30 weeks (range 6–126 weeks). The majority of the adolescents had a Dutch background (59%). Prior to placement,

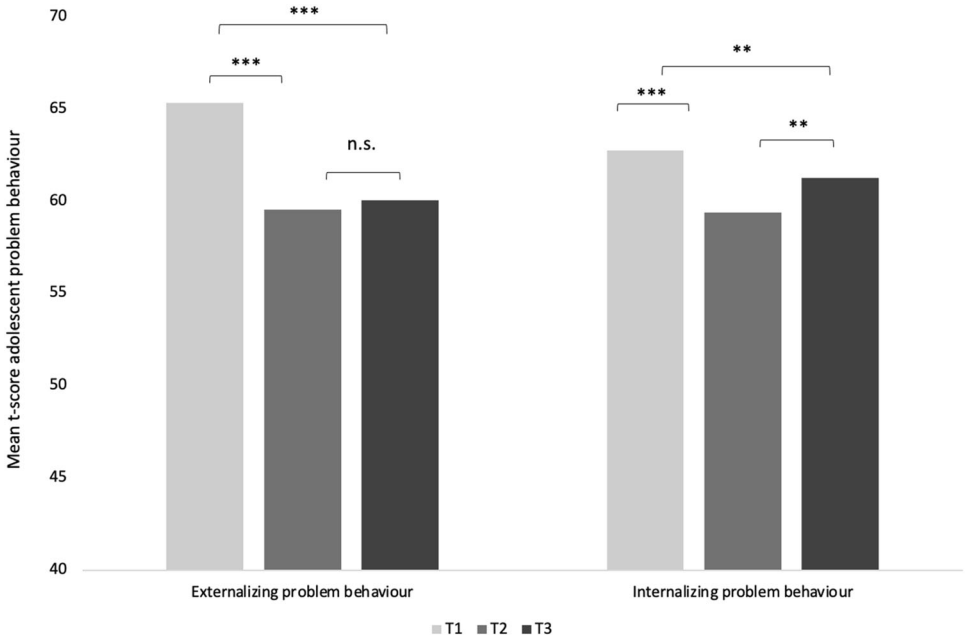

Fig. 3 T-tests for adolescent problem behaviour over time. $^{**}p < 0.01$, $^{***}p < 0.001$

most adolescents (37%) lived in a family home (i.e., with parents or relatives) or in an open residential youth care institution (29%). Other prior places of residence included crisis care (15%), other secure residential groups (11%), JJIs (3%), a family home or foster care (1%), and other places (e.g., hospitals, homeless (4%).

Figure 3 shows whether adolescents scored within the clinical range on the externalizing and internalizing scale across the three measurement moments. A *T*-score of 64 or higher indicates problems that are so severe that treatment is necessary (Achenbach et al., 2011). Paired sample *T*- tests were performed to test for significant differences between the different measurement moments. The results in Fig. 3 show that adolescent externalizing and internalizing problem behaviour significantly decreased between T1 (start of the placement) and T2 (end of the placement) (externalizing: $M_{difference} = 6.41$, $SD_{of\ M\ difference} = 8.23$, $t(183) = 10.57$, $p < 0.001$; internalizing: $M_{difference} = 3.85$, $SD_{of\ M\ difference} = 7.17$, $t(183) = 7.29$, $p < 0.001$). Between T2 and T3, the internalizing problem behaviour increased ($M_{difference} = -1.40$, $SD_{of\ M\ difference} = 7.10$, $t(177) = -2.64$, $p < 0.01$). At T3, the *T*-scores were still significantly lower than at T1 ($M_{difference} = 5.71$, $SD_{of\ M\ difference} = 8.56$, $t(176) = 8.88$, $p < 0.001$ for adolescent externalizing problem behaviour and $M_{difference} = 1.50$, $SD_{of\ M\ difference} = 7.30$, $t(176) = 2.73$, $p < 0.01$ for adolescent internalizing problem behaviour).

Level of Family-Centeredness and Parental Involvement (Aim 1)

SRYC institutions on average scored 7.21 (out of 10) on the total scale of FC, indicating sufficient levels of FC in the SRYC institutions (see Table 1). In particular, the FC behaviour, self-perceived competence and attitudes of group care workers towards FC scored above 7.61. Regarding FC thoughts of group care workers, Table 1 shows the "Few perceived hindering thoughts of group care workers towards family-centeredness" (higher scores reflect few hindering thoughts), is relatively low, with a score of 5.58. This indicates group care workers frequently reported hindering thoughts such as *"Parents are difficult to work with"*, *"Once an adolescent exhibits problem behaviour, the parents withdraw too easily"*, and *"Parents are the*

Table 1 Descriptive Statistics for Study Variables

Variable	*N*	*M*	*SD*	Range
Family-centredness (FC)	404	7.21	0.21	6.86–7.70
-FC behaviour	404	7.82	0.33	6.81–8.36
-Self-perceived competence	404	7.82	0.24	7.13–8.44
-Attitude	404	7.61	0.41	6.60–8.57
-Few hindering thoughts	404	5.58	0.35	4.93–6.25
Externalizing problem behaviour				
-T1	260	7.60	3.59	0.00–14.00
-T2	239	4.82	3.27	0.00–12.00
-T3	225	5.00	3.36	0.00–14.00
Internalizing problem behaviour				
-T1	260	4.76	2.92	0.00–12.00
-T2	239	3.49	3.00	0.00–12.00
-T3	225	4.27	3.22	0.00–12.00
Formal parental involvement	360	0.66	0.24	0.00–1.00
Informal parental involvement	360	0.24	0.23	0.00–1.00

cause of the problem behaviour of their child". Turning to parental involvement, parents were more formally involved ($M = 0.66$, range 0–1) then informally ($M = 0.24$, range 0–1). More specifically, 60% of the parents visited the adolescent at the institution at least once a week (informal involvement). Further, 82% of the parents had attended a family intake, and 92% attended treatment plan discussions (formal involvement). Participation in treatment interventions for the adolescent (21%, formal involvement) and visits to the institution for other activities (such as a day or evening that was organised for parents [14%], cooking or dining [10%], and other activities [13%], informal involvement) were less common.

Is the Level of Family-Centeredness of Group Care Workers related to the Problem Behaviour of the Adolescents and does Parental Involvement Mediate and/or Moderate this Relation? (Aims 2, 3, and 4)

The correlations between level of FC and treatment outcomes are shown in Table 2. Table 3 shows the results of the mediation analyses in which formal (M1) and informal (M2) parental visits were investigated as mediators of the association between FC and adolescent internalizing and externalizing problem behaviour, and on the associations between the subscales of FC and adolescent internalizing and externalizing problem behaviour. Furthermore, no significant exposure-mediator interaction effects were found, meaning that there was no moderation effect of parental involvement found (aim 4). Time did not moderate the relationship between FC and internalizing and externalizing problem behaviour, which means that the effect of FC on the outcome did not differ between T2 and T3.

Regarding the second aim of the study, whether there is a relation between FC and adolescent problem behaviour, no significant total effects of FC on externalizing and internalizing adolescent problem behaviour were observed (*c'* in Table 3). Moreover, no associations were found between formal and informal parental visits and internalizing or externalizing problem behaviours on T2 and T3 (b_1 and b_2 in Table 3). However, significant associations were found between FC and parental involvement; higher FC was related to more formal parental visits (a_1 in Table 3) and informal parental visits (a_2 in Table 3). The same results were found for the subscales "Family-centered behaviour of group care workers" and "Attitude of group care workers towards family-centeredness"; a higher level of family-centered care and a higher level of family-centered attitude of group care workers were linked to more formal and informal parental visits. The strongest relation was found between "Attitude of group care workers towards family-centeredness" and informal parental visits ($B = 0.15$, $p < 0.000$). In addition, the results revealed a negative relationship between the subscale "Self-perceived competence of group care workers with regards to family-centeredness" and parental involvement; more self-perceived competence was linked to fewer formal and informal parental visits. No significant relationships were found for the subscale "Few perceived hindering thoughts of group care workers towards family-centeredness" and parental involvement.

In relation to the third study aim, whether parental involvement mediated the relationship between FC and adolescent problem behaviour, no statistically significant direct (c') or indirect effects (a1 x b1 and a2 x b2 in Table 3) were observed of FC on externalizing and internalizing adolescent problem behaviour.

Discussion

The present study aimed to assess the level of family-centeredness and parental involvement in SRYC and to assess the relationships between these variables and internalizing and externalizing problem behaviour of adolescents who receive treatment within these institutions. We expected parents to be more involved and the adolescents to exhibit less problem behaviour when the family-centeredness of group care workers was high. Furthermore, we explored whether parental involvement acted as a mediator or moderator in the expected relation between family-centeredness and adolescent problem behaviour. Results showed that the level of family-centeredness of group care workers was quite high overall and that this resulted in a higher parental involvement during the residential stay of the adolescent. Furthermore, results showed that a higher degree of family-centeredness of SRYC group care workers was linked to more parental involvement. However, both family-centeredness and parental involvement were not significantly related to adolescent problem behaviour at the end of placement or six months after residential treatment. Furthermore, no mediation and moderation effects of parental involvement were found.

Although, the present study shows that the self-perceived family-centered behaviour, competence and attitude of group care workers was quite high overall, results indicated that some group care workers still had hindering thoughts about involving parents (such as "Parents are the source of adolescent problem behaviour" or "parents are difficult to work with"). Research showed that parents of adolescents in SRYC often suffer from emotional or psychiatric problems (Vermaes, et al., 2014) and it is known that these problems can be related to the problem behaviours of the adolescents (Kendler et al., 2018). Some group care workers believe that, therefore, parents will have a negative impact on (the

Table 2 Pearson's and Spearman's Correlations of Determinants, Confounders, Mediators, and Outcome Variables on Imputed Data

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Family-Centeredness (FC)	-																
2. FC staff del	0.628**	-															
3. FC staff com	0.268**	−0.034	-														
4. FC staff att	0.808**	0.316**	0.076	-													
5. FC staff neg	0.680**	0.216**	−0.085	0.417**	-												
6. Formal visits	0.080	0.158**	−0.121**	0.086	0.022	-											
7. Informal visits	0.197**	0.187**	−0.116*	0.234**	0.100*	0.365**	-										
8. Age	−0.094	−0.063	0.100*	−0.086	−0.132**	−0.003	−0.050	-									
9. Gender	0.017	−0.105*	−0.100*	−0.015	0.228**	0.042	−0.164**	−0.045	-								
10. Cult background	−0.043	−0.039	−0.010	−0.041	−0.024	−0.036	−0.105	0.034	0.047	-							
11. Duration of stay	−0.191**	−0.085	0.031	−0.162**	−0.209**	0.084	0.051	−0.176**	0.119*	0.130*	-						
12. Ext beh T1	0.029	0.029	−0.022	0.030	0.021	−0.079	−0.066	−0.125	−0.090	−0.096	0.107	-					
13. Int beh T1	−0.123*	−0.092	−0.116	−0.051	−0.072	0.157	0.153*	−0.028	0.233**	−0.094	0.215**	0.229**	-				
14. Ext beh T2	0.038	0.003	0.030	0.029	0.035	−0.128*	−0.078	−0.042	−0.096	−0.028	0.018	0.369**	0.068	-			
15. Int beh T2	−0.082	−0.135*	−0.032	−0.008	−0.037	−0.082	−0.007	0.083	0.095	−0.047	0.070	0.092	0.433**	0.378**	-		
16. Ext beh T3	0.070	0.058	0.086	0.020	0.031	−0.074	−0.044	−0.032	−0.078	0.003	0.028	0.342**	0.056	0.441**	0.117*	-	
17. Int beh T3	−0.066	−0.108	−0.016	−0.017	−0.024	0.054	0.064	0.094	0.110	−0.025	0.077	0.058	0.425**	0.116*	0.443**	0.301**	-

*$p < 0.05$, **$p < 0.01$. 1. Level of FC; 2. Family-centered behaviour of group care workers; 3. Self-perceived competence of group care workers with regard to FC; 4. Attitude of group care workers towards FC; 5. Few perceived hindering thoughts of group care workers towards FC; 6. Formal parental visits; 7. Informal parental visits; 8. Age; 9. Gender (0 = male, 1 = female); 10. Cultural background of adolescent (0 = Dutch background, 1 = migrant background); 11. Duration of residential stay; 12. Externalizing problem behaviour at T1; 13. Internalizing problem behaviour at T1; 14. Externalizing problem behaviour at T2; 15. Internalizing problem behaviour at T2; 16. Externalizing problem behaviour at T1; 17. Internalizing problem behaviour at T3

Table 3 Summary of Mediation Analyses Between Family-Centeredness (IV) and Problem Behaviour of Adolescents (DV) Through Formal (M1) and Informal (M2) Parental Visits

Model	Independent variable (IV)	Dependent variable (DV)	Effect of IV on M1 (a_1)	Effect of IV on M2 (a_2)	Effect of M1 on DV (b_1)	Effect of M2 on DV (b_2)	Direct effect (c')		Indirect effect M1 (a_1 x b_1)	95% CI M1 (a_1b_1)	Indirect effect M2 (a_2 x b_2)	95% CI M2 (a_2b_2)	Total effect (c)	
							Effect	*p*					Effect	*p*
Model 1[1]	FC	Internalizing problem behaviour	0.12**	0.22***	−0.64	0.03	0.15	0.822	−0.08	−0.43–0.15	0.01	−0.32–0.35	0.08	0.906
Model 2[2]	FC staff beh		0.09**	0.10**	−0.58[5]	0.06[5]	−0.53	0.333	−0.05	−0.20–0.08	0.01	−0.15–0.17	−0.58	0.280
	FC staff com		−0.12**	−0.11**			0.07	0.903	0.07	−0.10–0.27	−0.01	−0.20–0.18	0.13	0.808
	FC staff att		0.05*	0.15***			0.26	0.580	−0.03	−0.12–0.04	0.01	−0.17–0.19	0.23	0.600
	FC staff hind		−0.00	−0.02			0.22	0.641	0.01	−0.05–0.07	−0.00	−0.06–0.05	0.23	0.635
Model 3[3]	FC	Externalizing problem behaviour	0.12**	0.22***	−0.83	−0.17	1.05	0.203	−0.09	−0.31–0.08	−0.03	−0.37–0.30	0.91	0.251
Model 4[4]	FC staff beh		0.09**	0.10**	−0.75[5]	−0.04[5]	0.21	0.654	−0.07	−0.23–0.07	−0.00	−0.16–0.15	0.14	0.772
	FC staff com		−0.12**	−0.11**			0.92	0.153	0.10	−0.11–0.35	0.00	−0.21–0.22	1.02	0.109
	FC staff att		0.05*	0.15***			0.12	0.805	−0.04	−0.15–0.04	−0.00	−0.20–0.19	0.08	0.870
	FC staff hind		−0.00	−0.02			0.28	0.614	0.01	−0.05–0.09	0.00	−0.06–0.07	0.29	0.612

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

[1]Model 1: FC total as the exposure variable, formal and informal parental visits as the mediator variables, and internalizing problem behaviour as the outcome variable.

[2]Model 2: subscales of FC as exposure variables, formal and informal parental visits as the mediator variables, and internalizing problem behaviour as the outcome variable

[3]Model 3: FC total as the exposure variable, formal and informal parental visits as the mediator variables, and externalizing problem behaviour as the outcome variable

[4]Model 4: subscales of FC as exposure variables, formal and informal parental visits as the mediator variables, and externalizing problem behaviour as the outcome variable

[5]Because the subscales were analysed in one model, only one b estimate was estimated for these models

FC Level of FC, *FC Staff beh* Family-centered behaviour of group care workers, *FC staff com* Self-perceived competence of group care workers with regard to FC, *FC staff att* Attitude of group care workers towards FC, *FC staff hind* Few perceived hindering thoughts of group care workers towards FC. Because there were no significant time interactions, the effect estimates are based on both T2 and T3 measures of internalizing or externalizing problem behaviour. All effect estimates were adjusted for age, gender, ethnicity, time, duration of stay, T1 internalizing problem behaviour, and T1 externalizing problem behaviour

treatment of) the adolescent. Whereas group care workers may indeed experience difficulties in encountering parental problems, and despite the results of this paper suggesting that higher parental involvement did not result in larger decreases of adolescent behaviour problems, treatment of the adolescent should not ignore the parents. Therefore, group care workers (and the other professionals working in SRYC institutions) should be supported on how they can involve parents in a way that contributes to the treatment of the adolescent. It is important for group care workers to become aware of their own possible hindering thoughts towards working with parents, as these thoughts hinder the alliance with parents. SRYC' staff members are encouraged to reflect with each other on (sub)conscious hindering thoughts. As such, facilitation of ongoing coaching of group care workers combined with intervision and supervision in team meetings seems necessary. This not only needs to focus on attitudes of staff members, but also needs to challenge hindering thoughts or other barriers in the actual implemantation of FC in daily practice (Harder et al., 2012; Simons et al., 2017b). Research by Simons and colleagues (2017b) in JJIs showed FC attitudes were generally high among group care workers, but that those who received FC training and supervision expressed less hindering thoughts about involving family members in treatment. These group care workers learnt to see parents supportive persons of an integral component of achieving positive treatment results. Additionally, having a systemic therapist as part of the SRYC staff may improve attitudes of group care workers towards FC and can contribute in taking away self-perceived hindering thoughts. Nowadays, some SRYC institutions in the Netherlands have implemented a family-centered care program where a combination of residential treatment and systemic therapy is either standard practice (Rovers et al., 2019) or optional (Simons et al., 2017a). A literature review by Nickerson et al. (2004) notes that parent training, support groups, and family therapy combined with residential treatment were promising interventions that lead to positive treatment outcomes. Interventions addressing the impact parental problems can have on children, which aim to strengthen mutual understanding and support, might also be implemented and subsequently decrease hindering thoughts in group care workers (Riemersma et al. (2022)).

The results of the present study also show that most parents were present at the family intake and treatment plan discussions. Most of the parents also visited their child regularly (i.e., at least once a week) at the institution. Yet, involvement of parents in treatment and daily life at the facility was low; as shown by the low mean score on "parents visiting for treatment interventions" and "parents visiting for other activities". Most therapies offered in SRYC are still mainly child-focused (i.e., psychomotoric therapy, occupational therapy, trauma therapy), so it is necessary to investigate the opportunities to involve parents in these therapies. In addition, it would be highly recommended to include more systemic, family-focused interventions to the treatment programs in SRYC. This requires not only a shift in focus from the individual child to the family, but also a shift in focus of the whole youth care system. This would require the possibility to get paid for treating both the family and the child while the child resides in SRYC. Unfortunately, this is currently often not the case (in the Netherlands). Fortunately we do have promising examples, such as the program ThuisBest (HomeBest) which combines a shortened secure residential placement with the evidence-based Multisystemic Therapy (MST; Rovers et al., 2019). The home-based MST starts simultaneously with a 6- to 8-week residential placement and continues when the adolescent returns home. Other systemic therapies, such as Multi-Dimensional Therapy (MDFT), are also increasingly combined with residential treatment and implemented JJIs (Liddle et al., 2011; Rigter et al., 2011).

The low participation of family members in daily life at the institution could be due to barriers perceived by the parents or by the professionals. In a study focused on JJIs, parents indicated that the hindering factors they experienced included practical factors (e.g., distance to the institution), parent-related emotional and mental factors (e.g., exhaustion), and parent–child relationship factors (e.g., Simons et al., 2018). It is also possible that institutions were falling short in organising such activities and in offering opportunities for parents to participate in treatment interventions. Including parents in daily routines in a residential setting requires active attention and follow-up as it needs to become part of the culture and requires the group care workers on daily basis manage contacts with parents as well as the adolescents on the residential group, which can be very challenging. It also can only be done with the right culture, enough personnel who knows the adolescent and the parents, and a small enough number of adolescents living together in a group. Paying active attention to both hindering factors as perceived by the parents in attending activities at the institution and to the conditions needed to organise opportunities for parental participation remains important.

As expected, the results showed a significant relationship between family-centeredness and parental involvement. More family-centeredness of group care workers, specifically more family-centered behaviour and a more positive attitude towards family-centeredness, was related to more formal and informal visits by parents. It is worth mentioning that the relation between positive attitude towards family-centeredness and informal visits was the strongest ($B = 0.15$, $p < 0.000$). Presumably, when group care workers focus on including the parents, parents feel welcome and

understand the importance of visiting their child aside from during formal meetings. Additionally, group care workers with a positive attitude towards family-centeredness might be more likely to cooperate with parents and come up with creative solutions to overcome hindering thoughts to parental visits (e.g. when living far away from the institution or not having enough money to travel). Simons et al. (2019) interviewed parents of adolescents in Dutch JJIs and indeed found that staff behaviour towards parents affects parental participation. Another study by Simons et al. (2018) showed that parents were willing to visit the JJI for a variety of activities. However, these activities would have to be offered and communicated to parents by the staff members. The same study showed that half of the parents were not aware of possible activities in which they could participate, such as cooking at the residential group or receiving a tour at the institution and its intramural school (Simons et al., 2018). Hence, the results found in the current study can also be explained in the light of group care workers working in a more family-centered way (which is expressed by self-perceived family-centered behaviour, competence, attitude, and hindering thoughts). When group care workers do this, they organise more opportunities and extend more invitations to parents for informal visits.

Unexpectedly, the subscale "Self-perceived competence of group care workers" was negatively related to formal parental visits. It is possible that group care workers become more aware of their own incompetence when parents are present at formal meetings. During these meetings, parents can bring up points on which they disagree (like treatment planning and diagnostics) or ask questions to which the group care worker might not have an answer, while during informal visits, the focus is more on the contact between the parent and the adolescent.

In contrast to earlier findings (Geurts et al., 2007; Graves & Shelton, 2007; Sen & Broadhurst, 2011; Sulimani-Aidan & Paldi, 2018), neither family-centeredness nor parental involvement were associated with adolescent externalizing and internalizing problem behaviour in our study. This finding may be due to the low variations in family-centeredness ($SD = 0.21$) and formal ($SD = 0.24$) and informal ($SD = 0.24$) parental involvement. It could also be related to the way these constructs were measured in our study. Problem behaviour was measured from the parental perspective, while family-centeredness was measured from the perspective of group care workers. In a study by Graves and Shelton (2007), caregivers reported on the level of family-centeredness and its relation to problem behaviour. The study of Sulimani-Aidan and Paldi (2018), on the other hand measured parental involvement and adolescent functioning from the perspective of the adolescents. So, perhaps if family-centeredness and parental involvement would have been measured from the adolescent or parental perspective, a relationship between family-centeredness and adolescent problem behaviour would have been found. Contrarily, this could have also led to single-source bias (Campbell & Fiske, 1959). To counteract this, both the perspective of the parents and the perspective of the group care workers could be considered.

An alternative explanation for the found non-significance may be the high staff turnover as currently experienced in residential youth care. Due to frequent changes in the team composition of the teams of group care workers, knowledge about family-centeredness may be lost over time. Here, it is relevant to note that SRYC in the Netherlands faced financial problems at the time of our data-collection which even led to the closing of several institutions (Jeugdzorg Nederland Youth Care Netherlands (2022)). Previous studies have shown that high staff turnover most often had a negative impact on implementation processes (Woltmann et al., 2008). Perhaps, if the circumstances of SRYC institutions had been more stable, family-centeredness may have been implemented more successfully, resulting in higher levels of informal parental involvement. If the levels of informal parental involvement would have been higher, a relation to the problem behaviours of the adolescents may have been present. Therefore, it is recommended that future research also takes the implementation of family-centeredness into account and investigates the beneficial contribution of parents participating in therapies addressing adolescent problem behaviours.

Strengths and Limitations

This study has several strengths. It is one of the first studies in the Netherlands to examine the level of family-centeredness in seven SCRY institutions (instead of a particular family-centered programme). Delivering care at SCRY institutions is complicated as most placements are involuntary and adolescents present with complex problems. As a result, some families are unwilling to participate in research projects. Nevertheless, we succeeded in including 404 adolescents and their families in this study. A further strength of this study is that various aspects of family-centeredness and parental involvement were assessed. These include family-centered behaviour, competence, attitude, and hindering thoughts of group care workers, as well as parental involvement measured as formal and informal visits to the institution. Including these various aspects allowed for a more in-depth assessment of these constructs.

Several limitations should also be taken into account when considering the study's results. First, family-centeredness was only measured from the perspective of the group care workers. However, the experiences of parents and adolescents with respect to the family-centered

behaviour, competence, and attitude of group care workers, could be different. The perception of the parents and the adolescents could highlight different components of the level of family-centeredness in secure youth care institutions (e.g. feelings of being taken seriously and feeling heard). It is recommended that future research assesses family-centeredness from multiple perspectives (adolescent, parental, group care workers', other staff', and objective observations) in order to be able to draw more specific conclusions about the relationship between family-centeredness and problem behaviour of adolescents.

Second, family-centeredness was computed on residential group level, rather than on the level of an individual group care workers. In this study, the within-group variation was not considered and, therefore, it is unclear to what extend group care workers behave differently and have different attitudes towards family-centred care and how this impacts adolescent problem behaviour. Future research should take these differences into account, as the alliance between group care workers and parents and group care workers and adolescents impacts adolescent outcomes (Karver et al., 2006).

Third, despite the fact that we measured different aspects of parental involvement (formal and informal visits to the institution), these do not provide information about the quality of the contact. Sometimes parental visits and contact can distress the child (Moyers et al., 2006) and, therefore, do not assist in decreasing adolescent problem behaviour. Moreover, it is possible that visits by the same parent can sometimes lead to stress but at other times can be perceived as supportive. This may, eventually, affect the relationship between the parent and the adolescent. Also, when group care workers contact parents to discuss an adolescent's disruptive behaviour, the contact between parents and their adolescent is likely to be more negative. Therefore, future research might ask parents and adolescents how they experience their contact during the residential stay of the adolescent. Qualitative research could focus on how involved parents are according to adolescents feel their or on how parents experience their level of parental involvement. It would be interesting to consider individual differences among adolescents. Some adolescents may feel a short phone call with their parent once a week suffices, while others might wish to see their parents during frequent visits to the institution. These different needs might be influenced by the quality of the adolescent-parent relationship. Qualitative studies might better inform group care workers about how they can increase parental involvement, tailored to the specific needs of the adolescents and parents.

Fourth, we did not take into account whether systemic interventions (e.g., MDFT or MST; Henggeler et al., 2009; Liddle et al., 1991) were used during or after residential treatment. Research has shown the positive effects of systemic interventions on adolescent problem behaviour (e.g., Merritts, 2016). Therefore, the use of such an intervention may possibly have influenced the outcomes of this study.

Fifth, the level of adolescent problem behaviour was measured through parental reports. The perspectives of adolescents, their mentors, and their therapists were not taken into account. Research has shown that adolescents report significantly less problem behaviour than their parents (Salbach-Andrae et al., 2009). However, it remains unclear whether any significant relationships between parental involvement and problem behaviour would have been found if different perspectives were considered. Additionally, the level of parental involvement might have impacted parents' responses on the adolescent problem behaviour questionnaire. Parents who were more involved, might have been more aware of their child's behavior and, therefore, may have had a more accurate understanding of their child's problem behavior. Moreover, leave of adolescents spent with parents was not taken into account. Moments spent with parents provide parents with insight into their child's behaviour outside the residential facility. Future research is needed to clarify the possible association between parental involvement during a residential stay and parental reports of adolescent problem behaviour.

Finally, we excluded adolescents without a family system when selecting the population for our study. For adolescents without any family system (e.g., refugees), involving parents would not have been feasible. However, for these adolescents, other options for building a social network should be considered, such as buddy projects ("maatjesproject" in Dutch).

Conclusion

The present study aimed to gain a better understanding of the relationship between family-centeredness and parental involvement and how these constructs relate to behavioural changes of adolescents in SRYC. This study shows that despite the complexity of care delivery at SRYC institutions, a higher level of family-centeredness is linked to more formal and informal parental visits to the institution. However, a relationship with adolescent problem behaviour was not found. Institutions could improve family-centeredness by offering more informal contact moments for parents and by working to remove hindering thoughts to family-centeredness among residential staff.

Nevertheless, most parents visit their child at the institution (60% at least once a week). Even though adolescents in SRYC institutions have complex and multiple problems, including problems in the family system, group care workers are able to involve these parents. This is admirable because while group workers understand the importance of family-centeredness, translating this into practice is

challenging in this most intensive form of youth care. As involving parents during residential adolescent treatment is essential for obtaining beneficial outcomes in the long term, group care workers need to be provided with proper support for providing family-centered care. Only with sufficient support, group care workers would be enabled to perform their job, maintain their job, and get satisfaction from it. When group care workers are properly cared for, they can properly care for the adolescents and their families.

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Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

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