

Feasibility of Inpatient and Outpatient Multidimensional Family Therapy for Improving Behavioral Outcomes in Adolescents Referred to Residential Youth Care

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ABSTRACT

In this study, half of a cohort of adolescents referred to a secure residential youth care institution in The Netherlands was actually placed in the center where they received well-tested Multidimensional Family Therapy (MDFT). The others were offered outpatient MDFT in a last-minute effort to avert juvenile judge accorded out-of-home placement. All adolescents had problems with their family, and virtually all of them with school. Externalizing behavior problems were prevalent. As expected, both groups of adolescents benefited from MDFT on externalizing behavior, family, and school outcome measures. MDFT was well-liked by adolescents and parents.

KEYWORDS

externalizing behavior;
family functioning;
multidimensional family
therapy; prevention of out-
of-home placement;
residential youth care;
school performance

Reforming Residential Youth Care for Adolescents

A youth is placed in a residential youth care facility to attenuate his or her problem behavior and to improve his or her personal and social prospects. Presumably, involving the family of the youth contributes to the effectiveness of residential placement programs (Knorth, Harder, Zandberg, & Kendrick, 2008). The importance of family is key factor for youth care policy in The Netherlands. The Dutch Government endorses the view that healthy family relations may help behaviorally troubled children and adolescents to get back on a pathway of positive development. The Government would like to see this vision reflected in the care for youth with severe behavioral problems, including those in residential settings.

One type of secure out-of-home placement of adolescents in The Netherlands is called “youth care plus” (YC+). The Government wants the YC+ institutions to work in family-centered ways and, to the extent possible, to replace residential placement with outpatient treatment (Ministerie van Volksgezondheid, Welzijn en Sport, 2011). In the past eight years, the 13 YC+ institutions in The Netherlands (Jeugdzorg Nederland, 2016), in a population of 17 million

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inhabitants, have taken up the challenge to develop and implement family-centered programs.

Evidence Base for Residential Placement of Adolescents

Treatment During Residential Placement

Residential placement may decrease problem behavior, but none of the programs selected for a meta-analysis stood out as being evidence-based, i.e., being of proven effectiveness (Knorth et al., 2008). Adolescents placed in a residential institution usually receive some form of *group* therapy during their stay. Some of these group treatments appear to be promising, but considering a structured review (James, 2011) none of them are evidence-based yet. There is no solid literature on *individual* treatment of residentially placed adolescents. Cognitive behavioral methods may be part of skills training, but to date (as of November 2016) the programs rated “well-supported” by the California Evidence-Based Clearinghouse for Child Welfare (www.cebc4cw.org) do not include any comprehensive individually-based treatment program for residentially placed adolescents.

Literature on a third treatment approach, *family therapy*, is scant as well. A notable exception is a recent study targeting adolescents allocated to a Drug Juvenile Court (Dakof et al., 2015). Adolescents were randomized to MDFT or group therapy. Both treatments decreased criminal offending and symptoms of externalizing behavior. The treatment gains achieved with MDFT were better maintained over a 24-months follow-up period than with group therapy. Although valuable, this single study does not show beyond doubt that family therapy is the treatment of choice for adolescents in residential settings. More research is needed.

Preventing Residential Placement

From outpatient study results, one may expect well-established family therapies to reduce adolescents’ odds of being placed out of home or of being detained (Balsamo & Poncin, 2016). However, this assumption remains to be tested. Multisystemic Therapy (MST) has been reported to lower the rate of out-of-home placements of adolescents (Swenson, Shaeffer, Faldowski, Henggeler, & Mayhew, 2010). The latter study focused on just one target group (abused and neglected youth). MST and MDFT are the only outpatient family therapy programs rated “well-supported” (evidence-based) by the California Evidence-Based Clearinghouse for Child Welfare. This status was awarded because of the ability of MST and MDFT to attenuate problem behavior of adolescents, not specifically for any preventive effect on out-of-home placements. Clearly, there is a need to more closely study if family therapy can avert out-of-home placements.

Multidimensional Family Therapy

We identified two research needs, that is, (1) to examine if inpatient family therapy can help resolve the problems of residentially placed adolescents, and (2) to assess if outpatient family therapy can lower the rate of out-of-home placements. We decided to address both research issues. As a family therapy option, we chose MDFT, as 9 of the 13 YC+ institutions in The Netherlands have a MDFT program (Rigter et al., 2014).

MDFT is an evidence-based family-centered program for adolescents displaying problem behavior and comorbid emotional and behavioral disorders (Liddle, 2016; Schaub et al., 2014). MDFT's development has been guided by insights from structural and strategic systems therapy approaches (Liddle, 2010, 2016). Interventions include:

- Enhancing treatment motivation among the adolescents and their parents
- Adolescents: training to recognize, avoid and cope with situations eliciting problem behavior
- Adolescents: training to prevent recidivism or relapse into other unwanted behavior
- Family: improving relationships and communication between family members
- Family: training to mitigate conflicts between the parents and between the parents and their child
- Parents: improving parenting style and skills
- Outside the family: exploring options to reduce risk factors and to increase the adolescent's prospects (peers, school, work, leisure time).

MDFT targets the youth, but mental, legal, and other problems of parents are noted. Without giving up his or her role as “spider in the web,” the MDFT therapist arranges for an expert from a center treating adults to address the parents' treatment needs. The systems considered in MDFT are not only the youth and his or her family (one or both parents or other parent figures), but also other social domains that matter to adolescents, including peers, school, and work. A parent figure can be the biological parent, the step or foster parent, another family member (e.g., the grandmother), a guardian, or another committed person.

In American and European randomized controlled trials among behaviorally troubled adolescents, MDFT lowered the rates of criminal offending, substance abuse, and symptoms of externalizing disorders (Dakof et al., 2015; Rigter et al., 2013, 2014; Schaub et al., 2014). MDFT has been accepted by accrediting bodies in Europe and the United States (see www.mdft.org) as being effective in decreasing diverse problem behavior in adolescents.

Designed as an outpatient treatment, MDFT nowadays is both an outpatient and an inpatient (residential stay or juvenile detention) treatment program. The Dutch MDFT expertise center (Stichting Jeugdinterventies; Youth Interventions Foundation) has designed a module of inpatient MDFT to be applied in YC+ institutions (Rigter, Erftemeyer, & Mos, 2011). As in outpatient MDFT, sessions in this module are carried out with the adolescent alone, the parent(s) alone, and the adolescent plus his or her parents (family). The assumptions underlying this multidimensional inpatient approach are that problem behavior arises from influences from multiple social systems that are important in an adolescent's life, and that this behavior can be attenuated by strengthening protective factors from these same social domains, including the family (Liddle, 2016).

Aims of the Present Study

The purpose of our study was to determine the usefulness of MDFT in a YC+ institution, both as an inpatient and an outpatient (placement preventing) treatment program. We carried out two sub-studies. The first one tested if inpatient MDFT diminishes various problem behaviors in a random sample of residentially placed adolescents. To this end, we compared scores at baseline (before the start of the program) with those at the time of completion of the program. We focused on externalizing behavior, family functioning, and problems of the adolescents related to school. In the second sub-study, we followed the same procedures to examine outpatient MDFT for its capability to improve adolescents' behavior without the need of placing the youth in a residential institution. We evaluated the inpatient and outpatient MDFT programs on their own merits. Our intention was not to assess which program—inpatient or outpatient MDFT—yielded the largest treatment gains, as it would have been impossible to match the inpatient and outpatient MDFT cases on all variables deemed of interest.

Our hypotheses were:

- Across the treatment period, MDFT will decrease self-, family-, and school-related problems in inpatient adolescents.
- Similarly, MDFT will decrease these problems in outpatient adolescents.

We conducted the study in one YC+ in The Netherlands, which pioneered the innovative outpatient MDFT approach to prevent out-of-home placements.

Methods

Site

This study was carried out at JJC, which is a secure YC+ youth care institution in The Hague, The Netherlands. JJC—Jeugdformat Jutters Combination—was established in 2007 by care agencies Jeugdformat (youth care) and De Jutters (youth mental health care), both serving The Hague and the surrounding region. The institution offers education (it has an internal school), treatment, and rehabilitation services to prepare the youth for returning to home or another place to live, and for returning to society.

Referral of Adolescents

In the study period, adolescents were referred to JJC for *residential* placement by a neighboring Youth Care Agency (Bureau Jeugdzorg), the Dutch equivalent of Child Protection and Juvenile Probation Services. A probation officer, a family guardian or sometimes a case manager guided the adolescent through all motions, such as placement, monitoring progress, and choosing between options regarding school, work, and the future place to live. As for JJC's *outpatient* MDFT program, adolescents could be referred by each of the professionals mentioned, but also by family physicians and other treatment agencies.

Design

We performed a retrospective cohort study, analyzing the baseline and exit (end of residential placement, and end of outpatient therapy) documents for randomly selected adolescents. Because of research budget limitations, we could not examine all adolescents referred to JJC. One group of youth we considered was randomly selected from the population of all adolescents successively accepted for inpatient MDFT treatment from January 2011 until January 2015. The second group was selected the same way from the population of all adolescents accepted in the same period for outpatient MDFT. We disregarded earlier years (2007–2010) as JJC was still in development then. “Baseline” coincided with the referral-initiated start-off meeting signaling the beginning of inpatient or outpatient MDFT. Documentation present at baseline comprised assessments made by agencies earlier in the adolescent's treatment career, the assessment made by the referring Youth Care Agency, and findings from additional assessments by senior JJC clinical staff. The start-off meeting was attended by the youth and one or both parents, the respective probation officer or family guardian, a senior JJC clinical staff

member, and a MDFT therapist. The exit document was the end report by the MDFT therapist. It compared the intervention goals set at baseline with the treatment results achieved.

Study Samples

All adolescents sampled were between 12 and 18 years of age when referred to JJC. They lived in The Hague or the surrounding region, so were within traveling distance from the institution. The youth were included in the study, regardless of diagnosis or other assessment findings at baseline. In the period examined, 212 adolescents were referred to JJC for MDFT treatment. Of these, 114 were offered and did accept outpatient MDFT. The remainder (98) were placed in the institution and received inpatient MDFT (Figure 1). For the present study, we randomly selected one-third from the outpatient

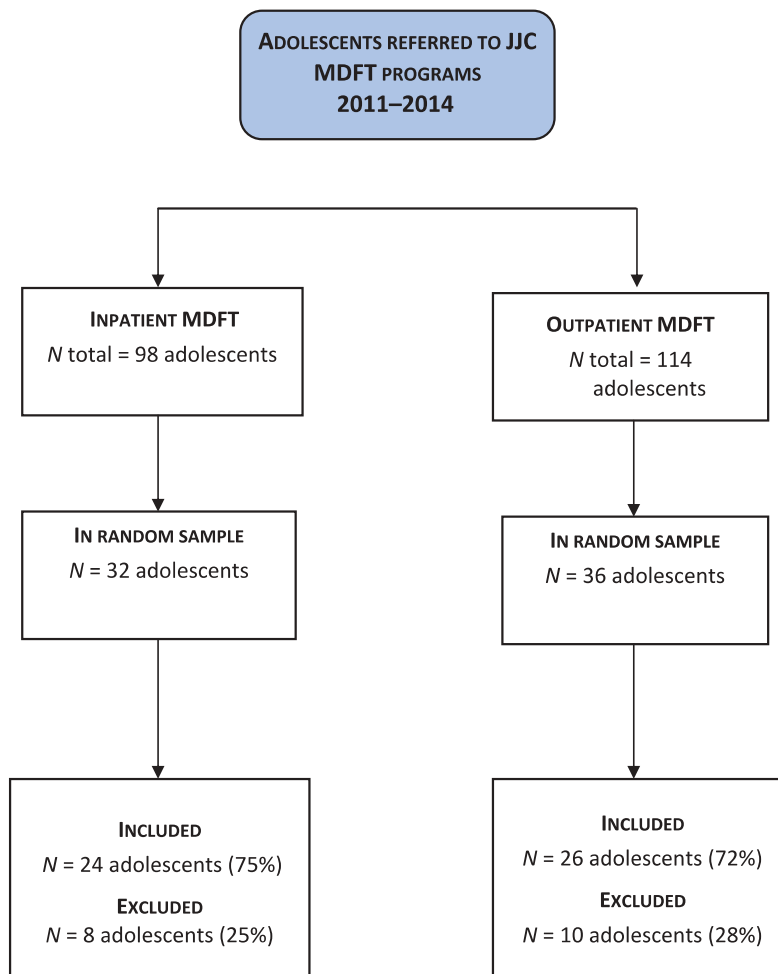


Figure 1. Number of adolescents referred to either inpatient (residential) or outpatient Multidimensional Family Therapy (MDFT). For each condition, the number of cases included is given, plus the number of cases that were excluded because of incomplete baseline and/or exit documents.

MDFT group (36 cases) and one-third from the inpatient MDFT group (32 cases). From power calculations and international study results, we know that effects of MDFT in outpatient settings can be shown in groups of 30 cases (Rigter et al., 2013, 2010). Of the sampled cases, roughly one-quarter was excluded because of severe information gaps in either the baseline or the treatment/placement exit files. We report here on 24 cases treated with MDFT while being placed in the residential institution and 26 cases treated with MDFT fully on an outpatient basis (Figure 1).

For families' privacy sake, JJC allowed the researchers (CH and HR) to view case report data on a computer screen inside the institution without facilities to copy or print the data. The researchers de-identified the cases before blindly rating and analyzing the outcomes.

Inclusion and Exclusion Criteria

For each youth receiving MDFT, at least one parent, other family member, or supportive adult was required to take part in this treatment. Selected cases were excluded from the study if properly completed baseline and/or exit documents were absent from JJC's archives.

Intervention Programs

MDFT offers sessions to the adolescent alone, the parent(s) alone, and to the family (adolescent plus parents), sometimes with representatives present from other social domains that are important to the youth (e.g., school, Justice, social work).

MDFT comprises three stages. Stage 1 serves to convince adolescents and parents of the benefits of MDFT. Initial sessions expand on the motivational enhancement approach (Liddle, 2016; Miller, Zweben, DiClemente, & Rychtarik, 1994). No effort is made, as part of the program, to establish or reaffirm a diagnosis for the adolescent's problem behavior, as these youth generally have a long documented history of attempts of professionals to set diagnoses.

Rather than trying to set a diagnosis at Stage 1, the therapist performs a "case analysis." He or she describes the family members with their mental or emotional problems and strengths, their mutual relationships in past and present, the functioning of the family, their needs and expectations. From this, the treatment plan is derived in consultation with the adolescent and his or her parents.

Stage 2 focuses on the implementation of the treatment plan. Youth and parents are trained to abandon incorrect views about, for instance, adolescence, delinquency, truancy, parenting skills and family communication patterns. Adolescents are trained to recognize problem behavior eliciting

situations and how to avoid these traps. Parents are trained in parenting style and skills. In addition, life goals of the adolescents and the parents are identified and addressed (Liddle, 2010, 2016; Liddle & Rigter, 2013). The therapist forms and maintains multiple therapeutic alliances, that is, with both the youth and parents. Steps to improve behavior, skills, and relationships are often small, but feasible and well-planned. Family communication is enhanced by the enactment method (Liddle, 2010, 2016). Treatment crises are used as tools for targeting and resolving key problems faced by the adolescent or the family.

The aim of Stage 3 is to sum up what has been achieved and to define the agenda for actions still to be taken by the family members.

Our study included two intervention programs, that is, residential (inpatient) MDFT and outpatient MDFT.

Family-Centered Work in a Residential Institution

An inpatient MDFT program will fail if the staff of the residential institution has no experience or affinity with family-centered ways of working. We have described the requirements of family-centered working in residential institutions (Rigter et al., 2011; Simons et al., 2016). To each adolescent a mentor is assigned, who is a member of the staff of predominantly social workers that oversee and support a group of placed youth. The mentor should regularly meet with the parent(s) and should call them once a week. Parents must be invited for any meeting in the institution with significant bearing on their child, such as designing and monitoring the treatment plan, discussing furlough options, and discussing goals to be achieved upon release of the adolescent (housing, school, work). In addition, the mentor invites the parent(s) to take part in activities—joint cooking, watching movies, sports, and so forth—of the group in which their child has been placed, to attend school events, including awarding diplomas, and to attend activities/meetings organized for parents.

Mentors and other staff work closely together with the MDFT therapists, exchanging information on a case without betraying confidentiality, sitting in on meetings with the adolescent or groups of adolescents, or with the parents (therapist) or on selected treatment sessions (mentor).

JJC has a team of 6 MDFT therapists led by a MDFT supervisor, all trained and certified by Stichting Jeugdinterventies (Oegstgeest, The Netherlands) with the assistance of one of the developers of MDFT, dr. G. Dakof (University of Miami). The JJC MDFT team trained the other JJC institution staff in family-centered work and monitored adherence to family-centered work principles.

Inpatient MDFT

The inpatient program included attending the institution's school and following the MDFT treatment program. MDFT sessions started at high

frequency—on average 2 sessions a week—in the first 3 months of placement, then dropped to 1 per week for five of the usually six remaining months of placement, to gear up to the initial level in the last month before expected release of the youth and for 1 or 2 months after release.

All three types of sessions were held at the institution as long as the youth stayed there. Sessions with the parents were also scheduled at the parents' home, as were family sessions when the adolescent was home on furlough.

Outpatient MDFT

This treatment option was made available to families to avert, at the last moment, the out-of-home placement of the adolescent that already had been cleared by authorities through the so-called 'youth protection measure' or "youth probation measure," in the latter instance sanctioned by a juvenile judge. Outpatient MDFT adolescents went to schools outside the YC+ institution. Treatment sessions were conducted at the family's home or any other convenient place, including the institution. The same sessions were offered as in the inpatient program, that is, with the adolescent alone, with the parents alone, and with the family, in roughly equal proportions (on average 2 sessions a week). Outpatient MDFT was delivered by the same MDFT therapists (the JJC team), and guided by the same manual (Liddle, 2010; Rigter et al., 2013) as in the inpatient condition.

Fidelity to MDFT

In The Netherlands, MDFT therapists regularly record MDFT family sessions for team intervision purposes. In addition, each team is required by contract to annually submit 1–3 MDFT family session recordings per therapist (depending on training/certification status) to Stichting Jeugdinterventies for independent assessment of adherence to MDFT using the validated MDFT adherence scale (Rowe et al., 2013). We traced the adherence scores for the JJC YC+ team members. Throughout the years of our study, they consistently scored 3.0 or higher, for both inpatient and outpatient MDFT, suggesting adequate treatment fidelity. A score of 3.0 equals or exceeds the adherence scores for American and European therapists trained to take part in MDFT randomized controlled trials (Rowe et al., 2013). Fidelity is also monitored at yearly MDFT booster session meetings in The Netherlands.

Demographic and Other Baseline Variables

We analyzed the possible impact of gender, age (in the range from 12 to 18 years), and ethnic background of the adolescents (binary variable: from Dutch origin; or born abroad from non-Dutch parents or having been born in The Netherlands in a family with at least one parent born abroad). Also, we examined if substance use did matter. We expected our samples to have

high rates of substance use disorders (diagnoses: alcohol or any drug abuse, alcohol, or any drug dependence). However, across samples only 35% had a substance use disorder at baseline, according to the available documents. We classified the adolescents as having or not having a substance use disorder. Finally, we classified families as intact (parents still together) or broken up (parents divorced or separated).

Outcome Measures

Three Categories of Adolescent Problem Behavior

All information on outcomes was retrieved from the baseline and exit documents. We designed a checklist to record how the adolescents scored on three assessment categories identified from previous MDFT research (Liddle, 2010; Rigter et al., 2014), using information from JJC's policy documents and from scrutinizing 25 documents in a pilot investigation: (1) externalizing behavior, (2) family functioning, and (3) school attendance and performance. For each category, we distinguished five items, each to be rated on a 3-point scale, going from no problems present (0), to mild (1) and severe (2) problems. Externalizing behavior was classified as (a) aggression; (b) setting fires, destruction, animal torture; (c) stealing and robbery; (d) running away; and (e) threatening others, respectively. Not included in this category—to avoid double counting—was externalizing behavior within the family or at school. The category “Family” featured (a) refusing contact with the family or with key family members; (b) being on bad terms with the family because of disturbed family communication; (c) fighting or severe quarrelling with family members; (d) manipulating family members; and (e) disobedience. For school performance, the checklist distinguished (a) truancy; (b) aggression against fellow students; (c) aggression against teachers; (d) being sent away from school or deferred to a special school program for troubled students; and (e) poor school outcome prognosis.

Rating Problem Behavior

Across the items per category, a rater (CH or HR) scored ‘0’ at baseline or exit when no relevant behavioral problems were noted for the case in question. A score of 1 was given when the adolescent had moderate behavioral problems for one or two of a category's five items. A score of 2 was assigned when the adolescent had moderate problems on three or more of a category's items, or when problems on one or more items were severe.

Using the baseline and exit scores just mentioned, the raters also evaluated the change in problem behavior that had occurred in the course of the MDFT program. Four change scores could be given, that is, 2 = maximal positive change (disappearance of problem behavior), 1 = moderate positive change, 0 = no change, and -1 = worsening of problem behavior.

We assessed the agreement between the two raters regarding baseline, exit and change scores. From our study population, representing both MDFT conditions, we randomly selected 21 adolescents. We determined with Cronbach's alpha test the correlation between the scores of the two raters for baseline, exit, and baseline to exit change scores, respectively. For cases evaluated by both assessors, we used the mean of the raters' scores in further statistical analyses of treatment outcomes.

For the randomly selected cases, the interrater agreement regarding baseline, exit and change scores, respectively, was good. The Cronbach alpha value for the change score was 0.77 overall, ranging from 0.74 (school functioning) to 0.83 (family functioning). The interrater agreement on change scores was statistically significant: $p < 0.01$, overall and per category.

Satisfaction with the MDFT Program Delivered

Adolescents and parents were invited at exit to tell how satisfied they were with MDFT. Treatment satisfaction was measured using the Satisfaction Scales for adolescents and their parents, respectively, as applied in previous MDFT effectiveness studies. These scales are reliable and valid (Barbéry, 2014; Heflinger, Sonnichsen, & Brannan, 1996). For each question, a 10-point scale allowed study participants to rate how they felt about the treatment program. Score options ranged from 1 – Very dissatisfied, to 10 – Very satisfied.

The two questionnaires contained 16 items each, of which the 16th is the summary item: “In an overall general sense, how satisfied are you with the service you (parents: your child) have (has) received?” This summary question correlated well with the 15 other items—the Pearson product-moment correlation coefficient was 0.75 for adolescents and 0.83 for parents; in both cases $p < 0.0001$ (Barbéry, 2014). We report here on the results for the summary question.

Statistical Analyses

All tests were two-tailed. We used SPSS, version 23. There were no missing data for the analyses presented here.

Baseline Differences between the Two MDFT Groups

Baseline group differences in binary data—gender, ethnic background, presence of substance use disorder, and family composition (parents together vs. divorced or separated)—were evaluated with the χ^2 test. Differences in age (continuous variable) were analyzed with the t -test.

Change from Baseline to Exit

In each MDFT group, we tested if problem behavior (continuous scores) changed from baseline to exit within and across the three outcome categories

using the paired *t*-test. To compare the two MDFT groups, we created a *binary* variable, namely “not improved” (change scores -1 and 0) and “improved” (change scores 1 and 2). We assessed group differences on this variable with the χ^2 test. Of note, treating the data as a continuous variable did not lead to another pattern of results.

Treatment Satisfaction

We used analysis of variance to compare the adolescents’ and parents’ satisfaction scores across the two MDFT programs.

Results

Study Participants

Exclusion

Figure 1 shows the study flow diagram. The exclusion rate was similar between the two MDFT conditions (28% vs. 25% for the outpatient and inpatient groups, respectively). For each MDFT group, the excluded adolescents did not differ in gender, age, ethnic background, and family composition ($p > 0.37$; χ^2 test for binary data; *t*-test for age). In all exclusion cases, the reason for not including the adolescent was baseline or exit documentation being absent. There was no exclusion on diagnostic grounds.

Selected Samples

We randomly selected a sample of 36 outpatient MDFT cases out of the total of 114 cases in this condition, and 32 out of 98 inpatient cases. In both treatment conditions, selected adolescents did not differ from non-selected adolescents ($p > 0.41$) on gender, age, ethnic background, and family composition.

Characteristics of the Included Adolescents

Table 1 lists the baseline characteristics of the included cases. The adolescents of the two programs were of similar age ($t = 0.70$, $p = 0.49$). There were more boys in the outpatient group than in the inpatient condition (69% vs. 54%), but there were no statistically significant gender differences between the groups ($\chi^2 = 1.20$, $p = 0.27$). Across the two programs, 38.0% of the adolescents were from non-Dutch origin/background. Of these, 42% had roots in Surinam or the Dutch Antilles, 26.0% had a Muslim country background (Morocco or Turkey), and 21.0% were from Eastern Europe. The MDFT groups did not differ on the ethnic background binary variable ($\chi^2 = 0.64$, $p = 0.42$). They were also similar in prevalence of substance disorder at baseline ($\chi^2 = 1.07$, $p = 0.30$).

Table 1. Baseline Characteristics of the Adolescents in the Residential and Outpatient MDFT Programs, Respectively.

Variable	Residential MDFT	Outpatient MDFT	Total
Male Gender (%)	54.2	69.2	62.0
Mean Age (\pm SD)	15.7 \pm 1.3	15.4 \pm 1.2	15.6 \pm 1.3
Ethnic Minority (%)	37.5	38.5	38.0
Substance Use Disorder (%)	37.4	34.6	35.4
Externalizing Behavior Present (%) ^a	91.7	61.5	76.0
Poor Family Functioning (%) ^a	100.0	100.0	100.0
Poor School Functioning (%) ^a	95.8	96.2	96.0

MDFT = multidimensional family therapy. SD = standard deviation.

^a Percentage of adolescents presenting with problem behavior (score 1 or 2) for the assessment category mentioned.

As the table shows, the adolescents were engaged in varied problem behavior as measured at baseline. Across the two treatment programs, problems related to family functioning and school functioning were virtually universal. Externalizing problem behavior was common as well. As for the items pertaining to family functioning, most conspicuous were frictions between family members because of poor family communication, and defiant behavior of the adolescent. Specifically, 53% of the total number of adolescents refused contact with family (members), 94% had problems in communicating with family members, 78% fought or quarreled with other family members, and 93% showed oppositional defiant behavior.

At baseline, the two MDFT groups of adolescents did not differ in family functioning ($\chi^2 = 2.20$, $p = 0.14$), school functioning ($\chi^2 = 0.46$, $p = 0.50$), and on any item from these outcome categories. The single difference noted was that fewer adolescents displayed externalizing behavior (outside family and school) in the MDFT outpatient group than in the inpatient MDFT group ($\chi^2 = 14.5$, $p = 0.001$).

Process Variables

Duration of Stay and Outpatient Treatment

The residentially placed MDFT adolescents stayed in JJC for 9.3 ± 4.0 months (mean \pm standard deviation [SD]). Outpatient MDFT lasted 6.5 months ± 1.3 on average.

Number of Therapy Sessions

The average total number of MDFT sessions (adolescent, parent, and family sessions) was 62.5 ± 7.7 (SD) in the residential placement condition, and 48.2 ± 6.4 for outpatient MDFT cases. This difference was statistically significant ($t = 39.9$; $p < 0.02$).

Table 2. Baseline to Exit Improvements in Problem Behavior Among the Adolescents in the Residential and Outpatient MDFT Programs, Respectively.

Problem Behavior Category	Residential MDFT	Outpatient MDFT	Total
Externalizing Behavior	1.24 ± 0.62	1.13 ± 0.64	1.26 ± 0.57
Family Functioning	1.38 ± 0.59	1.29 ± 0.73	1.33 ± 0.62
School Functioning	1.20 ± 0.70	1.40 ± 0.70	1.34 ± 0.53

Means ± standard deviations. MDFT = multidimensional family therapy. Exit = end of residential or outpatient MDFT treatment. Change scores varied from -1 (worsening), 0 (no change), 1 (some positive change), to 2 (sizable positive change).

Outcomes

Change in Problem Behavior per Group

Table 2 presents the baseline to exit change scores. In both MDFT programs, behavior totaled across the three outcomes categories improved from baseline to exit (inpatient MDFT: $t = 11.2$; outpatient MDFT: $t = 14.0$; in each case, $p < 0.001$). This was confirmed for each outcome category (externalizing behavior: $t = 13.4$, family functioning: $t = 15.8$, school functioning: $t = 13.3$; $p < 0.001$ in each instance). In only one (inpatient) case, problem behavior worsened during the stay. No problem behavior that was absent at baseline emerged at a later stage in any of the cases.

Comparing the Groups on Change in Problem Behavior

We compared the extent of behavioral improvement in the two MDFT conditions. There were no differences between the two MDFT groups on any outcome parameter (highest value: $\chi^2 = 3.17$, $p = 0.21$).

In both groups, there was similar room for improvement. None of the inpatient cases scored 0 on the overall baseline problem behavior index (2 scored 0 on the dimension “externalizing behavior” and 1 scored 0 on school functioning). Similarly, none of the outpatient cases scored 0 on the overall baseline index (10 scored 0 on externalizing behavior, 1 on school functioning). In both inpatient and outpatient cases, the high impairment score of 2 was most prevalent for the dimension “family functioning.”

Treatment Satisfaction

Treatment satisfaction scores were high. The average score on the summary question for all adolescents was 8.3 ± 1.5 (SD), on a scale of 0 to 10, with no difference noted between the two MDFT programs. Parents’ scores were also high: across programs 8.4 ± 1.0 ; no difference between programs.

Discussion

Main Findings

The aim of this study was twofold. First, we examined if adolescents with diverse problem behavior being placed in a secure residential institution in The Netherlands, would benefit from a family therapy program. This program (MDFT) was delivered during the adolescents' stay in the institution and continued on an outpatient basis for 1 or 2 months after departure of the youth from the institution. Inpatient MDFT helped to diminish the problems of the adolescents for each of the three outcome categories we distinguished, going from placement start (baseline) to placement exit. That is, MDFT decreased externalizing behavior outside family and school settings and within those settings, and improved functioning within the family and at school, going from baseline (intake) to exit. These are remarkable findings. They suggest that, after often long periods of disrupted or troubled family life, family members can still reconnect.

We also studied a group of adolescents receiving outpatient MDFT to avert out-of-home placement in the residential institution. This innovative approach yielded positive results. MDFT reduced problem behavior for the same three outcome categories as distinguished for the inpatient group of adolescents. The inpatient and outpatient MDFT groups did not differ on any outcome variable, that is, on any pre (baseline) to post (exit) change score.

Adolescent and parents in both the inpatient and outpatient groups were satisfied with the MDFT treatment received.

Substance Use Disorder

Our data suggest that MDFT improves family and school functioning in adolescents placed out of home or at the verge of being placed out of home. MDFT is known to also reduce substance use and substance use disorder (Liddle, 2016; Rigter et al., 2013). We could not confirm this in the present study, as the prevalence of substance use disorder was relatively low among both inpatient and outpatient adolescents. Probably, the low rate of substance use disorders is an artefact, because youth care services in The Netherlands are not likely to adequately assess the presence of these disorders.

Comparability of the Two MDFT Groups

Our intention was to determine if inpatient MDFT is useful and, separately, if outpatient MDFT is useful. Within the limits of our investigation, the answer was affirmative. Our study was not designed to prove that inpatient MDFT is more or is less effective than outpatient MDFT. The two programs

scored equally well on most baseline measures used. This is not to say that inpatient and outpatient MDFT are equivalent. Our inpatient sample was similar to the outpatient sample except for the outcome measure of externalizing behavior outside family and school settings (a lower rate of such behavior in the outpatient sample). This single difference may indicate that the inpatient group was more impaired than the outpatient group, but caution is needed here. First, all adolescents in the outpatient group had been cleared by a juvenile judge to be placed in a residential institution, so they were quite impaired, as most if not all of their other scores show. From the data available, we assume that the inpatient adolescents were in the inpatient condition because they had been in that condition for quite some while, often at other institutions. The documents we scrutinized speak of troubled treatment histories, often involving five or more programs tried before. So, our adolescent cases may have been more ‘fresh’, less tainted and shaped by a history of unsuccessful treatment attempts. Nevertheless, they were similar to the inpatient cases in many respects. Compared with findings from earlier research to prevent out-of-home placement (Damen & Veerman, 2013; Henggeler, 2011; Lee et al., 2014), the JJC YC+ outpatient MDFT adolescents had many personal and social functioning problems.

Effects of Inpatient and Outpatient MDFT

We set out to test the assumption that both inpatient and outpatient MDFT are useful treatment programs for adolescents considered for out-of-home placement. The finding that outpatient MDFT did reduce problem behavior adds to the results of a long series of studies showing that outpatient MDFT is an evidence-based treatment for youth with diverse behavioral problems, irrespective of treatment setting (Liddle, 2016).

The outcomes achieved are in keeping with the policy ambition in The Netherlands to have effective outpatient placement-averting treatment replace inpatient treatment (Ministerie van Volksgezondheid, Welzijn en Sport, 2011). The outpatient MDFT group improved on total outcome scores and category scores (most clearly for family functioning and school functioning), going from baseline to exit/end of treatment, as much as the inpatient MDFT group did. MDFT was well liked by both adolescents and parents in both MDFT conditions. When analyzing the files from the JJC archives, we found no evidence that any of the outpatient cases (treated with MDFT 0.5 to 4.5 years earlier) ever returned to JJC for inpatient placement.

A confounding variable in efforts to establish the equivalence of inpatient and outpatient MDFT may be the difference in the number of MDFT sessions found. This number was higher for inpatient MDFT. This does not imply that inpatient adolescents received more “core” MDFT than outpatient adolescents. In the institution, MDFT was a means to structure care

from beginning to end. Some sessions may have reflected this function—preparing meetings with staff, referral agencies, family; preparing furlough; preparing post-release conditions (housing, schooling, work), without delivering the core treatment during the full session. Although some of these procedural interventions are also part of outpatient MDFT, all these activities together may have resulted in a higher number of recorded MDFT sessions in the inpatient condition. Importantly, both inpatient and outpatient MDFT improved the behavior and the situation of the adolescents; therefore, the number of sessions delivered would not appear to be a crucial variable.

Limitations of Our Study

This study was carried out in hectic times, with budget cuts, sparsity of research funds, and a flurry of treatment policies. The inpatient and outpatient study samples were small, although just meeting power requirements (Rigter et al., 2010). All in all, our results should be interpreted with caution. The ideal study design would have been a randomized controlled trial, but for lack of funds and support we had to settle for a retrospective study. Our measurement tools were of solid validity and reliability, except for our major instrument assessing specified behavioral problems of the youth at baseline and exit. We designed this instrument, as we are not aware of a validated outcome test that would meet our requirements.

Our study has strengths as well. The study groups were small, but the pattern of results was similar and confirmative between the two groups. The random samples of adolescents we selected were unbiased: they were from the steady inflow of cases at the JJC YC+ institution. All institution staff had been trained in family-centered work, not just the MDFT therapists. Training general staff in family-centered work is likely to strengthen the position of family therapy in residential settings. Treatment fidelity (adherence to MDFT) was monitored.

Treatment Policies

Of all the problem behavior categories we identified, family malfunctioning was most prevalent. This suggests that JJC is targeting the right group of youth. The YC+ institutions in The Netherlands have been founded to help adolescents who might need to be placed out of home because staying with their family would harm their development or pose a threat to themselves or others. The two MDFT programs decreased the adolescents' problems with their families. Also, school behavior/performance improved in our study samples. Many adolescents were truant when they were referred to JJC, even to the extent of never attending school. JJC has an internal school, under the same roof as where placed adolescents are staying, so making it

hard for them to be truant. They attended school, but did more: many of them did their best to pass exams. When they left the institution, most of the adolescents had been accepted by a follow-up school or job training program. However, it is not just the internal school facility that mattered. Adolescents from the outpatient MDFT group, who went to regular schools, also improved their behavior at school. Apparently, MDFT has a positive effect on school behavior regardless of youth care condition.

Our study has been carried out while the JJC YC+ institution, as part of changing youth care policy in The Netherlands, was still in search of its “niche”: the kind of service it wished to offer. This quest influenced the MDFT implementation process, though not to the extent that it would cast doubt on the results presented here. In the early years after JJC had been founded (2007–2010), the adolescents were placed in either a residential skills training program—with no protocol and without much quality control—or in the residential MDFT program. The apparent success of MDFT led the management of JJC to abandon the skills training program and to fully opt for MDFT. This change was in progress at the time of our investigation, necessitating us to strike the “residential skills training” program, which we considered to be a comparison condition, from our study plan.

A few years before our study started, JJC adopted the option of offering outpatient MDFT as last-minute alternative to residential out-of-home placement. MDFT therapists worked hard to have the outpatient MDFT option succeed. Probation officers and juvenile judges learned of the good outpatient MDFT outcomes and began to promote this treatment option. Juvenile judges agreed with the outpatient treatment option, and only interfered by demanding residential placement if they thought the adolescent was at elevated risk of harming him- or herself or others. The latter may explain in part our baseline finding that the inpatient MDFT youth scored higher on the nonfamily, nonschool externalizing behavior measure than the outpatient MDFT youth.

Progressing implementation did not stop at accepting outpatient MDFT. As said, JJC selected MDFT as sole inpatient treatment program. After our study had been completed, JJC decided to shorten the stay of inpatient MDFT youth to 6 months. Presently, MDFT is not started up, geared down and then geared up. During the first 3 months of the adolescent’s stay, the MDFT therapist and other JJC staff carry out family-centered work (meeting the family members, discussing needs and expectations, preparing the treatment plan, preparing furloughs, etc.). With stringent time management and session planning, the treatment is delivered full speed during the last 3 months of the 6-months stay. Upon release of the adolescent from the institution, outpatient aftercare sessions of MDFT are offered for 3 to occasionally up to 6 months (extending the total duration of MDFT to 6 to 9 months,). The experience with this new approach is promising, but needs

to be put to test. If residential placement could be shortened, this would save costs. Moreover, it would also decrease the chance that families—so important for the rehabilitation of the adolescent—fall apart. In our study, youth placed in JJC remained in the institution for 9 months. If their stay would have been reduced to 6 months, this would have saved society 3 months of residential placement \times € 327 per day (present YC+ tariff) = € 29.750 per case. Offering outpatient MDFT for 3 to 6 months after the release of the adolescent from the institution, would cost € 4000 to 7000, substantially less than the cost saving mentioned.

Organizations of psychologists, pedagogues, and social workers in The Netherlands recently published a guideline for out-of-home placement (NVO, NVMP, NIP, 2015). According to this guideline, out-of-home placement is to be avoided. JJC's outpatient MDFT program would appear to be of help in this situation; therefore, it fits in with the guideline.

In our experience, it is not sufficient to install a MDFT team in an institution. The whole institution needs to change its focus to family-centered approaches. JJC had staff trained in family-centered work before fully implementing a MDFT team. The social workers tending the group in which an adolescent was placed, and other staff, were trained to involve parents in anything important to the adolescent.

Conclusions

Family-centered work is feasible in youth residential care settings. Evidence-based family therapy, notably MDFT, can be part of family-centered work. The developments at the residential institution featuring in this study suggest that placement of behaviorally troubled adolescents in residential institutions in The Netherlands can be shortened by one-third if family therapy (MDFT) is being delivered. To a sizable extent, placement in a residential institution can be prevented by offering evidence-based outpatient MDFT. However, this outpatient placement-averting treatment option will not render inpatient placement and treatment obsolete. Residential institution placement will remain indicated for youth facing an acute family crisis or with a prolonged history of problem behavior distorting family relationships.

All this is tentative, though promising. Surely, more research is needed to confirm or refute the interpretations we have offered.

Contributors

Funding of the study was secured by BV. The study was designed and carried out by CH and HR. Statistical analyses were performed by C. E. Hoogeveen. The manuscript was written by H. Rigter, with critical input from B. Vogelvang and C. E. Hoogeveen. All authors have read and approved the manuscript.

Conflicts of interest

None for C. E. Hoogeveen and B. Vogelvang. H. Rigter has been director of the funding agency Stichting Jeugdinterventies prior to his role in the present study.

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References

- Balsamo, D. N., & Poncin, Y. B. (2016). Community-based alternatives to incarceration and assessment and community-based planning for probation/community-based alternative. *Child and Adolescent Psychiatric Clinics of North America*, 25, 123–128. doi:10.1016/j.chc.2015.08.005
- Barbéry, F. (2014). *Evaluation de la satisfaction après psychothérapie chez des adolescents présentant un abus ou une dépendance au cannabis* [Assessing satisfaction with psychotherapy in adolescents with cannabis abuse or cannabis dependence]. Inserm U669, Paris, France: Etude INCANT.
- Dakof, G. A., Henderson, C. E., Rowe, C. L., Boustani, M., Greenbaum, P. E., Wang, W., ... Liddle, H. A. (2015). A randomized clinical trial of family therapy in juvenile drug court. *Journal of Family Psychology*, 29(2), 232–241. doi:10.1037/fam0000053
- Damen, H., & Veerman, J. W. (2013). Voorkomen van uithuisplaatsing bij *Families First* door behandelingsgetrouw handelen [Preventing out of home placement in *Families First* by adhering to treatment principles]. *Kind & Adolescent*, 34, 147–164. doi:10.1007/s12453-013-0016-x
- Heflinger, C. A., Sonnichsen, S. E., & Brannan, A. M. (1996). Parent satisfaction with children's mental health services in a children's mental health managed care demonstration. *The Journal of Mental Health Administration*, 23, 69–79. doi:10.1007/BF02518644
- Henggeler, S. W. (2011). Efficacy studies to large-scale transport: The development and validation of Multisystemic Therapy programs. *Annual Review of Clinical Psychology*, 7, 351–381. doi:10.1146/annurev-clinpsy-032210-104615
- James, S. (2011). What works in group care? – A structured review of treatment models for group homes and residential care. *Children and Youth Services Review*, 33, 308–321. doi:10.1016/j.childyouth.2010.09.014
- Jeugdzorg Nederland. (2016). *Capaciteit en zorgaanbod 2015* [Care capacity and services 2015]. Retrieved January 14, 2016, from www.jeugdzorgplus.jeugdzorgnederland.nl.

- Knorth, E. J., Harder, A. T., Zandberg, T., & Kendrick, A. J. (2008). Under one roof: A review and selective meta-analysis on the outcomes of residential child and youth care. *Children and Youth Services Review, 30*, 123–140. doi:10.1016/j.childyouth.2007.09.001
- Lee, B. R., Ebesutani, C., Kolivoski, K. M., Becker, K. D., Lindsey, M. A., Brandt, N., . . . Barth, R. P. (2014). Program and practice elements for placement prevention: A review of interventions and their effectiveness in promoting home-based care. *American Journal of Orthopsychiatry, 84*, 244–256. doi:10.1037/h0099811
- Liddle, H., & Rigter, H. (2013). How developmental research and contextual theory drive clinical work with adolescents. *Harvard Review of Psychiatry, 21*, 200–204.
- Liddle, H. A. (2010). Treating adolescent substance abuse using multidimensional family therapy. In J. Weisz & A. Kazdin (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 416–432). New York, NY: Guilford Press.
- Liddle, H. A. (2016). Multidimensional family therapy. In T. Sexton & J. Lebow (Eds.), *Handbook of family therapy* (pp. 231–249). New York, NY: Routledge.
- Miller, W. R., Zweben, A., DiClemente, C. C., & Rychtarik, R. G. (1994). *Motivational enhancement therapy manual*. Project MATCH Monograph Series, Volume 2. Washington, DC: National Institute on Alcohol Abuse and Alcoholism.
- Ministerie van Volksgezondheid, Welzijn en Sport (Dutch Ministry of Health, Welfare and Sports). (2011). *Beleidskader Trajecten Jeugdzorgplus [Policy framework for residential youth care trajectories]*. The Hague, The Netherlands: Ministry of VWS.
- NVO, NVMP, NIP. (2015). *Richtlijn Uithuisplaatsing [Guideline out of home placement]*. Utrecht, The Netherlands: Nederlands Jeugdinstituut.
- Rigter, H., Erftemeyer, L., & Mos, K. (2011). *Wegwijzer voor toepassing van MDFT in jeugdzorgplus en residentiële jeugdzorg [Guideline for applying MDFT in residential youth care]*. Leiden, The Netherlands: MDFT Academie.
- Rigter, H., Henderson, C. E., Pelc, I., Tossmann, P., Phan, O., Hendriks, V., . . . Rowe, C. L. (2013). Multidimensional family therapy lowers the rate of cannabis dependence in adolescents: A randomised controlled trial in Western European outpatient settings. *Drug and Alcohol Dependence, 130*, 85–93. doi:10.1016/j.drugalcdep.2012.10.013
- Rigter, H., Pelc, I., Tossmann, P., Phan, O., Grichting, E., Hendriks, V., & Rowe, C. (2010). INCANT: A transnational randomized trial of multidimensional family therapy versus treatment as usual for adolescents with cannabis use disorder. *BMC Psychiatry, 10*, 28. doi:10.1186/1471-244X-10-28
- Rigter, H., Rowe, C., Gantner, A., Mos, K., Nielsen, P., Phan, O., . . . Liddle, H. (2014). From research to practice: The international implementation of multidimensional family therapy. In N. El-Guebaly, M. Carrà, & M. Galanter (Eds.), *Textbook of addiction treatment: International perspectives* (pp. 889–905). Berlin/Heidelberg, Germany: Springer Verlag.
- Rowe, C., Rigter, H., Henderson, C., Gantner, A., Mos, K., Nielsen, P., & Phan, O. (2013). Implementation fidelity of multidimensional family therapy in an international trial. *Journal of Substance Abuse Treatment, 44*, 391–399. doi:10.1016/j.jsat.2012.08.225
- Schaub, M. P., Henderson, C. E., Pelc, I., Tossmann, P., Phan, O., Hendriks, V., . . . Rigter, H. (2014). Multidimensional family therapy decreases the rate of externalising behavioural disorder symptoms in cannabis abusing adolescents: Outcomes of the INCANT trial. *BMC Psychiatry, 14*, 26. doi:10.1186/1471-244X-14-26
- Simons, I., Mulder, E., Rigter, H., Breuk, R., Van Der Vaart, W., & Vermeiren, R. (2016). Family-centered care in juvenile justice institutions: A mixed methods study protocol. *JMIR Research Protocols, 5*, e177. doi:10.2196/resprot.5938
- Swenson, C. C., Shaeffer, C. M., Faldowski, R., Henggeler, S. W., & Mayhew, A. (2010). Multisystemic therapy for child abuse and neglect: A randomized effectiveness trial. *Journal of Family Therapy, 24*, 497–507.