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Parent training in foster families with children with behavior problems: Follow-up results from a randomized controlled trial

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ABSTRACT

The present randomized controlled trial examined the four months follow-up effectiveness of Parent Management Training Oregon (PMTO) for parents with foster children (aged 4–12) with severe externalizing behavior problems in long-term foster care arrangements. The aim of PMTO, a relative long and intensive (6–9 months, with weekly sessions) parent management training is to reduce children's problem behavior through improvement of parenting practices. We specifically investigated whether PMTO is effective to reduce foster parenting stress. It was expected that PMTO would reduce parenting stress in foster parents, improve the quality of parenting practices, and reduce children's problem behavior. Multi-informant (foster mothers, foster fathers, and teachers) data were used from 86 families. Multilevel analyses based on the intention to treat principle (retention rate 73%) showed that PMTO, compared to care as usual, had no significant direct, nor indirect or sleeper effects at follow-up on parenting stress, parenting behavior and child behavior problems. Earlier reported immediate effects of PMTO on reduced parenting stress at posttest disappeared at follow-up. Additional analyses on the role of non-specific intervention factors in PMTO effects showed that higher therapist fidelity scores resulted in stronger effects of PMTO on parenting responsiveness, parental explaining and autonomy granting. Unexpectedly, higher fidelity scores also predicted less decrease of parenting stress at follow-up.

1. Introduction

Foster children in different western countries have three times more behavioral problems than children in the general population (Burns et al., 2004; Maaskant, Van Rooij, & Hermanns, 2014). Due to prior experiences of trauma and abuse, behavioral problems of foster children are often severe and tend to persist once placed in a foster family (Goemans, Van Geel, & Vedder, 2015). Behavioral problems increase parenting stress, negatively affect foster parenting behaviors (Vanderfaeillie, Van Holen, Trogh, & Andries, 2012) and can become a major obstacle for maintaining the foster child within the foster family (Oosterman, Schuengel, Slot, Bullens, & Doreleijers, 2007). Despite supportive services from foster care organizations, a considerable amount (e.g., 30–50%, Oosterman et al., 2007) of foster care placements end unintentionally (see Van Rooij, Maaskant, Weijers, Weijers, & Hermanns, 2015 for recent figures on the Dutch population). Placement disruptions in turn increase the chance for consecutive unsuccessful placements (Chamberlain et al., 2006; Newton, Litrownik, & Landsverk, 2000) and contribute to the risk for a broad range of poor developmental outcomes (e.g. internalizing and externalizing problems, school performance, drug-use, delinquency; Aarons et al., 2010; Herrenkohl, Herrenkohl, & Egolf, 2003). Enhancing placement stability is thus of critical importance for improving foster children's developmental outcomes and requires tailored interventions that effectively support foster parents to handle their child's disruptive behaviors.

Policy and legal definitions of children in foster care differ across the world. For example in the United States, foster children are usually adopted after a maximum period of two years. In contrast, in the Netherlands adoption after a period of foster care hardly ever takes place. Dutch foster parents seldom gain custody over their foster child and permanency planning is a lengthy and less definitive process compared to the United States (Strijker et al., 2007). Foster care in the Netherlands can either be 'short term' or 'long term'. Short term foster care aims to treat a child or parent for the purpose of returning the child to his or her birth-family. If reunification with the biological parents is impossible, long term foster care is provided till the child reaches adulthood, centering on the continuity and the child's right to a stable rearing situation. This paper particularly focuses on the effectiveness of parenting interventions in Dutch long term foster care.

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1.1. Foster parenting interventions

Bearing in mind these international differences, what do we know from research on effective parenting interventions in foster care? Despite the widespread knowledge that rearing foster children can have a negative impact on the psychological functioning of foster parents, there is little evidence for interventions that primarily help to diminish parenting stress and improve parental wellbeing (Dorsey et al., 2008; Turner, Macdonald, & Dennis, 2009). Although individual studies have in some cases shown promising results, reviews show that most of the widely-used curricula of foster parent training overall have limited impact on foster child and parenting outcomes (Dorsey et al., 2008; Turner et al., 2009). It seems logic that skill-based training, which is based on providing foster parents the opportunity to practice skills and receive coaching and feedback on skill implementation *after* a child is placed in their home, seems to be an important requirement for positive change (Dorsey et al., 2008; Leve et al., 2012). However, many of these skill-based parenting interventions still appear to be too short and insufficiently individualized to improve foster parenting practices and reduce these severe behavior problems of foster children.

More intensive behavioral parenting or attachment based programs (e.g., Multi Treatment Foster Care for Preschoolers (MTFC-P), Attachment Biobehavioural Catch-up (ABC)) tend to show more promising results (Kinsey & Schlosser, 2013; Leve et al., 2012), though the overall evidence is still limited (e.g. small number of studies, mixed profile of participants and the potential bias of intervention developers in the research teams; Macdonald & Turner, 2008; Turner & MacDonald, 2011). Most of these programs are not (yet) nationally implemented in Dutch long term foster care. Moreover, treatment foster care programs are provided by specially trained foster parents and integrated with intensive forms of other professional support. These programs have a maximum placement duration (6–12 months) until the child will be reunited with its biological family or adoption in a permanent family will be arranged (Fisher, Burraston, & Pears, 2005). For that reason, these programs are not always convenient for supporting regular Dutch long term foster families.

Almost all available evidence for the effectiveness of interventions in foster care comes from the US. Because of the meaningful difference in foster care systems across countries (e.g., goal and duration of placements), this limits our understanding of whether and how interventions work for foster care families outside the US. There thus is a need for intervention studies outside the US and conducted by independent research teams (MacDonald & Turner, 2008; Leve et al., 2012). A recent quasi experimental trial found for example that MTFC-P is not superior to treatment as usual in the Netherlands (Jonkman, 2015). This illustrates that findings from US samples cannot always be generalized to Dutch, or other foster samples.

Another limitation of much intervention studies in foster care concerns methodological problems (e.g. failing to follow stringent randomization procedures or including control groups). This is problematic because it makes it difficult to establish adequate validity and reliability of study results (Rork & McNeil, 2011). Furthermore, most studies test immediate effects of interventions only, rather than short or longer-term effects of the intervention (Dorsey et al., 2008). Follow-up studies tend to be difficult to conduct (Chambless & Hollon, 1998), and possible publication bias may exist in that significant follow-up effects may emerge less frequently and studies of follow-up effects may be less often published (Dawn et al., 2008). It is evident, however, that longer term follow-up results of intervention studies are essential to reveal whether immediate effects either fade-out, sustain over time, or further increase (i.e. 'sleeper-effects').

1.2. Parent Management Training Oregon

A promising program for Dutch long term foster families may be Parent Management Training Oregon (PMTO), an intensive and individualized parenting intervention that has been implemented in several foster care organizations in the Netherlands during the past years. PMTO is a parent management training designed to support parents with children with severe behavior problems. PMTO is based on the social interaction learning model (SIL; Patterson, 2005) which emphasizes the importance of the social context in the development of children. Contextual factors (e.g. family structure transitions, parent's stress-level and child's temperament) are supposed to have indirect effects on child outcomes and are mediated by coercive processes and ineffective parenting skills (Forgatch, Patterson, & DeGarmo, 2005b). Coercive cycles in family interactions are initiated when children and parents reinforce each other's negative behavior, and these cycles often flourish in stressful contexts (Forgatch, DeGarmo, & Beldavs, 2005a). Furthermore, in relationships characterized by coercive interactions, parental expression of warmth and encouragement may be scarce, and the children are seldom reinforced for developing positive skills (Hagen, Ogden, & Bjørnebekk, 2011). Once coercive processes are established, they tend to be maintained by both the parent and child. The main focus of PMTO is enhancing effective and positive parenting practice, diminishing coercive practices and in turn reducing child behavior problems (Forgatch et al., 2005a). PMTO is an intensive, individual and relatively long (mostly 6 to 9 months) intervention. Goals are set in agreement between trainer and foster parents and therefore able to meet individual parenting needs of foster parents.

1.3. Effects of PMTO

No previous studies tested the effects of PMTO in foster care settings. Nevertheless, several studies show that PMTO is effective at post-test in improving parenting and child behavior for a broad range of families and in several international clinical and prevention samples (DeGarmo & Forgatch, 2005; Forgatch & DeGarmo, 1999; Martinez & Eddy, 2005; Ogden & Hagen, 2008; Patterson, Chamberlain, & Reid, 1982). A randomized controlled trial (RCT) in Iceland showed that PMTO reduced child behavior problems, but not changed parenting behaviors (Sigmarsdóttir, Degarmo, Forgatch, & Gudmundsdóttir, 2013). Primary outcomes related to parenting stress have not yet been investigated.

Follow-up studies also show positive results of PMTO. In a study with 238 single mothers and their elementary school-aged sons in the US, PMTO participants, compared to controls, experienced reduced maternal depression and child internalizing and externalizing problems at 30-months follow up (DeGarmo, Patterson, & Forgatch, 2004; Martinez & Forgatch, 2001). At nine year follow-up, fewer rates of arrests and delayed age at first arrest was measured among the same group (Forgatch, Patterson, DeGarmo, & Beldavs, 2009) as well as increased socioeconomic status of mothers (Patterson, Forgatch, & DeGarmo, 2010; Forgatch & DeGarmo, 2007). The follow-up study of an RCT with recently married biological mothers and stepfather couples in the US (with a child aged 5–10 years), showed reliable positive indirect effects on marital relationship processes 24 months after baseline which were mediated by the impact of PMTO on parenting practices 6 months after baseline (Bullard et al., 2010). A Norwegian effectiveness study including 112 families of girls and boys (aged 4–12 years) with clinical-level conduct problems, showed that PMTO increased effective parenting discipline at posttest, which in turn predicted reduced externalizing child behavior at one year follow-up (Hagen et al., 2011).

1.4. PMTO to support foster families

The limited evidence of previous intervention studies on reduced foster child behavior problems makes clear how persistent these problems often are. Instead of supporting foster parents primarily to reduce behavior problems of their foster child, supporting them in a way they feel less stressed and more competent to effectively handle those disruptive behaviors, seems necessary (Vanderfaeillie et al., 2012). A

growing number of studies show that senses of parental competence and wellbeing mediate the effect of parenting interventions on improved parenting practices and eventually child behavior (e.g. Deković et al., 2010; Hermanns, Asscher, Zijlstra, Hoffenaar, & Deković, 2013). Moreover, additional treatment of parental stress for parents of children referred to treatment for aggressive and antisocial behavior, enhances the effects of parent training and child therapy (Kazdin & Whitley, 2006). The intensive and individualized base of PMTO, offered by high qualified therapists, is supposed to support foster parents in such a way they feel understood and thus less stressed. If they additionally learn how to more effectively handle disruptive behaviors, they will even feel more competent, which in turn increases positive parenting strategies and diminishes coercive circles. This eventually is supposed to reduce the risk for untimely placement breakdown, whether or not child behavior actually improves as well.

1.5. Immediate effects of PMTO in foster families

In a previous paper (*blinded for review*), we report the immediate posttest effects of PMTO, compared to Care as Usual (CAU), on child behavior problems, parenting stress and parenting behaviors in a real world foster care setting. We targeted a high-risk foster care sample and used an RCT design. We showed that PMTO, compared to CAU, reduced general levels of parenting stress as well as child related stress and parent related stress. On self-reported parenting behavior, PMTO helped foster mothers to maintain parental warmth, compared to a decrease in the CAU group. Child behavior problems reduced in both conditions, indicating no additive effects of PMTO to CAU on child functioning.

1.6. The role of non-specific factors

Apart from the question whether PMTO works, it is important to examine which treatment factors are of key importance to produce effect. In the last two decades an empirical base for the role of common factors and intervention non-specific processes on outcomes has been established (Assay & Lambert, 1999; Duncan, Miller, Wampold, & Hubble, 2010). Understanding intervention effectiveness requires the evaluation of factors of the client (e.g., motivation and attributions towards the received intervention), the professional (e.g., expertise, expectations) and the working alliance (e.g., emotional bond, agreement on set goals) (Pijnenburg, 2010).

Concerning professional factors, it is important to evaluate whether or not intervention programs are practiced as intended when efficacious interventions are implemented in real-world conditions. Also in PMTO development, better understanding of therapist actions that enhance and impede parental behavior change, has led to increased attention for the role of therapists' clinical and teaching skills (Forgatch et al., 2005b). PMTO uses the Fidelity of Implementation Rating System (FIMP; Knutson, Forgatch, & Rains, 2003) to assess the *adherence* to the intervention's core content and *competent* execution using accomplished clinical and teaching practices. Stronger and more competent therapist adherence to PMTO predicts a stronger improvement of parenting practices and child behavior (Forgatch et al., 2005b).

Concerning the client factors, motivational factors such as readiness to change parenting behaviors, attitudes towards the program, self-efficacy perceptions, and problem recognition plays an important role in treatment dropout, retention and behavioral change (Littell & Girvin, 2002; Nock & Photos, 2006). Little is known about the predictive role of parental motivation on foster parenting intervention effectiveness. Considering that foster parents may apply for parent training services not because they personally desire help, or because they are ready for change, but rather because they have been advised or ordered into parenting services by the foster child' supervisors, it is important to gain insight in the impact of their motivational attributions.

In the interaction between the client and the professional, a higher therapeutic alliance is consistently associated with a broad variety of improved therapy outcomes in psychotherapy (Hawley & Weisz, 2005; Martin, Garske, & Davis, 2000) as well as improved parenting practices in parent management training (Kazdin & Whitley, 2006). A Norwegian PMTO study (Hagen et al., 2011), however, found without further explanation that the parent-therapist alliance was negatively associated with parents' effective discipline. Little is known about the influence of working alliance factors in foster care interventions.

1.7. The present study

This study increases our understanding overcomes two important limitations of earlier work: we evaluated the PMTO effectiveness 1) in real-world Dutch foster care practice, 2) included follow up effects of the intervention program. Specifically, we investigated four months follow-up (compared to baseline) effects of PMTO and hypothesized that 1) the established effect of PMTO on reduced parenting stress at posttest would be maintained at follow-up, 2) PMTO, compared to CAU, would result in improved self-reported parenting behavior at follow-up, and 3) PMTO, compared to CAU, would result in stronger reduced parent- and teacher reported child behavior problems at follow-up.

This study additionally explored the predicting role of intervention non-specific factors; 1) prior motivation of foster parents to the intervention (i.e., a client factor), 2) treatment fidelity of the therapist (i.e., professional factor) and 3) the therapeutic relationship with the therapist as perceived by foster parents at PMTO termination (i.e., working alliance). We hypothesized larger effects of PMTO for foster parents who were more motivated beforehand, for therapists with stronger adherence to the PMTO program, and for foster parents who experienced a stronger working alliance with their therapist.

2. Methods

2.1. Procedure

2.1.1. Design

This study reports on baseline, posttest and four months follow-up data collected in a randomized controlled trial of foster families. We targeted foster children with elevated behavioral problems in long-term foster placements. The study received ethical approval from the Ethical Committee of the Research Institute of Child Development and Education of the University of Amsterdam and was registered at the Dutch Trial Register (NTR4282).

2.1.2. Recruitment and participant flow

Formal cooperation agreements were made with the boards of three participating Dutch regional foster care institutions were PMTO was already implemented. Foster children were gradually recruited by a two-stage screening procedure (approached between January 2011–April 2014, synchronized with PMTO capacity, see Fig. 1, flow chart). This screening procedure was aimed at detecting foster families with a high risk for placement breakdown. In a first stage, all the foster parents of children aged between 4 and 12 years old placed in foster care for at least one year, were invited to fill in the Strengths and Difficulties Questionnaire (SDQ, Van Widenfelt, Goedhart, Treffers, & Goodman, 2003). In total, the foster parents of 1014 foster children received the SDQ, and 668 responded (66%). All parents with a Total Difficulties Score above the clinical cut off score of 14 (see Dutch Manual of the SDQ, 2006) were approached to participate in the second stage of the screening procedure. This second stage involved a telephone interview of 5 min on three consecutive days using the Parent Daily Report (PDR, Chamberlain et al., 2006), a measurement used for screening of daily behavior problems (e.g. hit by the child, lying of child, tantrums). In total, the foster parents of 263 children were invited to participate in the second screening stage, and the foster parents of 225 children agreed to

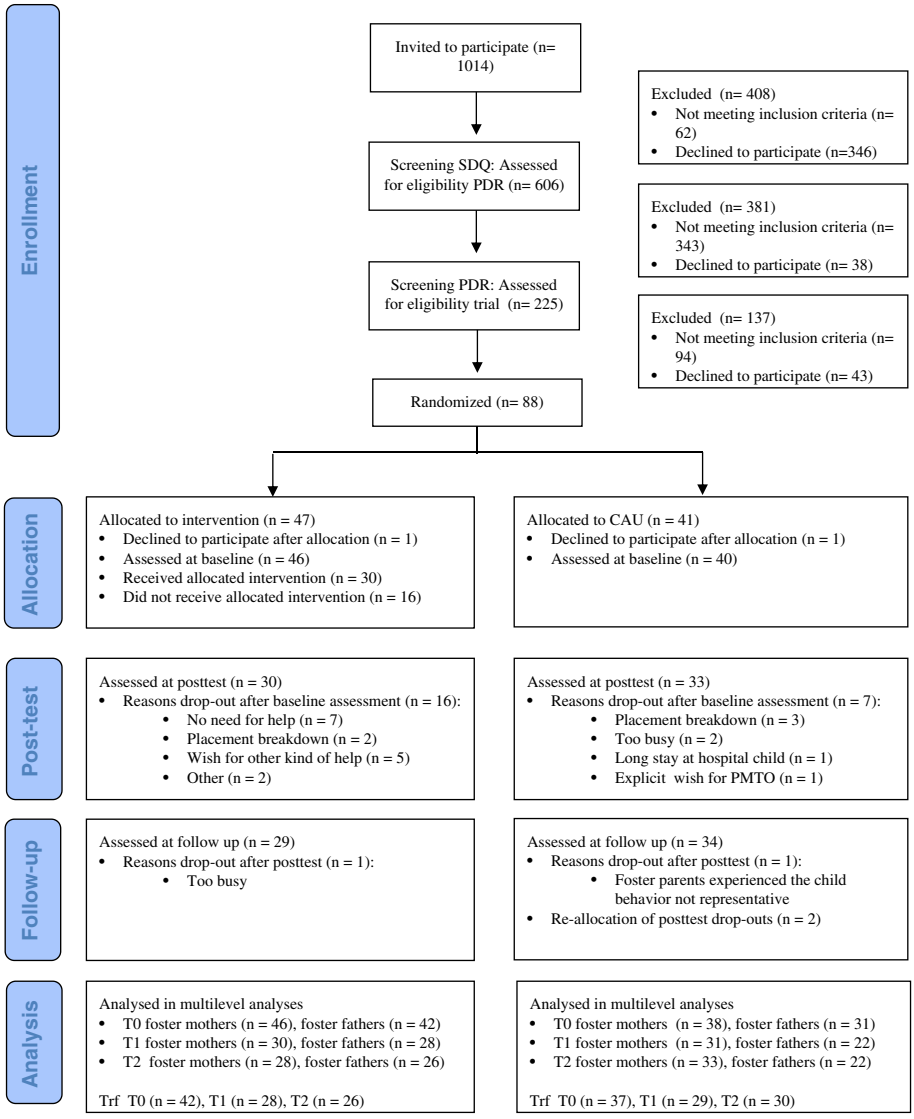

Fig. 1. Flowchart.

participate (86%). Within this group, the foster parents of 131 foster children with a PDR score > 5 were considered at a high risk for placement breakdown (Chamberlain et al., 2006; Hurlburt, Chamberlain, DeGarmo, Zhang, & Price, 2010) and eligible to participate in the RCT. Of this group 88 agreed to take part in the study. Two families dropped out directly after randomization (without baseline-assessment), leaving a sample with one or two foster parents of 86 foster children (66% of eligible families). With a mean time of 10 months after baseline, the parents of 63 foster children completed posttest-assessments (30 of the PMTO condition, 33 of the CAU condition). The parents of 63 foster children completed follow-up assessments (29 of the PMTO condition, 34 of the CAU condition; see flowchart for reasons drop out) with a mean time of four months after posttest-assessment.

The 63 sample size suffices to find medium sized effects at a 5% level of significance (assuming a 0.7 autocorrelation and a 0.5 correlation between parents, power is estimated at 86%).

2.1.3. Randomization

Eligible participants were randomized following a 1:1 allocation ratio to either the intervention group ($n = 46$) or comparison group ($n = 40$) (see Fig. 1, flowchart). Randomization was undertaken by coin tossing by the second author, who was not involved in the enrollment process and blind for personal information of the eligible participants. All staff and counsellors of foster care organizations were blind for the randomization process. The researchers were not involved with the implementation and execution of PMTO.

2.2. Intervention

2.2.1. PMTO

The PMTO program is fully manualized (Forgatch, 1994). Internationally the mean number of individual treatment sessions is about 25 (typically once a week) and depends on the established goals. The central role of the PMTO therapist is to teach and coach parents by role play and modeling exercises in the use of effective parenting strategies. The aim of PMTO is to enhance five central parenting skills: limit setting and discipline, monitoring and supervision, problem solving, positive involvement, and skill encouragement (Patterson, 2005). Limit setting and effective discipline discourage deviant behavior through the appropriate and contingent use of mild sanction, and they provide the child with clear boundaries for acceptable behavior. Monitoring and supervision protects youngsters from involvement in risky activities, and it reflects parental tracking of children's whereabouts. Problem solving helps family members negotiate disagreements, establish house rules, and specify consequences for following or violating rules. Positive involvement reflects how parents demonstrate interest in, attention to,

and care for their child. Skill encouragement promotes competence through positive contingencies. In addition to the core parenting practices, PMTO incorporates the supporting parenting components of identifying and regulating emotions, enhancing communication, giving clear directions, and tracking behavior. The average number of sessions in this study was 21.42 ($SD = 7.90$, depending on the established goals). In 29% of the PMTO treatments only the foster mother was involved, in 71% both foster parents attended.

2.2.2. Care as usual

All foster parents received regular support services from the foster care institution. These typically included an appointment with a foster care supervisor once every three to six weeks. If necessary, foster parents from the comparison group were free to ask for more intensive or specialized support, including every available form of treatment or intervention except PMTO. Foster parents in the intervention group also were also free to ask for other help besides PMTO.

2.3. Measures

2.3.1. Parenting stress

The Dutch revised version of the Parenting Stress Index (PSI-R; Abidin, 1983; translated revised version by De Brock, Vermulst, Gerris, & Abidin, 1992; De Brock, Vermulst, Gerris, Veerman, & Abidin, 2009, NOSI-R) was used to assess parental experiences of stress and competence in the parenting situation. This parent-report inventory consists of 78 items using a four-point scale (1 = strongly agree; 4 = strongly disagree) and is divided into 13 subscales, referring to two main domains of parenting stress experience. The 'parent domain' (*Parent Stress;* e.g. being a foster parent of this child is more though than I thought it would be, it is difficult to understand what my foster child needs from me; because of being a foster parent, I cannot do other things I would like to do) refers to perceived stress regarding family factors and includes seven subscales: sense of competence (seven items), restricted role (six items), attachment (five items), depression (six items), parent health (five items), social isolation (six items) and marital relationship (five items). The 'child domain' (*Child Stress*; my foster child demands more than my other children, I don't feel my foster child appreciate my good intentions, a lot of things are upsetting my foster child) refers to stress evoked by their child's behavior and emotions and contains six subscales: adaptability (seven items), mood (six items), distractibility/hyperactivity (seven items), demandingness (six items), positive reinforcement (five items) and acceptability to the child (seven items). Finally, a *Total Stress* score of parenting stress (*Parent Stress* + *Child Stress*) can be calculated. The psychometric qualities of the Dutch version of the PSI-R are acceptable to good (De Brock et al., 1992, 2009). In the present study, the *Parent*, *Child* and *Total Stress* score were used as outcome measures for parenting stress. In our sample, the Cronbach's alpha varied (from baseline to follow-up and for foster mothers and fathers) from 0.67 and 0.94 for the different subscales. The Cronbach's alpha of the *Parent*, *Child* and the *Total Stress* score varied from 0.93 and 0.98.

2.3.2. Parenting behavior

Parental behavior was assessed with the Parenting Behavior Questionnaire (PBQ, Wissink, Deković, & Meijer, 2006). The PBQ comprises 30 items on a five-point rating scale (1 = never; 5 = very often), divided into six subscales (5 items each), referring to three main dimensions of parental behavior: *warmth* and *responsiveness* (dimension parental support e.g. how often you compliment your child?), *explaining* and *autonomy granting* (dimension authoritative control; e.g. how often you encourage your child to decide something on its own?) and *strictness* and *discipline* (dimension restrictive control e.g. how often you need to set strict rules?). The Cronbach's alpha in our sample varied from 0.59 to 0.83 for the six different subscales (from baseline to follow-up and for foster mothers and fathers).

2.3.3. Child behavior problems

Child behavior problems were measured with the Dutch version of the Child Behavior Checklist (CBCL; Achenbach, 1991) and the Teacher Report Form (TRF, Achenbach, 1991) completed by foster parents and teachers, respectively. The CBCL and TRF consists of 113 items (6–18 years version, also used for 4–5 years old after personal agreement of Achenbach) rated on a three-point Likert scale. *Externalizing Problems* (CBCL: 35 items, TRF: 32 items) and *Internalizing Problems* (CBCL: 26 items, TRF: 27 items), the two broadband syndrome scales, along with the *Total Problems* scale, were used in the present study. The *Total Problems* scale includes all behavioral items on the CBCL/TRF and covers externalizing and internalizing problems, thought problems, attention difficulties, and social problems. The psychometric qualities of the Dutch version of the CBCL and TRF are acceptable to good (Evers, Van Vliet-Mulder, & Groot, 2000). The Cronbach's alpha of the CBCL in our sample varied (from baseline to follow-up and for foster mothers and fathers) for the *Externalizing Problems* from 0.90 to 0.94, for the *Internalizing Problems* scale from 0.78 to 0.90 and for the *Total Problems* scale from 0.85 and 0.98. The Cronbach's alpha of the TRF varied from 0.85 and 0.99.

2.3.4. Treatment fidelity

Candidates in training for PMTO-therapist are required to record their sessions with at least three training families. They receive a minimum of 12 coaching sessions of licensed PMTO supervisors by phone, through videoconferencing, in written format, or in person. Coaching is structured to give the practitioner strong support for improving strategies in terms of content and therapeutic process as well as teaching strategies. Coaching feedback is based on five categories within the Fidelity of Implementation Rating System (FIMP): PMTO knowledge, structuring, teaching practices, process skills and overall quality (Knutson et al., 2003). If candidates show effective incorporation of coaching feedback into their practice and competent application of PMTO techniques, they are advanced to certification candidacy by invitation. They need to submit four video recordings of full treatment sessions from their work with two certification families. These sessions are then viewed by specially trained PMTO-supervisors in the Netherlands as well as Implementation Sciences International, Inc. (ISII) Mentors in the United States. They use the FIMP rating manual to evaluate the PMTO candidates' fidelity to the method on a nine-point scale (1–3 needs work, 4–6 acceptable, 7–9 good work; Knutson et al., 2003). To achieve a passing score, the mean score for each session must be no <6.0, with no scores below 4. PMTO-candidates must complete the certification process (which typically ranges from 18 to 24 months) to be qualified to implement PMTO interventions independent of coaching. Following certification, but also strongly recommended after certification, coaching within the local PMTO community is required at a minimum of once monthly.

2.3.5. Parent motivation

The motivation of foster parents to follow PMTO treatment was measured with the Parent Motivation Inventory (PMI, Nock & Photos, 2006). The PMI is a 25-item self-report measure of parent treatment motivation on a five-point scale (1 = strongly disagree; 5 = strongly agree). Since PMTO concerns caregiver support, we deleted one item referring to child treatment ('I want to be involved in my child's treatment'). Items were generated to correspond with three domains of motivation: *desire* for child change, *readiness* to change parenting behavior and *perceived ability* to change parenting behavior. A *total* motivation score was calculated from the mean of the three subdomains. Psychometric qualities of the PMI are good (Nock & Photos, 2006). The Cronbach's alpha of the PMI in our sample varied from 0.70 to 0.94.

2.3.6. Therapeutic alliance

The short form of the Working Alliance Inventory (WAI-S, Tracey & Kokotovic, 1989; original version Horvath & Greenberg, 1986, 1989)

was used to assess the working alliance between the therapist and foster parents. This parent-report inventory comprises twelve items using a five-point scale (1 = never; 5 = very often) and is divided into the three factors *task*, *goal* and *bond* (each four items) and a total scale representing the *General Alliance Factor*. The psychometric qualities of the WAI-S are good (Tracey & Kokotovic, 1989). The Cronbach's alpha in our sample was good for the subscales *task*, *bond* and *General Alliance Factor* (varied from 0.79 to 0.83). The Cronbach's alpha of the subscale goal was unreliable (0.49 and 0.31 for respectively foster mothers and fathers). We only used the *General Alliance Factor* in the analyses.

2.3.7. Received care

At posttest and follow-up, foster parents of both the PMTO and CAU group were asked which alternative forms of support or treatment they had received and how often (based on Jones, Godwin, Dodge, Bierman, & Coie, 2010).

2.4. Analyses

To check whether the randomization was successful, we first compared the demographic background variables and the PDR scores between the eligible families, who agreed with randomization and participation and who did not, using t-tests and χ^2 tests. Next, we compared demographic background variables and baseline outcome measures between the intervention and comparison condition using t-tests and χ^2 tests. To examine the statistical significance of PMTO intervention effects on child behavior problems, parenting stress and parenting behavior, data were analyzed using multilevel regression analysis in which the measures of one or both (if present) foster parents, as well as the repeated measures of the variables included in the study, were considered as nested within participants. In multilevel analysis, both dependencies between foster parents and dependencies between measurements are taken into account. An additional advantage of multilevel analysis is that all available data can be used, also including data from incomplete cases, without relying on imputation techniques. In total, fifteen models were run, predicting parenting stress (total stress, parent and child related stress), parenting behavior (warmth, responsiveness, explaining, autonomy granting, strictness, discipline) and child behavior problems (total problems, externalizing and internalizing problems, reported by foster parents and teachers). The multilevel (or mixed) regression models included the main effects of condition (PMTO vs CAU) *at baseline*, the main effects of time (posttest vs baseline) and interaction effects with time. To answer our research questions, we were interested in the interaction effects of time and condition. To explicate, all models included an intercept representing the mean score of the foster parents in the CAU group *at baseline* and regression coefficients representing the difference between the PMTO group and CAU group *at baseline*. Next, the models included the change between posttest and baseline for parents in the CAU group (time effect) and the additional change between posttest and baseline for parents in the PMTO group (time × condition effect). Finally, the models included the change between follow-up and baseline for parents in the CAU group (time effect) and the additional change between follow-up and baseline for parents in the PMTO group (time × condition effect). If follow-up results significantly differed from posttest results, we separately reported the changes between posttest and follow-up assessments. Please notice that all regression coefficients represent differences and changes in expected outcome scores as estimated under the multilevel regression models. All outcome variables were standardized. As a result, ESs can be obtained by adding regression coefficients. All analyses were based on the intention to treat principle and thus performed on the total sample ($N = 86$), using statistical package SPSS 22 (IBM Statistics, 2011). We used three way interaction analyses to explore the predicting effects of treatment fidelity, parental motivation, and working alliance on PMTO efficacy. To control for multiple testing effects (i.e., Type 1 errors), all *p*-values were evaluated at levels of significance according to the Benjamini & Hochberg method (Benjamini & Hochberg, 1995).

3. Results

3.1. Preliminary results and comparability

The eligible families who declined to participate in the RCT did not differ significantly from the families who did participate concerning demographic characteristics and their PDR total scores. See Table 1 for the demographic characteristics of our sample. The intervention and comparison group did not differ significantly on attrition rate and demographic characteristics, except for type of family ($\chi^2(1) = 8.44$, $p < 0.001$): There were no single-parent families in the intervention group, versus seven single parent families in the comparison group. No significant baseline differences on the outcome measures as reported by foster parents and teachers were found between the intervention and comparison group (see Table 2), indicating that the randomization procedure was accomplished successfully and the conditions were equal in terms of mean levels and variances on the investigated outcome measures. We found one baseline difference between completers at posttest assessments and drop-outs: foster parents who dropped out had significantly less years of foster experience ($t = 2.28$, $df = 80$, $p = 0.03$).

In the PMTO group, 13 foster families (43%) received alternative parenting support or child treatment in addition to PMTO at posttest and nine foster families (31%) at follow-up. In the CAU group, 21 foster families (63%) reported the received alternative parenting support or child-treatment between baseline and posttest assessment, and nine foster families (26%) between posttest and follow-up assessment. In total, five families in the CAU received some form of protocolled parenting interventions which might abut to the insensitivity of PMTO (e.g. Triple P course, Video Interaction Guidance, Intensive Home Treatment). Seven (24%) of the PMTO families and 10 (31%) CAU families reported important changes in their family structure (e.g. new foster child, divorce) at follow-up. Thirteen (45%) PMTO families and eighteen (55%) CAU families reported important changes in the contact situation with the biological parents (e.g. too difficult to continue, no contact any more after

Table 1
Baseline demographics.

	PMTO (n = 46)		CAU ($n = 40$)		p[c]
	M *n* (%)	*SD*	*M* *n* (%)	*SD*	
Demographics					
Age foster children (years)	7.85	2.36	7.52	2.30	0.51
Sex (boys)	21 (46%)		20 (50%)		0.69
Cultural background (non-Dutch)	18 (39%)		8 (20%)		0.05
Age at entering placement	3.46	3.12	3.60	2.83	0.83
Duration current placement	4.39	2.88	3.92	2.28	0.41
Previous placements (n)	0.96	0.79	1.05	1.13	0.65
Age foster parents (years)[a]	46.55	6.91	48.82	7.79	0.16
Foster parent experience (years)[a]	7.80	6.83	7.23	5.47	0.68
Family type (one-parent)	0 (0)		7 (18%)		<0.01
Placement type (non-Kinship)	38 (83%)		34 (85%)		0.76
Other children in family (n)	1.67	1.84	1.33	1.49	0.34
Educational background foster parents[b]					0.26[d]
Low	2 (4%)		4 (10%)		
Middle	7 (15%)		8 (20%)		
High	37 (80%)		28 (70%)		

[a] No significance differences between mothers and fathers, therefore the mean age is reported.
[b] No significant differences between mothers and fathers, therefore the highest educational level of both foster parents is reported.
[c] Based on χ^2 or *F* statistics (depending on measurement level).
[d] Due to small n, the low and middle educational background were taken together.

Table 2
Means and SD's for parenting stress, parenting behavior and child behavior problems at baseline, posttest and follow-up.

	PMTO						CAU					
	Baseline ($n = 46$)		Posttest ($n = 30$)		Follow-up ($n = 29$)		Baseline ($n = 40$)		Posttest ($n = 33$)		Follow-up ($n = 34$)	
	M (% normal)	*SD*	*M* (% normal)	*SD*	*M* (% normal)	*SD*	*M* (% normal)	*SD*	*M* (% normal)	*SD*	*M* (% normal)	*SD*
Parental stress (PSI-R)												
Total scale	156.45 (27)	36.15	141.98 (46)	36.43	146.75 (45)	40.32	154.48 (30)	40.82	158.3 (36)	40.82	152.45 (34)	44.29
Parent domain	66.91 (63)	18.56	62.07 (76)	16.95	64.71 (64)	20.89	66.00 (64)	20.03	70.79 (53)	22.54	67.83 (55)	25.15
Child domain	88.74 (24)	21.28	79.21 (34)	22.65	81.41 (30)	22.08	87.67 (20)	20.39	83.92 (21)	22.49	83.92 (28)	22.49
Parenting behavior (PBQ)												
Warmth	4.10	0.62	4.10	0.67	4.06	0.72	4.16	0.63	4.14	0.61	4.18	0.64
Responsiveness	3.80	0.66	3.89	0.55	3.86	0.61	3.88	0.57	3.90	0.60	3.90	0.63
Explaining	4.01	0.56	3.98	0.60	4.00	0.57	4.12	0.57	4.09	0.50	4.09	0.62
Autonomy granting	3.18	0.56	3.38	0.59	3.44	0.56	3.28	0.50	3.51	0.52	3.47	0.53
Strictness	3.09	0.55	2.78	0.62	2.84	0.67	3.24	0.57	3.18	0.53	3.20	0.58
Discipline	2.26	0.58	2.12	0.61	2.14	0.61	2.21	0.56	2.24	0.53	2.26	0.52
Child behavior (T score CBCL)												
Total problems	65.64 (24)	8.89	60.63 (42)	10.62	60.75 (43)	10.85	66.25 (23)	7.14	63.00 (28)	9.19	61.64 (36)	9.47
Externalizing problems	66.43 (25)	9.06	62.10 (38)	10.09	61.68 (43)	10.09	67.13 (20)	8.09	64.75 (25)	9.68	63.22 (36)	10.95
Internalizing problems	58.83 (50)	9.36	54.91 (67)	10.35	55.16 (68)	11.24	57.67 (52)	9.96	53.89 (70)	10.92	52.47 (75)	10.60
Child behavior (T score TRF)												
Total problems	59.43 (43)	7.76	58.07 (43)	9.12	60.04 (37)	8.47	61.08 (38)	8.46	62.03 (41)	9.40	59.23 (53)	9.15
Externalizing problems	81.19 (19)	20.55	77.86 (32)	22.11	79.37 (19)	21.71	80.97 (22)	19.65	81.59 (14)	19.60	78.80 (30)	21.63
Internalizing problems	54.98 (64)	10.09	55.32 (57)	9.92	56.48 (48)	9.78	55.22 (73)	10.47	55.69 (59)	10.18	53.73 (77)	9.69

Note. (% normal) represents the percentage of the sample scoring in the normal range, instead of borderline and clinical range.

detention father). The changes in family structure and contact situation did not differ between the PMTO and CAU group.

3.2. Multilevel analyses

No significant differences between foster mothers and foster fathers were observed in PMTO effects at follow-up. We therefore ran the analyses without parent gender as a fixed factor and present the results for both parents together (see Table 3).

3.3. Follow-up analyses

3.3.1. Follow-up effects of PMTO on parenting stress (PSI-R)

The analyses indicated a significant effect of PMTO at posttest, compared to CAU, in reducing overall parenting stress, and parent and child related stress, specifically. However, these effects disappeared at follow-up (ESs were −0.17, −0.21 and −0.12 respectively). This indicates no maintained effect of PMTO on reduced parenting stress over a 4-month follow-up period. Surprisingly, between posttest and follow-up, the total level of parenting stress in the PMTO group significantly increased (ES was 0.27, $SE = 0.12$, $p = 0.03$), while child related parenting stress in the CAU group significantly decreased (ES was −0.19, $SE = 0.09$, $p = 0.04$).

3.3.2. Follow-up effect of PMTO on parenting behavior (PBQ)

There were no effects of PMTO on improved parenting behavior at follow-up (ESs varied between −0.03 for responsiveness and 0.14 for explaining). The effect of PMTO on parental warmth at posttest, disappeared at follow-up, although the change between posttest and follow-up was not significant.

3.3.3. Follow-up effects of PMTO on child behavior (CBCL, TRF)

Compared to CAU, there was no significant effect of PMTO from baseline to follow-up on CBCL total problems, externalizing and internalizing problems as reported by foster parents (ESs were 0.00, −0.12, and 0.12, respectively) and reported by teachers on the TRF (ESs were 0.37, 0.08, and 0.30, respectively). Parent-reported problems (total, externalizing and internalizing) in the PMTO group significantly decreased from baseline to follow-up (ESs were −0.52, −0.50, and −0.34 respectively), but this decrease was not significantly different from the decrease in the CAU group (ESs were −0.52, −0.38, and −0.46 respectively). No significant changes on total problems, externalizing and internalizing problems occurred between posttest and follow-up.

3.4. Exploratory predictor analyses of PMTO effects

3.4.1. Fidelity

We found a predicting effect of fidelity (FIMP: $M = 7.18$, $SD = 0.48$) on various PMTO results at follow-up (see Table 4). The higher the fidelity score of the therapist, the more parenting stress (total, parent and child related parenting stress) increased between baseline and follow-up (ESs were 0.28, 0.23, and 0.28 respectively). We also found that the higher the fidelity score, the more the parenting behaviors responsiveness, explaining and autonomy granting improved between baseline and follow-up (ESs were 0.23, 0.26, and 0.32 respectively).

3.4.2. Parent motivation

There was no predicting effect of parents' motivation ($M = 3.76$, $SD = 0.56$) to follow the PMTO program on the effect of PMTO on child behavior problems, parenting stress and parenting behavior from baseline to follow-up.

Table 3
Follow-up intervention effects for PMTO versus care as usual for Parental Stress (PSI-R), Parenting Behavior (PBQ) and Child Behavior (CBCL).

		PSI-R total			PSI-R parent			PSI-R child		
		β	SE	p	β	SE	p	β	SE	p
	Intercept	0.09	0.14	0.53	0.03	0.13	0.82	0.12	0.14	0.39
Differences at baseline	Condition	0.03	0.19	0.85	−0.08	0.18	0.66	0.08	0.18	0.65
Differences between posttest and baseline	Time	0.07	0.08	0.41	0.17	0.08	0.02	−0.04	0.09	0.69
	Time × condition	−0.44	0.11	0.00	−0.43	0.11	0.00	−0.33	0.13	0.01
Differences between follow up and baseline	Time	−0.11	0.11	0.35	0.07	0.11	0.56	−0.22	0.11	0.05
	Time × condition	−0.17	0.16	0.29	−0.21	0.16	0.21	−0.12	0.16	0.46
		PBQ warmth			PBQ responsiveness			PBQ explaining		
		β	SE	p	β	SE	p	β	SE	p
	Intercept	0.31	0.10	0.00	0.07	0.13	0.57	0.09	0.12	0.46
Differences at baseline	Condition	0.03	0.14	0.80	−0.01	0.17	0.97	−0.14	0.17	0.39
Differences between posttest and baseline	Time	−0.19	0.08	0.02	−0.06	0.12	0.64	−0.13	0.10	0.21
	Time × condition	0.22	0.11	0.05	0.02	0.17	0.91	0.12	0.15	0.41
Differences between follow up and baseline	Time	−0.10	0.08	0.23	0.00	0.10	0.99	−0.13	0.11	0.23
	Time × condition	0.08	0.12	0.50	−0.03	0.14	0.82	0.14	0.15	0.37
		PBQ autonomy			PBQ strictness			PBQ discipline		
		β	SE	p	β	SE	p	β	SE	p
	Intercept	−0.11	0.12	0.35	0.26	0.13	0.05	0.05	0.14	0.73
Differences at baseline	Condition	−0.16	0.17	0.33	−0.23	0.17	0.18	0.04	0.19	0.84
Differences between posttest and baseline	Time	0.38	0.13	0.01	−0.23	0.10	0.04	−0.04	0.13	0.74
	Time × condition	−0.14	0.19	0.45	−0.16	0.15	0.27	−0.17	0.18	0.35
Differences between follow up and baseline	Time	0.29	0.12	0.01	−0.21	0.12	0.08	−0.05	0.11	0.64
	Time × condition	0.05	0.16	0.76	−0.12	0.17	0.49	−0.12	0.16	0.45
		CBCL TOTAL			CBCL externalizing			CBCL internalizing		
		β	SE	p	β	SE	p	β	SE	p
	Intercept	0.35	0.12	0.00	0.26	0.13	0.05	0.16	0.13	0.22
Differences at baseline	Condition	−0.04	0.16	0.79	−0.02	0.17	0.92	0.11	0.18	0.53
Differences between posttest and baseline	Time	−0.33	0.10	0.00	−0.21	0.11	0.07	−0.33	0.11	0.00
	Time × condition	−0.11	0.15	0.44	−0.25	0.16	0.13	−0.02	0.16	0.90
Differences between follow up and baseline	Time	−0.52	0.12	0.00	−0.38	0.13	0.00	−0.46	0.14	0.00
	Time × condition	0.00	0.18	0.98	−0.12	0.19	0.53	0.12	0.20	0.56
		TRF total			TRF externalizing			TRF internalizing		
		β	SE	p	β	SE	p	β	SE	p
	Intercept	0.15	0.15	0.33	0.02	0.16	0.88	0.04	0.17	0.79
Differences at baseline	Condition	−0.22	0.21	0.31	0.03	0.22	0.89	−0.07	0.23	0.77
Differences between posttest and baseline	Time	0.15	0.19	0.42	0.04	0.06	0.45	0.09	0.18	0.61
	Time × condition	−0.19	0.27	0.47	−0.08	0.08	0.32	−0.09	0.26	0.74
Differences between follow up and baseline	Time	−0.17	0.17	0.32	−0.06	0.06	0.37	−0.13	0.17	0.44
	Time × condition	0.37	0.25	0.15	0.08	0.09	0.39	0.30	0.24	0.22

Note. All outcome variables have been standardized so the β can be interpreted as effect sizes with 0.20, 0.50, and 0.80 indicating small, medium, and large effect sizes (Cohen, 1992).

Table 4
Outcomes for predictor analyses for fidelity rating therapist on Parenting Stress (PSI), Parenting Behavior (PBQ) and Child Behavior (CBCL).

		Basline-posttest			Baseline-follow-up		
		β	SE	p[a]	β	SE	p[a]
PSI	Total	0.27	0.07	0.01	0.28	0.09	0.03
	Parent	0.24	0.07	0.01	0.23	0.08	0.03
	Child	0.31	0.08	0.01	0.28	0.09	0.03
PBQ	Warmth	-0.02	0.09	0.86	0.15	0.09	0.17
	Responsiveness	0.13	0.12	0.31	0.23	0.09	0.05
	Explaining	0.25	0.09	0.03	0.26	0.11	0.05
	Authonomy	0.34	0.14	0.04	0.32	0.11	0.03
	Strictness	0.01	0.09	0.95	0.12	0.11	0.36
	Discipline	0.17	0.13	0.31	0.04	0.11	0.69
CBCL	Total	0.22	0.10	0.07	0.21	0.13	0.17
	Externalizing	0.22	0.12	0.13	0.22	0.14	0.17
	Internalizing	0.11	0.09	0.31	0.09	0.12	0.50

CBCL = Child Behavior Checklist. PSI-R = Parent Stress Index-Revised. PBQ = Parent Behavior Questionnaire.
[a] *p* represents the corrected p value using Benjamini and Hochberg (1995) method.

3.4.3. Working alliance

We found no predicting effect of the therapeutic working alliance ($M = 4.56$, $SD = 0.37$) on child behavior problems, parenting stress and parenting behavior changes between baseline and follow-up.

3.4.4. Additional analyses

Additional analyses with completers-only data (following the treatment-on-treated principle; Fidler, Faulkner, & Cumming, 2008), showed no significant differences from the intention to treat analyses presented here. Also analyses with exclusion of the five CAU families who received other forms of evidence based parenting interventions, revealed no significant other results. Reliable and clinical change analyses (Jacobson & Truax, 1991) were also performed, but revealed no differences between the PMTO and CAU group. Details of these additional analyses can be obtained by the first author.

4. Discussion

This randomized controlled trial in a Dutch real-world foster care setting tested the four months follow-up effectiveness of PMTO for foster families with a high risk for placement breakdown. In addition, we examined the role of non-specific factors on PMTO effectiveness. We found no effects of PMTO, relative to care as usual, on reduced parenting

stress, on improved parenting behavior or on reduced child behavior problems (both parent and teacher reported) at four months follow-up. The immediate effects (*blinded for review*) of PMTO on reduced parenting stress disappeared at follow-up. Moreover, the parenting stress in the PMTO group significantly increased between posttest and follow-up. Meanwhile, child related parenting stress in CAU group significantly reduced. Reduced parent-reported child behavior problems in both the PMTO and CAU condition at immediate posttest were sustained until follow-up: children's behavior problems in both conditions were lower at follow-up than at baseline. Additional predictor analyses showed that higher fidelity scores of the therapist predicted a stronger increase of parenting responsiveness, explaining and autonomy granting (but not warmth, strictness and discipline) at follow-up. Higher fidelity scores also predicted less decrease of parenting stress at follow-up. Fidelity did not predict the follow-up effects on child behavior. Also therapeutic alliance and motivation to participate in PMTO, did not predict any follow-up results of PMTO on child and parental outcomes.

Although a relatively intensive and individualized parenting intervention such as PMTO seemed especially fit for improving child and parental functioning in foster families, and already showed its longer term effects in other contexts (e.g. Bullard et al., 2010; Patterson et al., 2010), the effects in our real-world foster care setting were limited and short-lasting. Why did we not find any effects of PMTO on family well-being at follow-up? A first explanation might be the relatively active comparison condition in our study. When tested in representative, real-world clinical conditions, effectiveness studies tend to have smaller effects than efficacy studies with non-active controls (Weisz, Krumholz, Santucci, Thomassin, & Ng, 2015), but still outperform usual care programs (Weisz, Jensen-Doss, & Hawley, 2006). However, the present study failed to show the superiority of PMTO above care as usual. Specifically, the significant reduction of child behavior problems in the CAU group was surprising and might suggest relative high quality of standard care in the Netherlands. Similar results have been found in other North-European countries (see also Hagen et al., 2011 on CBCL outcomes; Sundell et al., 2008). However, a recent meta-analysis on the developmental outcomes of children in foster care showed that in international as well as in Dutch foster samples receiving care as usual, behavior problems do not change over time (Goemans et al., 2015). In our sample, there was a relative high amount of additional care (for parents and/or child, (non) - evidence based) above regular assisting services in *both* conditions. This may explain the reduced child behavior problems in the CAU condition. Sensitivity analyses excluding the families that received some form of parent training comparable to the intensity of PMTO, did not alter our results. A recent Flamish study (Van Holen, Vanderfaeillie, De Mayer, & Gypen, 2015) demonstrated that being part of the control condition was positively associated with both the counseling frequency from the foster care services and with external help seeking behavior (finding and using additional support). To prevent intensification of regular assistance services, foster care agencies in our study were blinded for all families assigned to comparison condition. Still, we cannot exclude the possibility that these foster parents, on their own initiative, used more support services than normal standards, which may (partly) explain the reduced child's problem behavior in the CAU condition.

A second explanation why we found no follow-up effects of PMTO on family wellbeing at follow-up, may be that ongoing support is needed to sustain the effects on parental stress outcomes. PMTO did reduce parental stress immediately after intervention termination (*blinded for review*), but the significant increase of general parental stress between posttest and follow up shows that this effect does not maintain over time. Other reviews on parent training programs for improving parental psychosocial health (Barlow & Coren, 2003; Barlow, Smailagic, Huband, Roloff, & Bennett, 2012), showed that parenting interventions are useful to improve short-term psychosocial wellbeing of parents, but generally are not able to maintain these results at follow-up. Although one might expect stronger effects from an individualized training as PMTO, compared to group-based training, the tendency that reduced stress effects disappear after intervention termination may be similar. There are indeed multiple accumulating risk factors associated with parenting stress and child behavior problems (e.g., age upon entering foster family, number of prior placements, and fostering experience of the foster parents; Maaskant et al., 2014), and untimely placement breakdown (e.g., behavior problems, parenting stress, Non-Dutch background; Van Rooij et al., 2015). Especially in an high risk sample like the one in this study, continued support may be required to ensure that reduced parental stress maintains over time.

Another explanation for why we did not observe significant PMTO effects at follow up may be found in procedural or statistical effects. To ensure we targeted a high risk foster care sample, we conducted a relative intensive screening procedure (with the SDQ and PDR) previous to allocation to the RCT. On the one hand, the subsequent attrition rate limited the validity of this study and increased the chance we failed to detect real differences. On the other hand, participating foster parents became aware of the research focus on child behavior problems. There might have occurred an Hawthorne effect (Franke & Kaul, 1978), in such a way that child behavior (as reported by foster parents) improved due to the parental awareness of being studied or a different understanding of the child's behavior. Another explanation that might have played a role is a regression to the mean effect (RTM; Barnett, van der Pols, & Dobson, 2005). This means that when selecting a non-random sample (in our study a sample with elevated child behavior problems), there always is a posttest effect towards the population mean, irrespective to what happened (or not) between pretest and posttest (Barnett et al., 2005). Though we tried to reduce this RTM effect as much as possible by the use of a stringent study design (RCT) with multiple outcome measures, it cannot be excluded completely.

Notwithstanding the lacking main effects of PMTO on parenting behavior, the role of the non-specific treatment factors in this study are potentially relevant. As hypothesized, we found that higher fidelity ratings predicted positive change in parenting behavior (responsiveness, explaining and autonomy granting). Thus, stronger adherence to the original PMTO protocol and better therapeutic competence benefits parenting improvement. In line with previous PMTO research that shows the cascading effects of improved parenting behavior even at nine year follow-up (Patterson et al., 2010), this implies that further longitudinal effect of PMTO for foster families (e.g. reduced placement breakdown) might be still possible. However, the lacking main effect of PMTO on improved foster parenting behavior requires reticence. The result that higher fidelity ratings also predicted less follow up reduction of parental stress was surprising based on previous research on fidelity effects (Forgatch et al., 2005b). It may be that stronger adherence from the therapist to the PMTO protocol, also means less attention is paid to additional stressors in the PMTO family. As such, focusing only on improving parenting skills might unintentionally attenuate effects on reduced parenting stress. This suggests that improved parenting practices may not (always) be crucial for reducing foster parental stress. We finally hypothesized that more motivated foster parents and foster parents with a stronger working alliance would benefit the most from PMTO, but found no predicting effects confirming these hypotheses. The sample size might have been too small to detect potential effects. It may also be that the less motivated parents already dropped out in the screening phase previous to allocation to the RCT and that we left with, on average, only motivated parents.

Strengths of this study are its stringent RCT design, its real world foster care setting, and a relatively high follow up retention. However, there are also some limitations. First, although the power remains sufficient, 27% of the families dropped-out after the baseline assessment which hampers the external validity. The attrition rate did not significantly differ between the intervention and comparison group. Five families dropped out because their foster child moved out of the family, which underpins the considerable risk for placement disruptions in

this sample. Seven other families however did not participate in PMTO because they felt no need for help, indicating that the presence of child behavior problems not necessarily implies a need for this kind of support. Second, the relative large distribution on child behavior problems and parental stress, points at the heterogeneity of the sample which challenges demonstrating significant intervention effects. Third, limited information was available about the treatment exposure (i.e., dosage) in the CAU group. We therefore were unable to control for the effects of additional care to regular assisting services. Fourth, statistical power might have been too limited to detect possible predictor effects of non-specific treatment factors.

Based on a methodological rigorous study, we conclude that at four months follow-up, PMTO has no additive effect to care as usual on improving child and parenting functioning in foster families with children with high levels of externalizing behavior problems. Although PMTO leads to immediate reduction of parental stress, this effect does not maintain over time. Additionally, the present study demonstrated that fidelity plays an important role in the effectiveness of PMTO. Closer adherence from the therapist to the PMTO protocol helps improve parent management skills, but also attenuates the effect on reduced parental stress. This suggests that improving parenting practices is not sufficient for reducing foster parental stress. Effectively improving foster parents' wellbeing in order to enhance placement stability seems to require support provided by highly qualified professionals, but may also require support that is broader than only improving parenting practices. Implementation of wraparound based services (Fisher, Chamberlain, & Leve, 2009), that offer enhanced foster care assistance that can fulfill the individual needs of the foster family and may be integrated with interventions that target specific problems in different systems (e.g., disruptive behavior, parenting skills), in Dutch long term foster care should be further explored in the future.

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