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Verandering in families die een PMTO behandeling volgen: een herhaalde single case experimentele studie

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Change in Families Participating in Parent Management Training Oregon: a Replicated Single Case Experimental Study

**Verandering in families die een PMTO behandeling volgen: een herhaalde single case
experimentele studie**

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UNIVERSITEIT VAN AMSTERDAM

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Samenvatting

Inleiding: Verschillende Randomized Controlled Trials hebben positieve effecten laten zien van de oudertraining Parent Management Training Oregon (PMTO) op kindgedrag, opvoedstress en opvoedgedrag. We weten echter minder over hoe deze verbeteringen nu precies verlopen. Deze studie richtte zich daarom op het uiteenrafelen van de individuele veranderprocessen bij families die een PMTO behandelingen volgen in verband met de externaliserende probleemgedragingen van hun kind.

Methode: We hebben een herhaalde single case experimentele studie uitgevoerd met 5 families met kinderen tussen de 4 en 12 jaar. Deze families zijn gevolgd met betrekking tot het gedrag van het kind, opvoedgedrag, opvoedstress en motivatie om de geleerde vaardigheden in te zetten. Dit gebeurde op drie manieren: 1) gestandaardiseerde pre, post and follow-up (4 maanden na afloop PMTO) vragenlijsten, 2) vragen gedurende elke bijeenkomst (ouders en therapeut), 3) periodieke dagelijkse metingen (voor de start, gedurende de behandeling en na afloop). Naast de veranderingen binnen het gedrag van het kind, opvoedgedrag, opvoedstress en motivatie om de geleerde vaardigheden in te zetten, hebben we ook gekeken naar hoe veranderingen in het ene aspect over de tijd heen samenhangen met verandering in een van de andere aspecten.

Resultaten: De resultaten laten zien dat elke familie, en moeders, vaders en kinderen in deze families, hun eigen individuele veranderingstrajecten hebben. Direct na afloop van de behandeling worden diverse verbeteringen gevonden. Echter vier maanden later zien we verschillen: soms zetten verbeteringen verder door, soms beklijven ze en soms is er sprake van een verslechtering. Sommige participanten veranderen op meerdere uitkomstmaten en sommige op slechts een paar van de uitkomsten. De significante veranderingsprocessen waren veelal lineair, maar gingen soms ook gepaard met een verslechtering, waarna weer verbetering optrad. Gedrag van het kind, opvoedgedrag, opvoedstress en motivatie om de geleerde vaardigheden in de praktijk te brengen hingen meestal (en voor sommige families uitsluitend) met elkaar samen op een zelfde dag of in een zelfde week.

Discussie: De 5 families rapporteerden allemaal verbeteringen in het gedrag van het kind dan wel de escalaties tussen ouder en kind, het primaire doel van PMTO. De families die een PMTO behandeling volgden lieten geen gelijke verandertrajecten zien. Alle families, en alle familieleden lijken op een eigen wijze en op eigen snelheid te veranderen.

Abstract

Objectives: Several randomized controlled trials showed positive effects of the behavioral parent training Parent Management Training Oregon (PMTI) on child behavior, parenting stress and parenting behavior. However, we do know less about the processes of change. In this study we therefore aimed to unravel individual processes of change in families receiving PMTO.

Study design: We conducted a replicated single case experimental study with 5 families (children aged between 4-12 years). We followed the families regarding their parenting, parenting stress, child behavior and motivation to use the learned parenting strategies in three ways: 1) standardized questionnaires pre, post, and 4 months after ending PMTO, 2) assessments during each sessions, 3) daily assessments (baseline, during treatment and after PMTO ended). In addition to assessing changes in every construct, we assessed how changes in a construct were related to changes in the other constructs over time. Reliable change indices were calculated for individual pre-to post- and follow-up PMTO changes. Individual treatment effect sizes, using Simulation Modeling Analysis, were calculated for both level and slope changes from baseline to the PMTO phase, but also during PMTO, and to post-PMTO. Cross-lagged correlations were calculated as to identify how unique courses of change unfolded over time.

Results: The results showed that each participating family, and mothers, fathers and children within these families, had unique individual trajectories of change. While post-assessment showed improvements during PMTO, the directions of changes between post-test and follow-up varied (sustained, further improvements, or deteriorations). Some participants changed on multiple outcomes, others on just a few. Patterns of change were sometimes linear, but sometimes showed ups and downs. When relationships between parental perceptions of parenting, parenting stress, child behavior and motivation to use the learned parenting strategies were observed, the correlations mostly (and for some families only) indicated moment-to-moment associations, but hardly any associations over time.

Conclusions: The five families all experienced improvements on the primary goal of PMTO: the child's behavior or the escalations between children and the parents. Among the 5 families who participated in PMTO, no general pattern of change could be identified. Each family and each family member seem to encounter own and unique change at its own pace.

Change and Effectiveness of Families Participating in Parent Management Training Oregon: a Replicated Single Case Experimental Study

Introduction

Disruptive behavior problems (e.g., tantrums, aggression, rule-breaking) are among the most prevalent emotional and behavioral problems in childhood and adolescence (Stevens et al., 2018; Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). These problems are disabling for children themselves, in the short term (e.g., less positive interactions with others) and in the long term (e.g., a higher risk for anti-social behavior and more serious delinquent behavior at older age; Forgatch, Patterson, DeGarmo, & Beldavs, 2009; Loeber, Burke, & Pardini, 2009). Moreover, disruptive behaviors of children are distressing to families, might lead to less effective parenting behavior and increases the risk for child maltreatment (Stith et al., 2009). Disruptive behaviors are also costly to society, in terms of used care (e.g., Romeo, Knapp, & Scott, 2006), as well as the societal costs related to the long-term consequences of vandalism and delinquency (Patterson, DeBaryshe, & Ramsey, 1990). All these aspects ask for timely interventions.

Parenting interventions and more specific behavioral parent training (BPT) appear to be an effective strategies to reduce disruptive child behavior (McKart, Priester, Davies, & Azen, 2006; Weisz et al., 2017). BPT aims to reduce child disruptive behavior by altering the often maladaptive parenting and the negative parent-child interactions. Hereby the focus is on training parents to use parenting skills that promote positive behavior in the child and that change the coercive cycles in which children and parents (unintendedly) have been reinforcing each other's negative behavior (Patterson, 2002).

Although, increasing evidence shows the importance of BPTs in reducing child disruptive behavior, still less is known on the processes underlying these changes. In the current study we focus on the effectiveness and processes of change of the BPT Parent Management Training Oregon (PMTO).

Parent Management Training Oregon (PMTO)

Parent Management Training Oregon (PMTO) is based on the Social Interaction Learning Model (SIL), which combines the principles of social learning, social interaction and behavioral perspectives (Forgatch et al., 2004; Reid et al., 2002). The SIL model (Patterson, 2005) states that contextual factors (like parental maladjustment and stress) have indirect effect on the behavior of the child and are mediated by proximal inadequate parenting and coercive processes (negative reciprocity, negative reinforcement, escalation) (Forgatch et al., 2005). The solution of the problem (the disruptive behavior) lies in the social (family) environment (Patterson, 1982). PMTO therefore focuses on the parents of three to sixteen year old children to enhance effective and positive parenting practices, and to diminish coercive practices (mediation therapy).

To reverse the coercive and ineffective parenting interactions into adequate strategies, PMTO enhances five central parenting skills: positive involvement (e.g., loving attention), limit setting and disciplining (e.g., providing clear boundaries), monitoring and supervision (e.g., tracking children's whereabouts), problem solving skills (e.g., negotiating disagreements, establishing rules and related consequences), and skill encouragement (e.g., establishing reasonable goals, praise and incentives). Next to these core parenting skills, PMTO also includes supporting parenting components of identifying and regulating emotions, enhancing communication, giving clear directions, and tracking behavior (Patterson, 2005; Forgatch et al.,

2005). PMTO has been tailored to the needs of individual parents (both in content as well as length): only the skills that need improvement will be included in the therapy (Forgatch et al., 2005). The skills are taught by role play and applying the new skills at home (Manual). PMTO has been developed in the US and has been implemented in several other countries (e.g., Denmark, Iceland, the Netherlands, and Norway). A study on the fidelity of PMTO in Denmark, Iceland, and the Netherlands showed acceptable fidelity scores (Sigmarisdottir et al., 2019).

Several Randomized Controlled Trials (RCTs) showed an overall positive effect of PMTO on improving child behavior, although findings differ between studies (e.g., DeGarmo, Patterson, & Forgatch, 2004; DeGarmo & Forgatch, 2005; Martinez & Forgatch, 2001; Ogden & Hagen, 2008; Patterson et al., 1982; Sigmarisdottir et al., 2013, 2015; Thijssen, Vink, Muris, & De Ruiter, 2017). Nevertheless, these effects are sometimes similar to care as usual (CAU) (e.g., Thijssen et al., 2017). The few studies that focused on parenting stress reported a decrease of stress among the parents in the first six months after starting with PMTO, after which the stress level remained stable (similar to CAU; Thijssen et al., 2017). Different from what could be expected not all studies reported improvements in parenting practices (Sigmarisdóttir et al., 2013; Thijssen et al., 2017 (observations)).

A few previous studies tried to unravel the macro level processes of change in families as a result of the BPT PMTO by using various designs. First, studies assessing mediation of change in child disruptive behaviors through parenting practices found that participation to PMTO predicted positive changes in parenting practices, which in turn indeed mediated positive changes in child disruptive behavior (Bjorknes, Kjobli, Manger, & Jakobsen, 2012; Forgatch, DeGarmo, & Beldavs, 2005; Hagen, Ogden, & Bjornebekk, 2011). Second, a retrospective qualitative interview study about parents perceptions of the change process due to PMTO shed light on how the parent attempted, appraised and applied the learned strategies and how applying the learned parenting practices led to changes in the behavior of the child, which subsequently increased their appraisal and applications of the strategies used (Holtrop, Parra-Cordona, & Forgatch, 2013). This study also revealed the importance of the therapeutic relationship between the parents and the therapist to reach changes and the ways people get motivated to use the learned strategies.

To unravel individual processes of change as a result of the BPT PMTO, the current study features a replicated Single Case Experimental Design study (SCED; Smith, 2012). SCED not only offers an alternative to questions pertaining to changes in average group level-results, but also allows for more detailed analyses of individual improvement and processes of change during the intervention period (Borckardt, Nash, Murphy, Moore, & O'Neil, 2008). We conducted the current study in a setting that already provided PMTO. Therefore, our focus is rather on effectiveness than on efficacy.

Research questions were: (1) Does PMTO affect parenting behavior, parenting stress, and child-behavior directly after ending PMTO and 4 months later? (2) Does PMTO, affect weekly and daily individual trajectories of parenting, parenting stress and child-behavior? (3) How do changes in weekly and daily parenting, parenting stress and child-behavior unfold over time? (4) How are motivation and alliance related to the changes in parenting stress and child behavior over time? We hypothesize that parents who followed PMTO show more positive parenting behavior after introduction of PMTO, experience less parenting stress and report less disruptive behavior problems with their child across and over time.

Methods

Design

Ethical approval for this study was obtained from the Ethical Committee of the Faculty of Social and Behavioral Sciences of the University of Amsterdam (2015-CDE-4628). This study consists of a series of SCED. Within each case, we used 1) a pre-post-follow-up design to assess reliable and clinical changes (question 1), 2) assessments of the used (targeted) parenting practices, parenting stress and child behaviour at the start of each treatment session and general wellbeing and alliance at the end of each respective session, and 3) periodically (every three weeks) a series of daily ratings regarding the used (targeted) parenting practices, parenting stress, child behaviour and motivation (question 2 and 3).

Recruitment and Participants

We recruited PMTO therapists with the help of the Knowledge Center PMTO Netherlands. Inclusion criteria for therapists were: (1) Working in youth care organizations where PMTO is provided, (2) Being a certified PMTO therapist and (3) High scores on all dimensions (PMTO knowledge, structuring, teaching practices, process skills and overall quality) of the Fidelity of Implementation Rating System (FIMP; Knutson et al., 2003) to make sure PMTO is practiced by the therapists as intended.

Families were recruited across families newly enrolled for PMTO with the participating therapists. Via the participating PMTO therapists families were invited to participate in the study, after having ascertained that families were formally referred to PMTO. All types of family possible were welcome to participate in the study. Due to both the intensity of the study in terms of assessment moments and the co-occurrence of a national transitioning process in the youth care system, the response rates of both therapists and families appeared to be rather low.

Four therapists, working in three different youth care organizations, participated in this study. Three of the four participating therapists were female. They all had a very good program integrity ($M = 8.50$, $SD = 0.35$, on a scale ranging from 1 to 9).

Initially, seven families agreed to participate in the study. Two of these families were excluded for further analyses: in one family the discontinuity in the treatment was high after which the treatment ended prematurely, in the other family (a foster family) it became clear during the treatment that due to other developments a more extensive approach was necessary after which parents stopped PMTO and switched to another therapy. Five families finally participated in the study. One of these families did not complete the daily periodical ratings.

Three of the participating families consisted of a father and a mother with two children, one of a father and mother with three children and one family consisted of a mother, stepfather and one child. Two out of five families were highly educated. In three families caregiving was equally shared between the father and mother. In the other two families the mother was the primary caregiver. Among the target children ($M_{age} = 7.20$, $SD = 3.42$) were four boys and one girl.

Intervention

The BPT PMTO is fully manualized (Forgatch, 1994) and sessions are usually held once a week. The therapist teaches and coaches parents by explaining, by role playing and modelling exercises in the use of effective parenting strategies. The selection of targeted parenting practices are tailored to the needs of the respective families. The length of PMTO varies, based on the progress of the particular family.

Procedure

Families were shortly informed about the study by the therapists during their first introductory meeting. If interested, parents received an information letter by a research assistant. They were enrolled in the study by signing an informed consent form.

To tailor the daily ratings to the specific families, we discussed with the families their capacity to periodically, with intervals of three weeks, complete the daily ratings (for 3 to 5 consecutive days, depending on the capacity of the family), and the personal goals they had set with the therapist. Personal goals were subsequently added to the daily diaries. We also asked whom of the parents would complete the daily diaries. Every period of daily assessment, the research assistant first send a reminder that a new period was about to start and then send an individual link to the online diary, which could be answered on computer or smart phone. The research assistant closely monitored the response and reminded the participants when necessary.

Directly after study enrollment the participants completed the first period of the daily diaries and the pre-test questionnaire (either on paper or online). During PMTO, parents answered questions related to their previous week at the beginning of each therapy session, which were recorded by the therapist and thereafter collected by the research assistant. Every three weeks one of the parents also completed the daily diaries for three to five days (length depending on the previous assessment of strength). After the treatment closure parents completed a last period of daily ratings as well as a post-test questionnaire (either on paper or online). A follow-up questionnaire was completed 4 months after PMTO closure. Additionally, after each session the therapist also answered a series of questions related to their evaluation of the parents.

Instruments parents

Pre-post-follow-up.

Parenting. Parenting was assessed with the Abbreviated Scale for Parental Behavior (PBS-S; Van Leeuwen et al., 2013). The PBS-S comprises 25 items divided into 5 subscales of parental behavior: Positive parenting (8 items, “When my son/daughter wants to tell me something, I take the time to listen to him/her), Rule setting (5 items, “I teach my child to keep agreements”), Material Reward (3 items, “I reward my child with money or a gift if he/she has done something that I am happy with”), Punishment (4 items, “If my child does something which is not allowed, I discipline him/her”), Harsh punishment (4 items, “I give my child a spanking if he / she disobeys”) (following the manual one item is excluded at scale level: I give my child a slap if he/she has done something that is not allowed; Van Leeuwen, Vermulst, Kroes, De Meyer, & Veerman, 2018). The items were rated on a five-point rating scale (1 = never; 5 = (almost) always). Previous studies showed sufficient to good reliability (Janssens et al., 2015; Van Leeuwen et al., 2018).

Parenting stress. Parenting stress was measured by the Dutch Parenting Stress Questionnaire (OBVL; Vermulst, Kroes, De Meyer, Nguyen, & Veerman, 2015). The OBVL consists of 34 items using a four-point Likert scale (1 = not true; 4 = very true) and is divided into 5 subscales: Problems within the parent-child relationship (6 items, “I feel satisfied with my child”), Problems with parenting (7 items, “I can calm my child when he/she gets angry”), Depressive moods (7 items, “I enjoy life”), Role restriction (6 items, “Raising my child leaves me with too little personal time”), and Health problems (8 items, “I feel drained”). The reliability of the OBVL in previous studies was sufficient to good (Vermulst et al., 2015).

Disruptive child behavior. Disruptive child behavior was measured with the broadband syndrome externalizing problems scale of the Dutch version of the Child Behavior Checklist (CBCL; Achenbach, 1991). This scale consists of 35 items related to rule-breaking behavior and aggressive behavior and each item was measured on a 3-point Likert scale (0= not at all; 2 = clearly/ often, “breaks rules). The psychometric qualities of the Dutch version of the CBCL are acceptable to good (Evers, Van Vliet-Mulder, & Groot, 2000).

Session assessments.

Parenting. At the start of each session the therapist asked the parents how well the parents fared with the parenting skills they had to practice at home. Measurement of parenting skills only started after the therapist instructed the parents on the specific parenting skill and instructed them to use the parenting skill(s) with their child. Depending on the skills they had to practice therapists recorded their responses on one or more of the following parenting skills: positive involvement, limit setting and disciplining, monitoring and supervision, problem solving skills, skill encouragement, identifying and regulating emotions, enhancing communication, giving clear directions, and tracking behavior (1= fared very low; 9 = fared very high).

Wellbeing and parental stress. At the start of each session the parents filled out the Outcome Rating Scale (ORS; Miller, Duncan, Brown, Sparks, & Claud, 2003). The ORS measures how respondents assess their wellbeing looking back at the past week with four items: individually (personal wellbeing), interpersonally (family, close relationships), socially (work, school, friendships) and overall (general sense of wellbeing). The four items are assessed by using a visual analogue scale of 10 cm (low at the left, high at the right side), where they have to place a mark for each item separately. These marks were subsequently measured with a ruler and recalculated into a grade from 0-10 (10 indicating a very good wellbeing). The ORS showed acceptable to good reliability in previous studies (Campbell & Hemsley, 2009; Miller et al., 2003). In the current study only the overall item (general sense of wellbeing) was used. Next, the therapist asked a single items question to the parents regarding their parental stress in the past week (1= very low; 9 = very high).

Child behavior. Child behavior was measured by a single itemed questions asked by the therapist to the parents on how satisfied parents were with the behavior of the child in the past week (1= very dissatisfied with behavior; 9 = very satisfied with behavior).

Alliance. At the end of the session the parents filled out the Session Rating Scale (SRS; Duncan et al., 2003). The SRS measures the parents views on the working alliance between themselves and the therapists and consists of four items: relation (I did not/felt heard, understood and respected), goals and topics (we did not/worked on or talk about what I wanted), approach (the therapist’s approach is not/is a good fit for me), overall (there was something missing in the session today/overall today’s session was right for me). A similar scale and procedure to calculate the scores was used as with the ORS, ranging in answers from 0-10 per item.

Daily ratings.

Parental stress. Parental stress was assessed by asking the parents to report their parental stress on the current day (1= very low; 9 = very high).

Parent-child interaction. Parents kept track of the frequency of escalations between child and parent.

Child behavior. Child behavior was assessed with single-item questions regarding the satisfaction with the child behavior (1= very dissatisfied with behavior; 9 = very satisfied with behavior), and how well the children fared on 3 to 4 individualized treatment goals as set by the

parents in consultation with the therapist (1 = fared very bad; 9 = fared very well) on the current day.

Motivation. Parents were asked to rate their motivation to use the learned parenting practices (1= not at all; 9 = very motivated).

Instruments Therapists

Session assessment.

Therapists view on parents parenting. The therapists answered each session several single itemed questions for each parent separately regarding the use of the learned parenting strategies (1 = very bad; 9 = very good). The ratings regarding the separate skills were completed only after start of practicing the respective parenting strategy with the child.

Parental stress. The therapist indicated their view on the parental stress of the participating parents on a single item (1 = not at all; 9= very).

Motivation. Therapist rated their view on the motivational level of the parents on a single item (1= not at all; 9 = very motivated).

Statistical Analyses

Does PMTO affect parenting behavior, parenting stress and child-behavior directly after ending PMTO and 4 months later? First, descriptive statistics of parental reports of parental behavior, parenting stress, and disruptive child behavior (pre, post and follow-up) were computed to quantify clinical change. Next, we calculated individual changes in parental behaviour, parenting stress and disruptive child behaviour from pre-to post-to follow-up, using the Reliable Change Index (RCI; Jacobsen & Truax, 1991; Van Leeuwen et al., 2018; Vermulst et al., 2015). By combining the RCI with the assessment of clinical significant change (Jacobson & Truax, 1991), we also examined whether parents indicated recovery (a reliable and clinical positive change) or deterioration (if they had moved reliably from a nonclinical to a clinical outcome).

After starting PMTO, do weekly and daily parenting, parenting stress and child-behavior improve? We used Simulation Modeling Analysis, a bootstrap program for time-series data (SMA, Borckardt et al., 2008; Borckardt, 2006). SMA was specifically developed for interventions with relatively short baselines. SMA has greater statistical power than commonly known conventional methods such as multilevel methods or hierarchical linear modelling (Borckardt et al., 2008; Smith, 2012). With SMA the statistical significance of the change between baseline and treatment phases, changes between treatment phases of PMTO, and between treatment phases and post-treatment phase were analyzed, the so-called phase level effects, while accounting for autocorrelation of the daily scores. After controlling for autocorrelation, this yields Pearson r effect sizes. Treatment phases were defined according to the parenting skills that was focused on in each respective treatment phase. We distinguished treatment phases based on the introduction of new skills.

Slope changes for baseline and treatment phases, during treatment phases and treatment phases to post-treatment phase were also calculated as to detect whether the treatment outcome develops in the expected direction (e.g., a gradual decrease in of the parenting stress trend during PMTO). With SMA 5 different types of slopes can be calculated. For this study we report on two different slopes. The first slope increases (or decreases, this depends on the operationalization of each respective variable) linearly from baseline to treatment (daily ratings), from the first

treatment phase to the other treatment phases or from the second treatment phase to the third treatment phase (daily and session ratings) or from the treatment phase to the post-treatment phase (daily ratings). The second slope increases (or decreases, depending on the operationalization) during baseline, then suddenly drops, to increase again during treatment (Borckardt, 2006). Level- and slope effects were calculated for parental periodical daily and or weekly recordings of parenting, child disruptive behavior, number of escalations between parent and child, individualized treatment goals, parenting stress, sense of wellbeing of parent, and motivation (research question 2). In this paper we included the parenting skills that had 10 or more assessment points, with a maximum of three skills per participant. Alliance could not be included because of the too small variance. We will only report on the views of the therapist on parenting skills, parental stress and motivation of the parents when they deviate from the self-report of the participants.

How do changes in weekly and daily parenting, parenting stress and child-behavior unfold over time? Cross-lagged correlations between time-series data streams were also calculated by means of SMA to examine how weekly and the periodically assessed daily processes of parenting, parenting stress and child disruptive behaviour unfolded over time. Significant positive lags indicate that a specific measure (e.g., a decrease in parenting stress) is followed by a change in another measure (e.g., an increase of positive child behavior) after one day or one week (lag 1) or two days or two weeks (lag 2), whereas significant negative lags (-1, -2) indicate that the direction of the effect is reversed (e.g., earlier decrease of child disruptive behaviour precedes a decrease of later parenting stress). Lag 0 correlations indicate moment-to moment associations between the respective time-series of the weekly or periodic daily assessments.

How are motivation and alliance related to the changes in parenting stress and child behavior over time? Overtime associations between the periodically assessed daily motivation on the one hand and parenting stress and child behavior on the other, were calculated using SMA yielding cross-lagged effects. Alliance was not included in the analyses because of a very low variance. Significant positive lags (0, 1, 2) indicate that an improvement in motivation precede an improvement in parenting stress and child behavior on the same occasion, one day or two days later, whereas significant negative lags show that the process of change moves in the reversed direction, that is, an earlier change in parenting stress or child behavior precedes a change in motivation.

Results

Family 1

Family one is a two-parent family with a son and a daughter. Parents received lower secondary vocational education. Father works fulltime and mother has a part-time job. They perceive to equally contribute to caregiving and parenting. Grandmother is also involved in the caregiving. Parents were assigned to PMTO because of their twelve-year old daughter, who started vocational education. Parents perceived their daughter to not have trust, behaves fearless, and to have difficulties with cause and effect associations. Their daughter is very lovingly caring for animals. Parents both followed the PMTO trajectory and mother completed the periodic daily recordings.

Parents discussed with the therapists the following goals to work on: 1. That their daughter will discuss with her parents her whereabouts (monitoring), 2. That as a family they will obtain rest within their family, 3. That family members will interact positively with each other and 4. That their daughter will tidy her room. Parents received PMTO for 27 sessions over a 12-month period. Within PMTO three phases were discerned: the first phase (1) consisted of 4 sessions, in which the parents practiced with the therapist and at home how to provide clear instructions and encouragement skills. The second phase (2) consisted of 9 sessions in which parents worked with emotion regulation, positive involvement and monitoring behaviors. In the third and last phase (3) that consisted of 14 sessions, parents returned to giving instructions and encouragement skills (Table 1).

Pre-post-follow-up assessments. Parents perceived serious problems in the realm of positive parenting at pre-assessment (see Table 2). After closure of PMTO parents reported a significant and clinical amelioration in positive parenting (to a normal level), which remained unchanged at follow-up assessment. Mild problems were encountered with regard to punishment and harsh punishment, which changed significantly to no problems post-PMTO. However, follow-up assessment showed a return to mild problems with punishment according to parental perceptions. Parents perceived clinical parenting stress, on the overall level and within all domains of parenting stress. Total parenting stress, problems in parent-child interaction and with parenting significantly improved from pre-to post-PMTO (but remained within the clinical range), and significantly decreased at follow-up. Parents reported clinical disruptive child behavioral problems, which significantly and clinically changed to nonclinical problems post-PMTO. A return to clinical levels occurred however at follow-up assessment.

Session assessments. At the start of each session, parents completed weekly assessments about their perceptions of giving instructions and encouraging skills, child behavior, parenting stress and individual wellbeing (ORS) (see Table 3 and see Figure 1 for an impression of the session to session scores). Mother significantly experienced an ongoing increase in giving instructions to her daughter. While mother reported this increase emerged in the third phase of PMTO when compared to the second phase of PMTO, the therapist reported an earlier start of this increase: an ongoing increase during phases 1., 2. & 3, with a drop at the start of phase 2, followed by an increase during 2 and 3 (Table 4). Fathers perception of how he fared with giving instructions to his daughter was similar to that of mother, as we observed an ongoing increase in the second and third treatment phase. This happened however after a perceived drop in giving instructions, but thereafter father perceived his skills to improve again. The therapist did not report a change. Parents reported an ongoing progress in encouragement skills to happen in the last phase of PMTO. For mother this was a gradual improvement, for father skills worsened during the second phase and thereafter improvement started to occur. The therapist reported an

ongoing increase in the second treatment phase, followed by a drop and an increased and third treatment phase regarding encouragement by mother. The therapist reported no changes for father. However, the therapist reported an ongoing reduction of parenting stress of father during phase 2, followed by a relapse and again a further decrease of parenting stress in phase 3. The therapist also observed a drop in the motivation of father to a low-to moderate level of motivation after phase 1 (aggregate level).

For father, his encouragement skills were significantly related to an improvement in his daughter's behavior on a week-by-week basis (Table 5). According to mother, her daughters behavior was improving throughout PMTO: from the first treatment phase to phases 2 and 3 the behavior improved, as well as from phase 2 to phase 3: her daughter continued to show more positive behaviors with the largest effect obtained in the last phase of the treatment. The same was true for paternal reports of week-by-week perceptions of his daughters behavior. Maternal perceptions of parenting stress revealed a still ongoing decrease in the last treatment phase when compared to the second treatment phase. Father experienced the same process to occur. Cross-lagged correlations indicate that a reduction in parenting stress for mother and father was related to an amelioration in their daughter's behavior on a week-by-week basis. Fathers' lower levels of parenting stress were significantly related to an improvement in the parenting skills giving instructions and encouragement. Mother and father reported a week-by week increase of general wellbeing and this effect was obtained in the last treatment phase.

Daily assessments. Before the start of PMTO mother started to complete online diaries (Table 6). During PMTO, maternal periodic perceptions of her daughter's behavior reflect a significant ongoing increase during the first and second PMTO phases, marked by a drop in behaviors at the start of the second treatment phase. During this period, the number of escalations decreased also. From the second to the third treatment phase, mothers perceptions of the child's disruptive behaviors first improved, followed by a drop and a further improvement. During PMTO, mother perceives an ongoing significant trend in the ability to monitor her daughters whereabouts, but this was nonlinear process and goes with ups and downs, as marked by a drop from the first to the second and from the second to the third PMTO phase. An increasing trend in keeping rest within the family is reached in phase three, after having dropped first. Mother reports that her daughter tidies her room now, booking progress in the first treatment phases: from treatment phase one to the second treatment phase, the tidying up significantly improves and shows an ongoing trend throughout the second treatment phase. During the first treatment phases mother reports her level of parenting stress to elevate, but post PMTO, parenting stress has significantly been decreased when compared to the entire treatment period. Finally, recordings of maternal motivation show a significant increasing trend, after an initial drop, during the third treatment phase.

During PMTO, the number of escalations between mother and daughter appears to be associated with elevated levels of parenting stress: as soon as parenting stress increases, the number of escalations increases after two days (Table 7). The number of escalations and parenting stress are also momentarily related to each other. Less parenting stress precedes however better keeping rest within the family and positive family interactions. It seems that maternal motivation is preceded by more positive behaviors, monitoring, rest in the family, and positive family interactions. Maternal motivation is also momentarily related to these treatment goals, to tidying up and to positive child behavior. Specific treatment goals such as monitoring, rest and positive family interaction and tidying up, as well as child behavior also precede

maternal motivation. Lastly, higher levels of parenting stress also precede maternal motivational behaviors two days in advance.

Family 2

Family 2 consists of mother, father, two sons and a daughter. Mother and father have a university degree. Father has a 30 hour job, mother is without work. Each contribute equally to the caregiving of their children. Grandpa and grandma (mothers line) are involved with caregiving as well. Mother attends PMTO with regard to their nine-year old son, who follows primary school. Father is not involved in PMTO. Referral to PMTO is on the basis of parental worry about low frustration tolerance, aggression regulation, attention problems, and school performance. Parents feel satisfied about their sons 'enthusiasm and social capabilities.

Mother wishes to obtain three goals: 1. Child follows instruction directly, 2. Child behaves calmly when things are not going according to his plan, 3. Child independently conducts tasks (like morning routine).

The PMTO trajectory took 35 sessions over a 16-months period. During PMTO three phases were discerned in which the following techniques were focused on: 1. Giving instructions, encouragement skills, and emotion regulation (12 sessions); 2. Setting limits, enhancing communication skills of mother and tracking behaviors (8 sessions), and 3. Problem solving skills (13 sessions).

Pre-post-follow-up assessments. Mother reported parental behavior at the start of PMTO within the normal range. On the rule-setting domain mother reported a significant and clinical change to mild problems at post-test, which again improved to the normal range at follow-up. Mother also reported a significant deterioration regarding material reward and punishment from pre-to-post PMTO, but scores remained within the normal range. Mother reported to perceive clinical levels of parenting stress, on the overall level and within all domains of parenting stress. From pre-to post-PMTO problems with parenting significantly and clinically changed from clinical to borderline and health problem from clinical to normal. Total parenting stress and depressive mood significantly improved, but stayed within the clinical range. Mother reported significant and clinical changes from post-to-follow-up on total parenting stress (to the normal range), problems in the parent-child relationship to borderline range and problems with parenting (to the normal range). She also reported a significant further improvement regarding health problems and a clinical (but nonsignificant) improvement to borderline on depressive moods from post-to-follow-up. Mother reported disruptive child behavioral problems in the clinical range, which significantly but not clinically improved post-PMTO. At follow-up, disruptive behaviors significantly and clinically changed to the borderline range.

Session assessments. Mother's reported instruction skills started to show an increasing trend in phase 3, after a drop at the start of phase 3. In the first phase of PMTO mother reported higher levels of encouragement skills and compared to the first treatment phase, her encouragement skills significantly diminished during phase two and phase 3. The therapist observed no changes in instruction skills and an ongoing increase in encouragement skills of mother during phase 2 and 3, with a drop at the start of phase 3, followed by a further increase. The therapist also observed an ongoing increase in mother's emotion regulation during all phases, with a drop at the start of phase 2, followed by a further increase. The therapist also reported an ongoing decrease in parenting stress during phase 2, followed by a relapse at the start of phase 3, but after this relapse a further reduction of parenting stress occurred.

During the first treatment phase, mother reported a significant increasing trend in general wellbeing, after a drop at the start of the third phase. Although child disruptive behavior did not significantly change on a week-by-week basis, cross-lagged correlations showed week-by-week associations with giving instructions, encouragement skills and emotion regulation. More positive child behaviors also preceded more positive emotion regulation one week ahead. Also on a week-by-week basis, more positive child behaviors were associated with lower levels of parenting stress as were giving instructions, encouragement skills, and emotion regulation. Lower levels of parenting stress preceded ameliorated child behavior one week later. Higher levels of emotion regulation preceded lower levels of parenting stress one week later.

Daily assessments. The number of escalations between mother and child significantly decreased from baseline to PMTO intervention from the first treatment to the second treatment phase and from the second to the third phase, with an ongoing decreasing trend throughout most PMTO phases and the post-PMTO phase. From treatment to post-treatment, mother reported an ongoing upward trend in her child's behavior when things went not according to his plan. From the second treatment phase to the third treatment phase, mother reported improvements in the child's independent conduct of tasks at the aggregate level, as well as ongoing upward trend in phase 2 and 3, after a sharp decline at the first period of phase 3.

Mothers parenting stress had a significant downward trend from baseline to all PMTO treatment phases. From the first to the second treatment phase, parenting stress significantly changed on the aggregate level. The downward trend during all PMTO phases was further characterized by a significant increase in stress in the third treatment phase, thereafter, levels of stress decreased. This downward trend was maintained in the follow-up period. Maternal motivation to practice the learned techniques increased significantly from treatment phase 2 to phase 3, but after a sharp decline in the first period of phase 3. Although according to maternal periodic reports child behaviors did not significantly change, on day-to-day basis, the more positive her son's behavior, the less parenting stress. The number of escalations between mother and son were associated with higher levels of parenting stress on the same day, but number of escalations also preceded mothers parenting stress the subsequent day. All PMTO goals were associated on a day-to-day basis with less parenting stress. Maternal motivation to practice the learned techniques was associated with less disruptive behaviors of her son, with less escalations between mother and child and with less parenting stress on the same day.

Family 3

Family 3 consisted of two-parents of a son and a daughter. Father has another daughter from an earlier relationship. Parents received both higher education, have fulltime jobs and contribute equally to the care giving. They were referred for PMTO for their seven-year old son, who is in primary school and earlier diagnosed with an autism spectrum disorder. Parents are worried about their son's development and about how he is faring in life. Despite his autism, their son has numerous social contacts, about which parents feel very satisfied. Parents both followed the PMTO trajectory and father completed the periodic daily recordings.

The PMTO trajectory took 22 sessions over a 8-months period. Father and mother ascertained the following goals with the therapist: 1. To make it pleasant at home, 2. Doing nice things together, 3. Smooth routines and 4. More freedom for parents and children. The first PMTO phase consisted of 4 sessions and consisted of PMTO meetings, but without practicing skills at home. The second phase consisted of 11 sessions, in which parents practiced with giving

instructions and skill encouragement, followed by the third PMTO phase consisting of 7 sessions in which parents learned how to set limits and how to regulate their emotions.

Pre-post-follow-up assessments. Initially parents report no problems within the domain of parenting (with the exception of mild problems with rule setting). However, both positive parenting and rule setting changed significantly and clinically to serious problems at post-PMTO. Nevertheless, from post-PMTO to follow-up assessment, a significant and clinical change occurred to normal positive parenting and rule setting. Some significant changes were observed regarding material rewards and punishment, but scores remained within the normal range. Parents indicated clinical levels of total parenting stress and in the respective parenting stress domains. Parents showed significant improvements from pre-to-post and deterioration from post-to-follow-up on total stress, but scores remained in the clinical range. Problems in the parent-child relationship and problems with parenting significantly and clinically changed to borderline range at post-PMTO, and remained stable at follow-up. Problems in the parent-child relationship and problems in parenting significantly improved to borderline at post-PMTO and remained at the borderline level at follow-up. No changes were reported regarding feelings of role restriction, which remained at the clinical level. Depressive mood clinically changed to borderline between post-and follow-up. Health-related parenting stress significantly changed to normal problems post-PMTO. Nevertheless, at follow-up the health related stress was back at clinical level again. Child disruptive behaviors were reported to fall in the clinical range pre-PMTO, which significantly changed to nonclinical levels at post-PMTO. However, at follow-up behaviors worsened clinically to subclinical levels.

Session assessments. The therapist reported an ongoing decrease in encouragement during phase 2 and 3. Based on the reports of fathers and mothers during the sessions no changes in parenting were found. Mother and father reports of child behavior at the start of each session indicated a significant upward trend throughout all phases. This upward trend was however interrupted by a decrease at the end of phase one, but thereafter, perceptions of positive child behavior increased. Parent reports showed that parenting stress was significantly reduced for father, but not for mother, marked by a sharp decrease from the first to the second treatment phase, followed by a significant ongoing reduction. The therapist also observed a reduction of parenting stress for father between phase 1 and 2 at the aggregate level and an ongoing downhill trend during these phases. However, the therapist also observed an ongoing increase in parenting stress of mother during phase 2, followed by a deep drop at the start of phase 3 and a further increase. Father and mother reported a significant increase in general wellbeing from the first to the second treatment phase on the aggregate level.

Cross-lagged associations were found on a week-by-week basis for maternal report of more positive child behaviors and lower levels of parenting stress and encouragement skills and lower levels of parenting stress. Mothers' report of more parenting stress also preceded more maternal encouragement one week before. Maternal encouragement also preceded less positive child behaviors two weeks in advance. Paternal encouragement was associated on a week-by-week basis with less positive child behaviors, while more positive child behaviors preceded paternal encouragement 2 weeks ahead. Paternal report of more positive child behaviors were associated with less parenting stress on a week-by-week basis, more positive child behaviors also preceded less parenting stress of father one week and two weeks later. Higher levels of paternal stress one week ahead preceded lower levels of giving instructions.

Daily assessments. No daily baseline data was collected for this family, as this family immediately started with therapy. Fathers periodic daily reports on his sons behavior showed an

uphill trend during PMTO, followed by a drop post-PMTO, and again an increase in reported child behavior during this post-PMTO period. The number of escalations between parent and son showed a downhill trend when parents started to practice the learned skills at home, marked by an increase at the start of phase 3, after which the downhill trend continued. The aggregated level of escalations Post-PMTO however, was significantly higher than during PMTO. Parents obtained success in working on all their individualized treatment goals during PMTO. However, this uphill trend was followed by a drop post-PMTO, after which an uphill trend was observed. Nevertheless, the aggregated level of doing nice to each other was still significantly lower post-PMTO than during PMTO. For smooth routines an uphill trend was observed during the first two phases of PMTO. Levels of parenting stress showed a downhill trend during phase 1 and 2, which was followed by a marked increase post PMTO, after which the downhill trend continued. Parental motivation to practice the learned techniques at home worsened post-PMTO when compared to the duration of PMTO, on the aggregate level, accompanied with a decreasing trend.

Day-to-day associations indicated that the better the child's behavior was perceived, the less parenting stress. Higher levels of parenting stress one day before preceded however less positively perceived child behavior. A positive day-to-day association occurred for higher frequency of child-parent escalations and more parenting stress as reported by father. Significant day-to-day associations appeared for satisfaction with individualized family goals and lower levels of parenting stress. The same phenomenon occurred for the motivation to practice the learned PMTO techniques at home: this was associated with more positive perceptions of child behavior, less escalations and more satisfaction with individualized family goals, but also with lower levels of parenting stress.

Family 4

Family 4 consists of mother, stepfather and mother's 4 year-old son. The mother received vocational education and has a 24-hour job. Grandfather, grandmother and a nanny are involved with caring for the child. Mother is worried about her sons temper tantrums. She likes his rich fantasy, his caring and his social skills. Mother follows PMTO individually, for 18 sessions during a 7-months period. Mother wanted to work on the following goals: 1. Child follows instructions of mother, 2. Improvement of contact between mother and child and 3. Less conflict between mother and child because the child is able to accept his mother's limit setting behaviors. PMTO consisted of three treatment phases: 1. Giving instructions, skill encouragement and tracking behaviors, 2. Limit setting, and 3. Regulating emotions.

Pre-post-follow-up assessments. Mother reported mild problems with regard to positive parenting and to punishment before the start of PMTO. Positive parenting significantly and clinically changed to normal parenting behaviors post-PMTO, which remained so at follow-up. Punishment however changed clinically to serious problems post-PMTO, to return to mild problems at follow-up assessment. Mother indicated that she felt clinically stressed both on total parenting stress as well as on all domains of parenting stress. This significantly and clinically changed with regard to role restrictions only, via borderline problems post-PMTO, to normal at follow-up. Although some significant improvements were reported regarding problems parent-child relationships, problems with parenting and total parenting stress, scores remained within the clinical range. Child disruptive behaviors were reported in the clinical range and this remained unchanged post-PMTO and at follow-up.

Session assessments. A significant upward trend in weekly mother's reports of parental skill encouragement was found during the second and third treatment phases of PMTO, but after a rise during the second treatment period, a decline occurred, followed by an increase of skill encouragement in the third phase. Mother experienced an ongoing increase in positive child behaviors in the second and third treatment phase. Mother felt an increase in general wellbeing on the aggregated level from the first to the second and third treatment phase, with an upward trend in all treatment phases. The therapist also observed an ongoing increase in parenting stress during phase 2, followed by a deep drop at the start of phase 3 to be followed with a further increase. On a week-by-week basis skills encouragement was associated with more positive child behavior. No other week-by-week associations were found.

Daily assessments. Mothers periodic daily reports revealed a significant decrease in the number of escalations between her and her son from baseline to PMTO treatment phases on the aggregate level. Mother obtained success with the goals Improvement of contact between mother and child and Less conflict between mother and child, because child accepts the set limits by his mother from baseline to PMTO treatment phases, with ongoing upward trend. Parenting stress significantly decreased from baseline to PMTO treatment phases, on the aggregate and on the slope level. Cross-lagged correlations were found for more positive child behaviors and less parenting stress on the same day. Less escalations between mother and child was related to less parenting stress on the same day, and less parenting stress the day before preceded less escalations the subsequent day. Improvement of maternal contact with her son was associated with less parenting stress on the same day, while improvement of contact preceded less stress on the subsequent day. The same directions of effect were found between less conflicts as a result of acceptance by the child of the limits set by mother and less stress on the same and on the subsequent day. Maternal motivation to practice the learned techniques was associated with a lower number of escalations between mother and child on the same day. Finally, improvement of child following instructions and maternal contact preceded maternal motivation to practice the learned techniques on the subsequent day.

Family 5

Family 5 consists of a two-parent family, with a son and a daughter. Parents received vocational education. Mother has a 24-hour job and father has a 50-hour job. Mother perceives herself as the main caregiver. Parents receive PMTO because of their four-year old son: parents are worried about his future. They perceive their son as caring. No specific goals were reported.

Parents followed PMTO for 14 sessions during a 5-months period. PMTO consisted of three phases: giving instructions and skill encouragement (3 sessions), regulation of emotions (6 sessions), and limit setting and positive involvement (4 sessions). The last session was a booster session.

Pre-post-follow-up assessments. Parents did not complete follow-up assessments. Parents reported no problems regarding their parental behavior, which remained unchanged at post-test. Parents encountered some problems in the realm of parenting stress. Parents experienced subclinical levels of parenting stress, which changed significantly to normal levels of parenting stress post-PMTO. They reported to experience borderline problems in parenting and clinical problems in role restriction before start of PMTO. Problems with parenting changed to nonclinical problems post-PMTO, whereas role restriction problems significantly changed to borderline problems post-PMTO. Parents reported their child's disruptive behaviors to fall in the clinical range, which significantly and clinically changed to nonclinical behaviors post-PMTO.

Session assessments. Mother perceived her child's behavior as increasing positive throughout PMTO. She perceived less parenting stress throughout PMTO. On the aggregate level she had increased wellbeing from the first treatment phase to the second and third PMTO phases, with upward trends in the second and third phase of PMTO. Father noted an ongoing increase of giving instructions throughout PMTO phases, but marked by a drop at the start of the second treatment phase. The therapist did not observe changes in fathers' instruction giving. Father also experienced an increase in skill encouragement on the aggregate level from the first treatment phase to the second and third treatment phase. A significant ongoing upward trend was found for skill encouragement by father in the second and third PMTO phases. The therapist additionally observed an improvement of fathers' emotion regulation from phase 1 to the other phases (aggregate level) and an ongoing improvement during phase 1, followed by a drop at the start of phase 2 and an increase during phase 2 and 3. Fathers parenting stress decreased, on the aggregate level from the first treatment phase, with an ongoing trend for a decrease in parenting stress throughout all PMTO phases. Fathers general wellbeing also significantly changed from the first treatment phase to the second and third treatment phase, with an upward trend throughout all PMTO phases. Week-by-week associations were found on the same week level. Maternal giving instructions, skill encouragement and emotion regulation were all parenting behaviors that were associated with maternal perceptions of more positive child behaviors and with less parenting stress in a typical week. Father giving instructions and emotion regulation was associated with his perceptions of positive child behavior in a typical week and all his perceptions of practicing with the parenting behaviors were associated with less parenting stress. Mother and father perceptions of more positive child behaviors were associated with less parenting stress. Father parenting stress was preceded less capabilities with giving instructions on the subsequent week.

Daily assessments. Parents were not able to keep track of periodic daily recordings.

Discussion

The purpose of this study was to unravel individual processes of change in families receiving the BPT PMTO. By using single case experimental studies (SCED) we analyzed individual changes within 5 families at the start, during and after following PMTO using a pre-post-follow-up design (parents), combined with repeated measures across time recorded at the therapy sessions (parents and therapist) and recorded at periodical daily assessments (parents). This allowed to examine changes in individual trajectories in parenting, parenting stress, child behavior and parental motivation to practice the learned strategies over time. We also examined the overtime relationships between parenting, parenting stress, child behavior, and motivation.

The five families showed changes (both significant as well as clinical) in parenting, parenting stress and child-behavior directly after ending PMTO and 4 months later (research question 1). None of the families changed on all measured aspects of parenting, parenting stress and child behavior. However, families also differed in their starting situation: at the start of the treatment all the families rated their child's behavior in the clinical range, but families differed to a great extent whether or not aspects of their rated parenting and parenting stress were in the problematic range. It should be noted that referral to PMTO is primarily based on the disruptive behavior of the child (REF; <https://www.nji.nl/nl/Download-NJi/Werkblad/Uitgebreide-beschrijving-PMTO.pdf>), which might explain the variation in parenting quality and parenting stress. If changes occurred, the changes between pre- and post-test generally occurred in the

expected direction (improvements). However, patterns of change were diverse at follow-up: while some families sustained the positive changes reached at the end of the treatments, others showed further improvements or even deteriorations. A meta-analysis on follow-up effects of parenting interventions on disruptive child behavior concluded that sustained effects can be expected at follow-up (Van Aar, Leijten, Orobio de Castro, & Overbeek, 2017). However, they also found heterogeneity between trials (some showing fade-out effects (deteriorations) and some sleeper effects (further improvements). Further research is necessary to disentangle why these patterns differ within trials and from family to family (see also Van Aar et al., 2017).

The session and daily assessments (research question 2) showed first of all that each participating family and also mothers, fathers and children within families had unique individual trajectories of change, in which the timing of changes appeared to vary. This indicates that with PMTO no general trajectory of change exists: each family and each family member encounters change at its own pace. As such, the timing and trajectories of improvement is variable. In some families significant ongoing changes were reported for the majority of outcome measures, others reported almost no significant ongoing changes: Effects differed across families. The individual trajectories of change also show that change does often not occur linearly. Amelioration of parenting practices seems to happen with ups and downs, which implies that endurance of new parenting skills is a process of trial and error. The same seems to be true for parenting stress and disruptive child behavior. Without using SCED these unique trajectories of change would not have been observed.

Secondly, session and daily assessments measuring similar construct showed that patterns of change were sometimes not captured with the week by week assessments, but were captured in the day-to day assessment or vice versa. This also depended on the type of informant and the specific operationalization of variables. For example, zooming in on more specific aspects of child behavior such as parent-child escalations and goal setting revealed more insight in change processes than zooming in on child disruptive behavior. Also, it should be noted that session and daily measures of child disruptive behaviors sometimes seem to reflect another perception of that behavior, and is more positive when compared to post-and follow-up assessments of child behavior as being assessed with the CBCL. Thirdly, visual inspection of the session and daily ratings showed that families had in common that rates could differ widely from one week to another or one day to another, which is underlined by our statistical findings that change was often not characterized by a linear process. During therapy it seems that therapists often took note of this underlying process. In these cases, therapists decided to return to practicing the essential PMTO parenting behaviors again. As an implication, it may be worthwhile to apply a single subject design for tracking change with PMTO within clinical practice, but also in new studies that further study effectiveness of PMTO. The results of our study seem to indicate that making use of predefining desired outcomes (e.g., a marked decrease in parenting stress to a certain level, a marked improvement in setting limits to a certain level) may be of benefit for the therapeutic process. Once certain criteria have changed, this would set stage for the subsequent treatment phase. Thus, working in clinical practice with changing criteria (designs) may be helpful to reach the desired changes (Iversen, 2013).

The cross-lagged correlations showed how weekly and daily parenting, parenting stress, and child-behavior unfold over time (research question 3). The session assessments showed that when relationships were observed, the correlations mostly (and for some families only) indicated moment-to-moment associations: parental perceptions of a certain construct on a particular week or day were related parental perception of other constructs in the same week or on the same

particular day. This indicates that the effects happen on the moments one would expect PMTO is developed for. So, parents became able to apply the learned techniques at home during parent-child interactions, indicating that parents and children are faring better each respective moment. We do also know now that the underlying road is bumpy however. The relationships that were observed were all in the expected directions (e.g., better parenting skills, better child behavior; better child behavior, lower parenting stress; better child behavior, lower parenting stress). However, the results from the momentarily associations also show that effects are bidirectional of nature. Thus, parents and children seem to impact on each other in an ongoing process of change.

Based on the SIL model (Patterson, 2005) underlying PMTO, we would have expected also more longer lasting effects within family-dyads and a more sequential direction of relationships over time, i.e. decreases of parental stress would precede more adequate parenting, which would precede less disruptive child behavior over time. However, we only observed a few of these longer lasting and sequential effects. Although it is of importance that families benefit from PMTO in moment-to moment situations, further study is necessary to unravel the sequence further. These studies may examine whether PMTO effects will also spread from momentarily occurrences to longer subsequent occurrences by using larger time gaps. Alternatively, more momentary and differential assessments (e.g., parenting behavior, parenting stress, child behaviors) during a day by using for instance a smartphone app (see Shiffman, Stone, & Hufford, 2008) might also be helpful in unraveling the sequences further.

Cross-lagged correlations including daily assessments of motivation showed moment-to-moment relationships between motivation (research question 4) and (aspects of) child behavior for all families. These moment-to-moment relationships were for almost all aspects of child behavior in the direction that a higher motivation was related to better child behavior outcomes and vice versa on the same day. Nevertheless in one family higher motivation was related to worse child behavior and more escalations and vice versa. In three families improvement in (aspects of) child behavior or parenting also preceded increases in motivation on a following day, while in two of these families motivation also preceded improvements in (aspects of) child behavior. In two of the four assessed families a moment-to-moment relationship between motivation and parenting stress was observed, more motivation was related to lower parenting stress and vice versa on the same day. The process of motivation to practice learned strategies seems thus a reciprocal process. In another family more parenting stress on any particular day preceded less motivations two days later.

These findings support the previous findings in other intervention studies that parental motivation for practicing with the learned strategies is an important factor in the treatment process (Nock & Photos, 2006). Further research, is necessary to further entangle the position motivation has in the sequence of change. This might also become more visible by more momentary assessments during a day (see Shiffman et al., 2008). Meanwhile, we would advise therapists to closely monitor levels of motivation, but also of parenting stress, as these are related and might precede motivation to adhere to the learned strategies, in order to timely use motivational techniques (see also Nock & Ferriter, 2005). Moreover, to keep parents motivated, it might also be helpful to explore possibilities for additional help for parents focusing on other parenting stress related predictors (like daily hassles, high workload) than disruptive child behavior (see Östberg & Hagekull, 2000).

A first limitation to this study was that due to the sometimes fast sequence of newly introduced and practiced parenting skills (and the resulting limited number of assessments before

a new skill was introduced and practiced), we were not able to distinguish phases for each new parenting scale. Therefore, phases sometimes consisted of multiple skills. This made it impossible to distinguish the role of each new parenting skill on changes in parenting, parental stress, child behavior and motivation. Secondly, due to the long time frame of PMTO we only periodically conducted daily assessments. An even more in-depth insight in how changes unfold over time would have been gained, had daily assessments during the whole period of PMTO been possible. Next, we used a rather short period to collect baseline data and post treatment data in the daily assessment study. Ideally longer baseline period are required (Borckardt, 2006). This was however, not feasible in our study. The respondents already waited for a long period before having their intake and being referred to PMTO, and experienced high clinical symptomatology. It would not be ethical to delay therapy onset just because a baseline period should be extended. Although we captured weekly and daily processes of change as best as possible, our short baseline and post treatment period might not provide a fully representative assessment. Moreover, baseline and post assessments on some constructs, like wellbeing and parental skills, were lacking as these were only included in the instruments used at each session. Therefore, we are not able to determine pre or post treatment changes regarding these constructs.

This study used an idiographic approach to study trajectories of change among families that follow the personalized intervention PMTO. To capture change in the specific situation of each family we therefore also used individualized variables (their personal goals and their learned relevant parenting skills). This highly idiographic approach led to further understanding of how processes of change in families as a result of the BPT PMTO occur.

Although the purpose of studies using SCED is to answer questions concerning within person or family changes and does not pertain to answering questions pertaining to the aggregate group level effect, future studies may be designed while keeping in mind that data of idiographic trajectories of change may also be bundled into group analyses, for example by making use of multilevel approaches (Smith, Eichler, Norman, & Smith, 2015).

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Appendix

Table 1
Description of the Phases

	Phase 1	Phase 2	Phase 3
Family 1	giving instructions, skill encouragement,	+ regulating emotions, positive involvement, tracking behavior	giving instructions, skill encouragement
Family 2	giving instructions, skill encouragement, regulating emotions	+ setting limits, enhancing communication mother, tracking behavior	+problem solving skills
Family 3	meetings without practicing skills at home	giving instructions, skill encouragement,	+ limit setting, regulating emotions
Family 4	giving instructions, skill encouragement, (tracking behavior)	+limit setting	+ regulating emotions
Family 5	giving instructions, skill encouragement	+regulating emotions	+limit setting, positive involvement

Table 2
Significant and Clinical Change Pre-, PostPMTO and Follow-up

	Family one					Family two					Family three				
	Level at start	RCI pre-post	Clinical change	RCI post-fu	Clinical change post-fu	Level at start	RCI pre-post	Clinical change	RCI post-fu	Clinical change post-fu	Level at start	RCI pre-post	Clinical change	RCI post-fu	Clinical change post-fu
Parental behavior															
Positive parenting	serious	+	+ (to no problems)	0	0	no problems	-	0	+	0	no problems	-	- (to serious problems)	+	+
Rule setting	no problems	-	0	0	0	no problems	-	- (to mild problems)	+	+	mild problems	-	- (to serious problems)	+	+
Material reward	no problems	-	0	0	0	no problems	-	0	0	0	no problems	+	0	-	0
Punishment	mild problems	0	+	0	- (to mild problems)	no problems	-	0	0	0	no problems	0	0	-	0
Harsh punishment	mild problems	+	+	0	0	no problems	0	0	0	0	no problems	0	0	0	0
Parenting stress (total)	clinical	+	0	-	0	clinical	+	0	+	+	clinical	+	0	-	0
Problems parent-child relationships	clinical	+	0	-	0	clinical	0	0	+	+	clinical	+	+(to borderline)	0	0
Problems with parenting	clinical	+	0	-	0	clinical	+	+	+	+	clinical	+	+(to borderline)	0	0
Depressive moods	clinical	0	0	0	0	clinical	+	0	0	+	clinical	0	0	0	+
Role restriction	clinical	0	0	0	0	clinical	0	0	+	+	clinical	0	0	0	0
Health problems	clinical	0	0	0	0	borderline	+	+	+	0	clinical	+	+(to normal)	-	- (to clinical)
Disruptive child behavior	clinical	+	+	-	- (to clinical)	clinical	+	0	+	+	clinical	+	+(to normal)	0	- (to borderline)

Table 2 (Continued)

	Family four					Family five				
	Level at start	RCI pre-post	Clinical change	RCI post-fu	Clinical change post-fu	Level at start	RCI pre-post	Clinical change	RCI post-fu	Clinical change post-fu
Parental behavior									missing	missing
Positive parenting	mild problems	+	+(to normal)	0	0	no problems	0	0		
Rule setting	no problems	0	0	0	0	no problems	0	0		
Material reward	no problems	0	0	0	0	no problems	0	0		
Punishment	mild problems	0	-(to serious problems)	0	+(to mild problems)	no problems	0	0		
Harsh punishment	no problems	0	0	0	0	no problems	0	0		
Parenting stress (total)	clinical	0	0	+	0	borderline	+	+(to normal)	missing	missing
Problems parent-child relationships	clinical	+	0	+	0	normal	+	0		
Problems with parenting	clinical	+	0	0	0	borderline	0	+		
Depressive moods	borderline	0	0	0	0	normal	-	0		
Role restriction	clinical	+	+(to borderline)	0	+(to normal)	clinical	+	+(to borderline)		
Health problems	clinical	0	0	0	0	normal	0	0		
Disruptive child behavior	clinical	0	0	0	0	Clinical	+	+(to normal)	0	0

Note. + significant positive change / clinical positive change. 0 no significant change/ no clinical change. - significant negative change / negative clinical change.

Table 3

Results of Time-Series Level and Slope -Effects for Parenting Skills, Child Behavior and Parenting Stress – Session Ratings

Family		Phase 1 <i>M (N size)</i>	Phase 2 <i>M (N size)</i>	Phase 3 <i>M (N size)</i>	Level change <i>r</i> Phase 1 vs 2/3	Slope change <i>r</i> Phase 1 vs 2/3	Slope change <i>r</i> Phase 1 vs 2+3	Level change <i>r</i> Phase 2 vs 3	Slope change <i>r</i> Phase 2 / 3	Slope change <i>r</i> Phase 2 vs 3
1	PIM	6.33 (3)	4.38 (9)	5.55 (14)	-.26	.25	.30	.36	.49*	.45*
	PEM	5.50 (2)	4.43 (9)	5.78 (14)	-.04	.51	.53	.49	.62*	.49
	CBM	3.50 (4)	5.22 (9)	5.43 (14)	.30	.48*	.48*	.05	.41	.66**
	PSM	6.00 (4)	4.89 (9)	6.14 (14)	-.06	-.09	-.09	.29	-.07	-.47*
	ORS	3.92 (4)	6.03 (9)	6.90 (14)	.32	.50**	.49*	.17	.43*	.56**
	totalMF									
	PIF	4.00 (3)	2.54 (9)	3.65 (14)	-.17	.33	.37	.40	.61*	.61*
	PEF	3.00 (2)	2.45 (9)	2.94 (14)	-.07	.37	.39	.24	.46	.54*
	CBF	3.50 (4)	5.33 (9)	5.79 (14)	.33	.51**	.50*	.10	.42*	.62***
	PSF	3.00 (4)	4.78 (9)	4.36 (14)	.23	-.18	-.25	-.09	-.43	-.66**
2	PIM	7.01 (12)	6.75 (8)	6.77 (13)	-.21	-.11	.03	.02	.22	.36*
	PEM	7.18 (12)	6.23 (8)	6.53 (13)	-.40*	-.36	-.19	-.07	.04	.15
	PERM	6.49 (12)	6.17 (8)	5.97 (13)	-.24	-.09	.08	-.10	.18	.41
	CBM	6.43 (14)	5.75 (8)	5.62 (13)	-.34	-.27	-.07	-.06	.00	.07
	PSM	4.36 (14)	4.75 (8)	4.85 (13)	.14	.04	-.10	.03	-.14	-.28
	ORS	7.48 (14)	7.88 (8)	8.45 (13)	.35	.49*	.46*	.29	.44	.46
	totalM									
	PIM		3.54 (11)	4.43 (7)				.36	-.35	-.04
	PEM		6.68 (8)	5.29 (7)				-.42	-.57	-.37
	CBM	5.33 (4)	5.35 (11)	6.86 (7)	.18	.56*	.60*	.54	.60	.07
3	PSM	6.30 (4)	6.10 (11)	5.86 (7)	-.09	-.10	-.09	-.09	-.06	.06
	ORS	6.15 (4)	8.13 (11)	8.59 (7)	.55*	.55	.48	-.08	-.00	.14
	totalM									
	PIF		6.12 (11)	6.57 (7)				.27	.12	-.27
	PEF		7.98 (8)	7.00 (7)				-.51	-.55	-.15
	CBF	5.25 (4)	6.52 (11)	8.00 (7)	.48	.76**	.75**	.58	.73*	.23
	PSF	6.00 (4)	3.60 (11)	2.14 (7)	-.58*	-.70*	-.65*	-.45	-.54	-.13
	ORS	7.15 (4)	9.44 (11)	9.47 (7)	.74**	.58	.46	.04	.18	.24
	totalF									
	4	PIM	6.14 (7)	7.17 (6)	7.00 (5)	.07	.11	.08	-.29	-.10
PEM		6.83 (6)	7.17 (6)	6.80 (5)	.13	.19	.19	-.25	.12	.69*
PSLM			7.33(6)	7.60 (5)	-	-	-	.27	.23	-.04

Table 3 (Continued)

Family		Phase 1 <i>M (N size)</i>	Phase 2 <i>M (N size)</i>	Phase 3 <i>M (N size)</i>	Level change <i>r</i> Phase 1 vs 2/3	Slope change <i>r</i> Phase 1 vs 2/3	Slope change <i>r</i> Phase 1 vs 2+3	Level change <i>r</i> Phase 2 vs 3	Slope change <i>r</i> Phase 2 / 3	Slope change <i>r</i> Phase 2 vs 3
4	CBM	6.00 (7)	5.67 (6)	6.20 (5)	.22	.23	.11	.41	.59*	.48
	PSM	3.86 (7)	4.33 (6)	3.00 (5)	-.06	-.25	-.37	-.21	.03	.45
	ORS totalM	6.13(7)	9.62 (6)	9.34 (5)	.80*	.78*	.45	.07	.11	.08
5	PIM	6.50 (2)	7.67 (6)	8.33 (3)	.61	.65	.59	.43	.41	-.09
	PEM	7.00 (1)	7.83 (6)	8.33 (3)	.56	.61	.59	.50	.46	-.14
	PERM		6.83 (6)	8.33 (3)	-	-	-	.67	.65	-.13
	CBM	6.00 (3)	7.33 (6)	8.67 (3)	.65	.76*	.68	.67	.52	-.37
	PSM	6.00 (3)	3.33 (6)	2.00 (3)	-.61	-.71*	-.63	-.39	-.51	-.13
	ORS totalM	6.25 (2)	8.33 (6)	8.77 (3)	.80*	.86*	.78	.56	.81*	.31
	PIF	5.50 (2)	7.01 (6)	8.00 (3)	.46	.72*	.73*	.60	.53	-.19
	PEF	4.00 (1)	7.47 (6)	8.00 (3)	.92***	.65	.59	.50	.52*	-.05
	PERF		7.09 (6)	7.67 (3)				.44	.34	-.21
	CBF	5.67 (3)	6.84 (6)	7.33 (3)	.56	.57	.47	.30	.02	-.46
	PSF	7.67 (3)	3.62 (6)	2.00 (3)	-.79*	-.84*	-.71	-.48	-.60	-.11
	ORS totalF	7.40 (2)	8.31 (6)	8.77 (3)	.87**	.68*	.55	.41	.28	-.27

Note. PIM - Parenting skill giving Instructions as reported by Mother; PEM - Parenting skill Encouragement as reported by Mother; PERM - Parenting skill Emotion Regulation as reported by Mother; PSLM – Parenting skill Setting Limits by reported by Mother; CBM Child Behavior as reported by mother; PSM = Parenting Stress Mother; ORStotalM – General sense of wellbeing Mother; PIF - Parenting skill giving Instructions as reported by Father; PEF - Parenting skill Encouragement as reported by Father; PERF - Parenting skill Emotion Regulation as reported by Father; PSLM – Parenting skill Setting Limits by reported by Father; CBF Child Behavior as reported by Father; PSF - Parenting Stress Father; ORStotalF - General sense of wellbeing Father.
* p < .05. ** p < .01. *** p < .000.

Table 4

Results of Time-Series Level and Slope-Effects for Parenting Skills, Parenting Stress and Motivation based on Therapist Reports - Session Ratings

Family		Phase 1 <i>M</i> (<i>N</i> size)	Phase 2 <i>M</i> (<i>N</i> size)	Phase 3 <i>M</i> (<i>N</i> size)	Level change <i>r</i> Phase 1 vs 2/3	Slope change <i>r</i> Phase 1/2/3	Slope change <i>r</i> Phase 1 vs 2+3	Level change <i>r</i> Phase 2 vs 3	Slope change <i>r</i> Phase 2 / 3	Slope change <i>r</i> Phase 2 vs 3
1	PIM	2.67 (3)	3.64 (11)	4.43 (14)	.31	.44*	.43*	.30	.36	.26
	PEM	6.50 (2)	3.82 (11)	4.43 (14)	-.32	.18	.21	.16	.39	.51*
	PSM	6.20 (5)	4.21 (11)	4.79 (14)	-.27	-.25	-.22	.14	-.10	-.40*
	MOTM	5.50 (4)	4.73 (11)	5.36 (14)	-.07	.10	.12	.16	.19	.13
	PIF	1.67 (3)	2.09 (11)	3.12 (14)	.24	.43	.42	.39	.36	.12
	PEF	3.50 (2)	1.71 (11)	2.36 (14)	-.28	.09	.11	.29	.28	.13
	PSF	4.20 (5)	3.44 (11)	3.84 (14)	-.09	-.27	-.28	.09	-.27	-.65*
	MOTF	5.25 (4)	3.20 (11)	2.89 (14)	-.46**	-.29	-.23	-.11	-.03	.11
2	PIM	5.93 (14)	6.13 (8)	5.79 (14)	-.01	-.09	-.15	.22	-.14	-.00
	PEM	6.36 (14)	6.00 (8)	6.36 (14)	-.07	-.03	-.03	.22	.39	.44*
	PEMRM	5.03 (14)	5.25 (8)	5.79 (14)	.31	.41*	.36*	.29	.43*	.43
	PSM	4.79 (14)	6.65 (8)	5.07 (14)	.25	-.02	-.32	-.42	-.66	-.69*
	MOTM	7.14 (14)	7.13 (8)	7.29 (14)	.06	.13	.17	.11	.26	.33
3	PIM		3.86 (11)	4.63 (8)				.28	.15	-.24
	PEM		7.50 (8)	6.00 (8)				-.45	-.60*	-.42
	PSM	7.50 (4)	6.36 (11)	5.50 (8)	-.35	-.24	-.18	-.26	.01	.51*
	MOTM	7.59 (2)	6.46 (11)	7.63 (8)	-.12	.33	.35	.35	.46	.20
	PIF		5.41 (11)	6.13 (8)				.32	.29	-.05
	PEF		8.00 (8)	7.13 (8)				-.39	-.49	-.31
	PSF	6.25 (4)	3.46 (11)	2.00 (8)	-.57*	-.69*	-.64	-.48	-.57	-.18
	MOTF	8.01 (4)	7.91 (11)	8.13 (8)	-.00	.25	.27	.10	.30	.37
4	PIM	6.67 (6)	6.83 (6)	6.80 (5)	.17	.31	.35	-.04	.15	.38
	PEM	7.00 (5)	7.50 (6)	7.00(5)	.24	.17	.07	-.56	-.19	.66*
	PSLM		7.40 (5)	7.40 (5)				.00	.00	.00
	PSM	6.67 (6)	4.00 (6)	3.00 (5)	.17	.31	.35	-.50	-.15	.65*
	MOTM	7.00 (6)	7.67 (6)	7.60 (5)	.62*	.51	.25	-.07	.00	.13
5	PIM	7.00 (2)	6.67 (6)	8.00 (3)	.04	.32	.36	.53	.40	-.28
	PEM	6.50 (2)	7.12 (6)	8.67 (3)	.33	.61	.62	.50	.55	.00
	PERM	7.00 (1)	6.83 (6)	8.67 (3)	.10	.64	.67	.61	.70	.05
	PSM	5.67 (3)	3.33 (6)	1.67 (3)	-.60	-.75*	-.69	-.49	-.59	-.08
	MOTM	8.00 (3)	8.12 (6)	8.33 (3)	.26	.39	.38	.19	.33	.31
	PIF	6.00 (2)	5.59 (6)	7.00 (3)	.32	.38	.35	.25	.33	.09
	PEF	5.00 (2)	6.82 (6)	7.33 (3)	.67*	.68*	.60	.26	.41	.21
	PERF	4.00 (1)	7.11 (6)	7.67 (3)	.85**	.75*	.69*	.41	.68	.36
	PSF	7.33 (3)	3.37 (6)	3.00 (3)	-.84**	-.75*	-.57	-.14	-.30	-.24
	MOTF	7.33 (3)	8.18 (6)	8.00 (3)	.52	.39	.26	-.15	.07	.37

Note. PIM - Parenting skill giving Instructions Mother as reported by therapist; PEM Parenting skill Encouragement Mother as reported by therapist; PERM Parenting skill Emotion Regulation Mother as reported by therapist; PSLM Parenting skill Setting Limits Mother as reported by father; PSM = Parenting Stress Mother as reported by therapist; MOTM Motivation Mother as reported by therapist;

PIF - Parenting skill giving Instructions Father as reported by therapist; PEF Parenting skill Encouragement Father as reported by Therapist; PERF Parenting skill Emotion Regulation Father as reported by therapist; PSF = Parenting Stress Father as reported by therapist; MOTF Motivation Father as reported by therapist.
* $p < .05$. ** $p < .01$. *** $p < .000$.

Table 5
Lagged Cross-Correlations - Session Ratings

Family 1										
Lagged Cross Correlation	R	R	R	R	R	R	R	R	R	R
	PIM-CBM	PEM-CBM	CBM-PSM	PIM-PSM	PEM-PSM	PIF-CBF	PEF-CBF	CBF-PSF	PIF-PSF	PEF-PSF
CCF -2	-.00	.00	-.41*	.03	.34	.15	.22	-.32	-.08	-.30
CCF -1	.10	.32	.10	-.15	-.08	.06	-.01	.03	-.12	-.24
CCF -0	.19	.41*	-.67***	-.26	-.14	.24	.46*	-.63***	-.56**	-.61**
CCF +1	.18	.47**	.11	-.20	-.27	.08	.28	.17	-.23	-.25
CCF +2	.18	.36*	-.38*	.01	-.15	.39*	.32*	-.24	-.29	-.24

Note. *R* PIM-CBM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Child Behavior as reported by Mother; *R* PEM-CBM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Child Behavior as reported by Mother; *R* CBM-PSM = cross-lagged correlation between Child Behavior as reported by Mother and Parenting Stress Mother; *R* PIM-PSM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Parenting Stress Mother; *R* PEM-PSM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Parenting Stress Mother; *R* PIF-CBF = cross-lagged correlation between Parenting skill giving Instructions as reported by Father and Child Behavior as reported by Father; *R* PEF-CBF = cross-lagged correlation between Parenting skill Encouragement as reported by Father and Child Behavior as reported by Father; *R* PERF-CBF = cross-lagged correlation between Parenting skill Emotion Regulation as reported by Father and Child Behavior as reported by Father; *R* CBF-PSF = cross-lagged correlation between Child Behavior as reported by father and Parenting Stress Father; *R* PIF-PSF = cross-lagged correlation between Parenting skill giving Instructions as reported by Father and Parenting Stress Father; *R* PEF-PSF = cross-lagged correlation between Parenting skill Encouragement as reported by Father and Parenting Stress Father.

* $p < .05$. ** $p < .01$. *** $p < .000$.

Table 5 (Continued)

Family 2							
<i>Lagged</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>
<i>Cross</i>	PIM-CBM	PEM-CBM	PERM-CBM	CBM-PSM	PIM-PSM	PEM-PSM	PERM-PSM
<i>Correlation</i>							
CCF -2	.10	.19	.09	.04	-.26	-.05	-.30
CCF -1	.19	.18	.40*	-.34*	-.22	-.13	-.35*
CCF -0	.38*	.62***	.64***	-.77***	-.42**	-.44**	-.75***
CCF +1	.12	.16	.27	-.25	-.25	-.22	-.32*
CCF +2	.07	-.03	-.02	.04	.03	.06	-.06

Note. *R* PIM-CBM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Child Behavior as reported by Mother; *R* PEM-CBM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Child Behavior as reported by Mother; *R* PERM-CBM = cross-lagged correlation between Parenting skill Emotion Regulation as reported by Mother and Child Behavior as reported by Mother; *R* CBM-PSM = cross-lagged correlation between Child Behavior as reported by Mother and Parenting Stress Mother; *R* PIM-PSM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Parenting Stress Mother; *R* PEM-PSM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Parenting Stress Mother; *R* PERM-PSM = cross-lagged correlation between Parenting skill Emotion Regulation as reported by Mother and Parenting Stress Mother.

* $p < .05$. ** $p < .01$. *** $p < .000$.

Table 5 (Continued)

Family 3										
<i>Lagged</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>
<i>Cross</i>	PIM-CBM	PEM- CBM	CBM-PSM	PIM-PSM	PEM-PSM	PIF-CBF	PEF-CBF	CBF-PSF	PIF-PSF	PEF-PSF
<i>Correlation</i>										
CCF -2	.12	-.02	-.12	-.27	-.12	.20	-.58**	-.33	-.23	.38
CCF -1	.41	-.27	-.10	.28	.42*	.26	-.11	-.24	-.57**	-.04
CCF -0	.27	.03	-.41*	-.20	-.44*	.09	-.42*	-.82***	-.08	.16
CCF +1	.24	-.26	.10	.03	-.12	.06	-.30	-.59**	-.11	.10
CCF +2	.20	-.65**	.03	-.06	.03	.21	.16	-.47*	-.12	-.25

Note. *R* PIM-CBM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Child Behavior as reported by Mother; *R* PEM-CBM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Child Behavior as reported by Mother; *R* CBM-PSM = cross-lagged correlation between Child Behavior as reported by mother and Parenting Stress Mother; *R* PIM-PSM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Parenting Stress Mother; *R* PEM-PSM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Parenting Stress mother; *R* PIF-CBF= cross-lagged correlation between Parenting skill giving Instructions as reported by Father and Child Behavior as reported by Father; *R* PEF-CBF = cross-lagged correlation between Parenting skill Encouragement as reported by Father and Child Behavior as reported by Father; *R* CBF-PSF = cross-lagged correlation between Child Behavior as reported by Father and Parenting Stress Father; *R* PIF-PSF = cross-lagged correlation between Parenting skill giving Instructions as reported by Father and Parenting Stress Father; *R* PEF-PSF = cross-lagged correlation between Parenting skill Encouragement as reported by Father and Parenting Stress Father.

* $p < .05$. ** $p < .01$. *** $p < .000$.

Table 5 (Continued)

Family 4							
<i>Lagged</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>
<i>Cross</i>	PIM-CBM	PEM-CBM	PSLM-CBM	CBM-PSM	PIM-PSM	PEM-PSM	PSLM-PSM
<i>Correlation</i>							
CCF -2	-.03	-.24	.33	.13	-.20	.10	.07
CCF -1	-.16	.12	.09	.07	-.15	.33	-.04
CCF -0	.22	.48*	-.13	-.08	.25	.42	.06
CCF +1	.13	.12	.11	.10	.20	.33	.03
CCF +2	.25	.25	-.36	-.27	-.04	.24	-.22

Note. *R* PIM-CBM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Child Behavior as reported by Mother; *R* PEM-CBM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Child Behavior as reported by Mother; *R* PSLM-CBM = cross-lagged correlation between Parenting skill Setting Limits as reported by Mother and Child Behavior as reported by Mother; *R* CBM-PSM = cross-lagged correlation between Child Behavior as reported by Mother and Parenting Stress Mother; *R* PIM-PSM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Parenting Stress Mother; *R* PEM-PSM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Parenting Stress Mother; *R* PSLM-PSM = cross-lagged correlation between Parenting skill Setting Limits as reported by Mother and Parenting Stress Mother.

* $p < .05$. ** $p < .01$. *** $p < .000$.

Table 5 (Continued)

Family 5															
<i>Lagged</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>
<i>Cross</i>	PIM-	PEM	PERM-	CBM-	PIM-	PEM-	PERM-	PIF-	PEF-	PERF-	CBF-	PIF-	PEF-	PERF-	
<i>Correlation</i>	CBM	CBM	CBM	PSM	PSM	PSM	PSM	CBF	CBF	CBF	PSF	PSF	PSF	PSF	
CCF -2	-.26	-.26	-.29	-.00	.04	-.09	.03	-.26	-.04	-.48	.05	.07	-.06	.00	
CCF -1	.06	-.03	.01	-.43	-.19	.01	-.20	.12	-.01	-.08	-.25	-.53*	-.09	-.38	
CCF -0	.85***	.76***	.88***	-.85***	-.93***	-.75**	-.90***	.71**	.38	.67*	-.85***	-.81**	-.62*	-.81**	
CCF +1	.39	.37	.52	-.36	-.06	-.14	-.31	.08	-.36	.37	-.21	-.19	.05	-.07	
CCF +2	-.16	-.12	.13	.21	.11	.10	.07	-.25	.20	.03	.10	.13	-.32	.49	

Note. *R* PIM-CBM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Child Behavior as reported by Mother; *R* PEM-CBM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Child Behavior as reported by Mother; *R* PERM-CBM = cross-lagged correlation between Parenting skill Emotion Regulation as reported by Mother and Child Behavior as reported by Mother; Child Behavior as reported by mother and Parenting Stress mother; *R* CBM-PSM = cross-lagged correlation between Child Behavior as reported by Mother and Parenting Stress Mother; *R* PIM-PSM = cross-lagged correlation between Parenting skill giving Instructions as reported by Mother and Parenting Stress Mother; *R* PEM-PSM = cross-lagged correlation between Parenting skill Encouragement as reported by Mother and Parenting Stress mother; *R* PERM-PSM = cross-lagged correlation between Parenting skill Emotion regulation as reported by Mother and Parenting Stress mother; *R* PIF-CBF = cross-lagged correlation between Parenting skill giving Instructions as reported by Father and Child Behavior as reported by Father; *R* PEF-CBF = cross-lagged correlation between Parenting skill Encouragement as reported by Father and Child Behavior as reported by Father; *R* PERF-CBF = cross-lagged correlation between Parenting skill Emotion Regulation as reported by Father and Child Behavior as reported by Father; *R* CBF-PSF = cross-lagged correlation between Child Behavior as reported by Father and Parenting Stress Father; *R* PIF-PSF = cross-lagged correlation between Parenting skill giving Instructions as reported by Father and Parenting Stress Father; *R* PEF-PSF = cross-lagged correlation between Parenting skill Encouragement as reported by Father and Parenting Stress Father; *R* PERF-PSF = cross-lagged correlation between Parenting skill Emotion regulation as reported by Father and Parenting Stress Father .

* $p < .05$. ** $p < .01$. *** $p < .000$.

Table 6

Results of Time-Series Level and Slope-effects for Parenting Skills, Child Behavior and Parenting Stress - Daily Ratings

Family		Phase 0 (pre)	Phase 1	Phase 2	Phase 3	Phase 1, 2&3 (during)	Phase 4 (post)	Level change <i>r</i>	Slope change <i>r</i>	Slope change <i>r</i>	Level change <i>r</i>	Slope change <i>r</i>	Slope change <i>r</i>	Level change <i>r</i>	Slope change <i>r</i>	Slope change <i>r</i>	Level change <i>r</i>	Slope change <i>r</i>	Slope change <i>r</i>	
		<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	Phase pre vs during	Phase pre/duri ng (0/1/2/3)	Phase pre vs during (0 vs 1/2/3)	Phase 1 vs 2	Phase 1/2	Phase 1 vs 2	Phase 2 vs 3	Phase 2/3	Phase 2 vs 3	Phase during vs post	Phase during /post	Phase during vs post	
1	CBM	5.50 (4)	5.33 (3)	5.66 (16)	5.28 (27)	5.42 (46)	6.84 (6)	-.02	.14	.14	.11	.61*	.66*	-.14	.17	.44*	.36	.33	-.03	
	EscalationsM	1.75 (4)	1.67 (3)	1.81 (16)	2.52 (27)	2.22 (46)	0.83 (6)	.09	.08	.08	.05	-.39	-.45*	.23	.01	-.22	-.30	-.13	.18	
	Goal 1M	4.50 (4)	5.67 (16)	5.69 (16)	4.85 (27)	5.20 (46)	6.83 (6)	.12	.16	.15	.01	.65*	.73*	-.24	.16	.53*	.32	.27	-.05	
	Goal 2M	3.75 (4)	4.67 (3)	4.81 (16)	4.15 (27)	4.41 (46)	5.50 (6)	.12	.12	.12	.05	.53	.58	-.21	.11	.41*	.24	.20	-.04	
	Goal 3M	4.50 (4)	4.33 (3)	4.81 (16)	4.22 (27)	4.43 (46)	5.50 (6)	-.02	.01	.01	.15	.52	.55	-.23	.01	.25	.28	.17	-.12	
	Goal 4M	3.00 (4)	1.0 (3)	4.81 (16)	3.78 (27)	3.96 (46)	4.83 (6)	-.12	.16	.15	.61*	.70*	.66*	-.24	-.05	.18	.13	.17	.05	
	PSM	5.17 (4)	4.89 (3)	5.72 (16)	5.21 (27)	5.37 (46)	2.83 (6)	.04	.01	.01	.28	.49*	.50*	-.19	-.06	.10	-.55**	-.31	.24	
	MotivationM				5.38 (16)	5.15 (27)	5.23 (43)	6.50 (6)							.26	.55**	.37	.41	.05	
	2	CBM	5.53 (5)	6.21 (35)	5.93 (25)	6.18 (44)	6.13 (104)	5.53 (5)	.13	.06	.06	-.17	-.21	-.08	.12	.16	.15	-.13	-.03	.06
		EscalationsM	3.2 (5)	2.09 (35)	1.48 (25)	1.25 (44)	1.59 (104)	1.60 (5)	-.33**	-.51***	-.50***	-.33*	-.43**	-.19	-.14	-.31*	-.37**	.00	-.45***	-.45***
Goal 1M		-	5.71 (34)	5.80 (25)	5.80 (44)	5.77 (103)	4.80 (5)				.04	-.04	-.14	-.00	.12	.20	-.15	.00	.11	
Goal 2M		-	4.76 (34)	5.16 (25)	5.57 (44)	5.20 (103)	4.80 (5)				.16	.12	-.09	.15	.18	.15	-.07	.23*	.28**	
Goal 3M		-	6.00 (34)	5.56 (25)	6.41 (44)	6.07 (103)	5.80 (5)				-.18	-.10	.15	.43**	.42**	.27*	-.06	.18	.22	
PSM		3.73 (5)	4.03 (35)	3.35 (25)	2.66 (44)	3.29 (104)	2.53 (5)	-.07	-.47***	-.48***	-.29*	-.26	.06	-.25	-.43**	-.46**	-.12	-.51***	-.43***	
MotivationM		-	6.44 (34)	6.68 (25)	6.98 (44)	6.73 (103)	6.20 (5)				.12	.10	-.04	.14	.24*	.26*	-.11	.20	.28**	
3	CBF		5.91 (9)	7.50 (14)	7.51 (15)	7.13 (38)	6.25 (6)				.52	.56	.39	.01	.09	.17	-.23	.19	.46*	
	EscalationsF		1.28 (9)	0.64 (14)	0.40 (15)	0.70 (38)	2.0 (6)				-.27	-.39	-.38	-.17	-.35	-.42*	.41*	-.04	-.50**	
	Goal 1F		5.56 (9)	7.00 (14)	7.01 (15)	6.68 (38)	5.50 (6)				.49	.52	.35	.05	.12	.16	-.31	.12	.48*	

Table 6 (Continued)

Family	Phase 0 (pre)	Phase 1	Phase 2	Phase 3	Phase 1, 2&3 (during)	Phase 4 (post)	Level change <i>r</i>	Slope change <i>r</i>	Slope change <i>r</i>	Level change <i>r</i>	Slope change <i>r</i>	Slope change <i>r</i>	Level change <i>r</i>	Slope change <i>r</i>	Slope change <i>r</i>	Level change <i>r</i>	Slope change <i>r</i>	Slope change <i>r</i>	
	<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	<i>M</i> (<i>N</i> size)	Phase pre vs during	Phase pre/duri ng (0/1/2/3)	Phase pre vs during (0 vs 1/2/3)	Phase 1 vs 2	Phase 1/2	Phase 1 vs 2	Phase 2 vs 3	Phase 2/3	Phase 2 vs 3	Phase during vs post	Phase during /post	Phase during vs post	
3	Goal 2F	5.44 (9)	7.07 (14)	6.93 (15)	6.62 (38)	4.83 (6)				.53	.59	.43	-.09	-.04	.06	-.42*	.02	.50*	
	Goal 3F	4.89 (9)	6.86 (14)	6.73 (15)	6.34 (38)	5.17 (6)				.57	.69*	.56	-.07	.11	.35	-.27	.19	.52**	
	Goal 4F	5.00 (9)	6.87 (14)	6.67 (15)	6.34 (38)	4.67 (6)				.56	.63	.46	-.14	-.01	.21	-.36	.07	.48*	
	PSF	4.70 (9)	3.24 (14)	2.64 (15)	3.35 (38)	4.50 (6)				-.39	-.45*	-.34	-.23	-.27	-.15	.24	-.23	-.53**	
	Motiva- tionF		6.93 (14)	6.40 (15)	6.66 (29)	4.50 (9)				.24	.35	.34	-.23	-.11	.16	-.52***	-.39*	.20	
4	CBM	6.06 (9)	6.55 (3)	6.35 (11)	6.50 (3)	6.41 (17)	5.89 (3)	.20	.20	.14	-.08	.09	.14	.06	.16	.11	-.20	-.07	.16
	EscalationsM	3.31 (9)	1.96 (3)	1.23 (11)	2.33 (3)	1.55 (17)	0.67 (3)	-.57*	-.51	-.29	-.28	-.21	-.15	.40	.30	-.19	-.31	-.12	.23
	Goal 1M	6.33 (9)	6.67 (3)	6.09 (11)	7.00 (3)	6.35 (17)	6.33 (3)	.01	.18	.27	-.25	.14	.27	.36	.59	.22	-.01	.23	.27
	Goal 2M	5.89 (9)	7.00 (3)	6.91 (11)	7.33 (3)	7.00 (17)	7.33 (3)	.49*	.54*	.42	-.05	.14	.20	.21	.34	.13	.16	.28	.12
	Goal 3M	5.44 (9)	7.0 (3)	6.55 (11)	7.33 (3)	6.76 (17)	7.00 (3)	.46*	.47*	.34	-.21	-.09	-.03	.34	.30	-.10	.10	.15	.05
	PSM	4.99 (9)	2.55 (3)	2.82 (11)	3.33 (3)	2.72 (17)	3.89(3)	-.68**	-.55*	-.25	.10	.21	.22	-.09	.01	.11	.36	.29	-.10
	Motiva- tionM			6.91 (11)	6.33 (3)	6.79 (14)	7.33 (3)						-.21	-.04	.24	.19	.09	-.14	

Note. CBM - Child Behavior as reported by Father; EscalationsM - number of escalations as reported by Mother; Goal1M to Goal4M- How they fared on the specific goals according to Mother; PSM = Parenting Stress Mother; MotivationM - Motivation to use the learned strategies Mother; CBF - Child Behavior as reported by Father; EscalationsF - number of escalations as reported by Father; Goal1F to Goal4F- How they fared on the specific goals according to Father; PSF = Parenting Stress Father; MotivationF - Motivation to use the learned strategies Father;
 * $p < .05$. ** $p < .01$. *** $p < .000$.

Table 7
Lagged Cross-Correlations – Daily Ratings

Family 1													
Lagged Cross Correlation	R CBM- PSM (N = 56)	R ESCM- PSM (N = 56)	R Goal1M- PSM (N = 56)	R Goal2M- PSM (N = 56)	R Goal3M- PSM (N = 56)	R Goal 4M- PSM (N = 56)	R MOTM CBM (N = 49)	R MOTM -ESCM (N = 49)	R MOTM -Goal 1M (N = 49)	R MOTM -Goal 2M (N = 49)	R MOTM -Goal 3M (N = 49)	R MOTM -Goal 4M (N = 49)	R MOTM -PSM (N = 49)
CCF -2	-.12	.23*	-.23	-.29*	-.24*	-.07	.35*	-.25	.47**	.42**	.29*	.08	-.25*
CCF -1	.02	.07	-.10	.00	.05	.11	.42**	-.11	.61***	.42**	.40**	.16	-.11
CCF -0	.11	.28*	-.00	-.01	-.03	.12	.87***	-.04	.67***	.84***	.73***	.49***	-.04
CCF +1	.11	.13	-.09	.01	-.04	.06	.49**	-.09	.31	.33*	.27*	.31*	-.09
CCF +2	.13	-.16	.06	.14	.04	.30*	.41**	.13	.38*	.26	.19	.28*	.13

Note. *R* CBM-PSM = cross-lagged correlation between Child Behavior as reported by mother and Parenting Stress mother; *R* ESC-PSM = cross-lagged correlation between Escalations between parent and child as reported by Mother and Parenting Stress Mother; *R* Goal 1-PSM = cross-lagged correlation between Goal 1 as reported by Mother and Parenting Stress Mother; *R* Goal 2-PSM = cross-lagged correlation between Goal 2 as reported by Mother and Parenting Stress Mother; *R* Goal 3-PSM = cross-lagged correlation between Goal 3 as reported by Mother and Parenting Stress Mother; *R* Goal 4-PSM = cross-lagged correlation between Goal 4 as reported by Mother and Parenting Stress Mother; *R* MOTM-CBM = cross-lagged correlation between Motivation Mother and Child Behavior as reported by Mother; *R* MOTM-CBM = cross-lagged correlation between Motivation Mother and Child Behavior as reported by Mother; *R* MOTM-ESCM = cross-lagged correlation between Motivation Mother and Escalations between parent and child as reported by Mother; *R* MOTM-Goal 1M = cross-lagged correlation between Motivation Mother and Goal 1 as reported by Mother; *R* MOTM-Goal 2M = cross-lagged correlation between Motivation Mother and Goal 2 as reported by Mother; *R* MOTM-Goal 3M = cross-lagged correlation between Motivation Mother and Goal 3 as reported by Mother; *R* MOTM-Goal 4M = cross-lagged correlation between Motivation Mother and Goal 4 as reported by Mother; *R* MOTM-PSM = cross-lagged correlation between Motivation Mother and Parenting Stress Mother.

* $p < .05$. ** $p < .01$. *** $p < .000$.

Table 7 (Continued)

Family 2											
<i>Lagged</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>
<i>Cross</i>	CBM-	ESCM-	Goal1M-	Goal2M-	Goal3M-	MOTM-	MOTM-	MOTM -	MOTM -	MOTM-	MOTM -
<i>Correlation</i>	PSM	PSM	PSM	PSM	PSM	CBM	ESCM	Goal 1M	Goal 2M	Goal 3M	PSM
	(<i>N</i> = 114)	(<i>N</i> = 114)	(<i>N</i> = 108)	(<i>N</i> = 108)	(<i>N</i> = 108)	(<i>N</i> = 108)	(<i>N</i> = 108)	(<i>N</i> = 108)	(<i>N</i> = 108)	(<i>N</i> = 108)	(<i>N</i> = 108)
CCF -2	.07	.06	-.02	-.05	-.13	.03	.08	.01	-.09	-.16	.03
CCF -1	.04	.12	.02	-.03	-.10	.02	.09	.00	-.01	-.09	.02
CCF -0	-.72***	.79***	-.60***	-.75***	-.45***	-.70***	-.62***	.77***	.73***	.45***	-.70***
CCF +1	-.03	.17*	-.05	-.12	-.03	-.09	-.05	-.01	-.09	-.02	-.09
CCF +2	.03	.09	-.01	-.06	.07	.00	.10	-.00	-.08	.04	.00

Note. *R* CBM-PSM = cross-lagged correlation between Child Behavior as reported by Mother and Parenting Stress Mother; *R* ESC-PSM = cross-lagged correlation between Escalations between parent and child as reported by Mother and Parenting Stress Mother; *R* Goal 1-PSM = cross-lagged correlation between Goal 1 as reported by Mother and Parenting Stress Mother; *R* Goal 2-PSM = cross-lagged correlation between Goal 2 as reported by Mother and Parenting Stress Mother; *R* Goal 3-PSM = cross-lagged correlation between Goal 3 as reported by Mother and Parenting Stress Mother; *R* MOTM-CBM = cross-lagged correlation between Motivation Mother and Child Behavior as reported by Mother; *R* MOTM-CBM = cross-lagged correlation between Motivation Mother and Child Behavior as reported by Mother; *R* MOTM-ESCM = cross-lagged correlation between Motivation Mother and Escalations between parent and child as reported by Mother; *R* MOTM-Goal 1M = cross-lagged correlation between Motivation Mother and Goal 1 as reported by Mother; *R* MOTM-Goal 2M = cross-lagged correlation between Motivation Mother and Goal 2 as reported by Mother; *R* MOTM-Goal 3M = cross-lagged correlation between Motivation Mother and Goal 3 as reported by Mother; *R* MOTM-PSM = cross-lagged correlation between Motivation Mother and Parenting Stress Mother.

* $p < .05$. ** $p < .01$. *** $p < .000$.

Table 7 (Continued)

Family 3													
<i>Lagged</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>
<i>Cross</i>	CBF-	ESCF-	Goal1F-	Goal2F-	Goal3F-	Goal4F-	MOTF-	MOTF-	MOTF -	MOTF -	MOTF-	MOTF -	MOTF -
<i>Correlation</i>	PSF	PSF	PSF	PSF	PSF	PSF	CBF	ESCF	Goal 1M	Goal 2M	Goal 3M	Goal 4M	PSF
	(<i>N</i> = 44)	(<i>N</i> = 44)	(<i>N</i> = 44)	(<i>N</i> = 44)	(<i>N</i> = 44)	(<i>N</i> = 44)	(<i>N</i> = 35)	(<i>N</i> = 35)	(<i>N</i> = 35)	(<i>N</i> = 35)	(<i>N</i> = 35)	(<i>N</i> = 35)	(<i>N</i> = 35)
CCF -2	-.18	.11	-.15	-.11	-.19	-.22	.04	-.05	.21	.29*	.04	.19	-.00
CCF -1	-.30*	.06	-.33*	-.26*	-.24	-.35*	.09	-.11	.03	.12	.05	.05	.12
CCF-0	-.75***	.59***	-.80***	-.78***	-.75***	-.73***	.53**	-.68***	.58***	.67***	.60***	.63***	-.51**
CCF +1	-.17	.23	-.07	-.21	-.29*	-.24	.22	-.03	.14	.17	.19	.17	-.09
CCF +2	-.14	.11	-.21	-.24	-.11	-.24	.13	-.27	.12	.13	.23	.33*	.00

Note. *R* CBF-PSF = cross-lagged correlation between Child Behavior as reported by Father and Parenting Stress Father; *R* ESC-PSF = cross-lagged correlation between Escalations between parent and child as reported by Father and Parenting Stress Father; *R* Goal 1-PSF = cross-lagged correlation between Goal 1 as reported by Father and Parenting Stress Father; *R* Goal 2-PSF = cross-lagged correlation between Goal 2 as reported by Father and Parenting Stress Father; *R* Goal 3-PSF = cross-lagged correlation between Goal 3 as reported by Father and Parenting Stress Father; *R* Goal 4-PSF = cross-lagged correlation between Goal 4 as reported by Father and Parenting Stress Father; *R* MOTF-CBF = cross-lagged correlation between Motivation Father and Child Behavior as reported by Father; *R* MOTF-CBF = cross-lagged correlation between Motivation Father and Child Behavior as reported by Father; *R* MOTF-ESCF = cross-lagged correlation between Motivation Father and Escalations between parent and child as reported by Father; *R* MOTF-Goal 1M = cross-lagged correlation between Motivation Father and Goal 1 as reported by Father; *R* MOTF-Goal 2M = cross-lagged correlation between Motivation Father and Goal 2 as reported by Father; *R* MOTF-Goal 3M = cross-lagged correlation between Motivation Father and Goal 3 as reported by Father; *R* MOTF-Goal 4M = cross-lagged correlation between Motivation Father and Goal 4 as reported by Father; *R* MOTF-PSF = cross-lagged correlation between Motivation Father and Parenting Stress Father.

* $p < .05$. ** $p < .01$. *** $p < .000$.

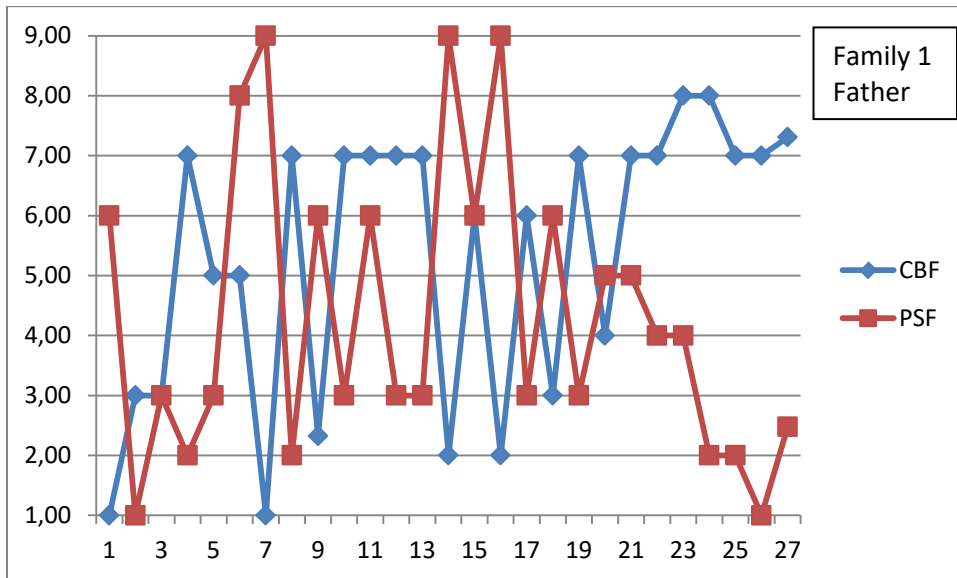
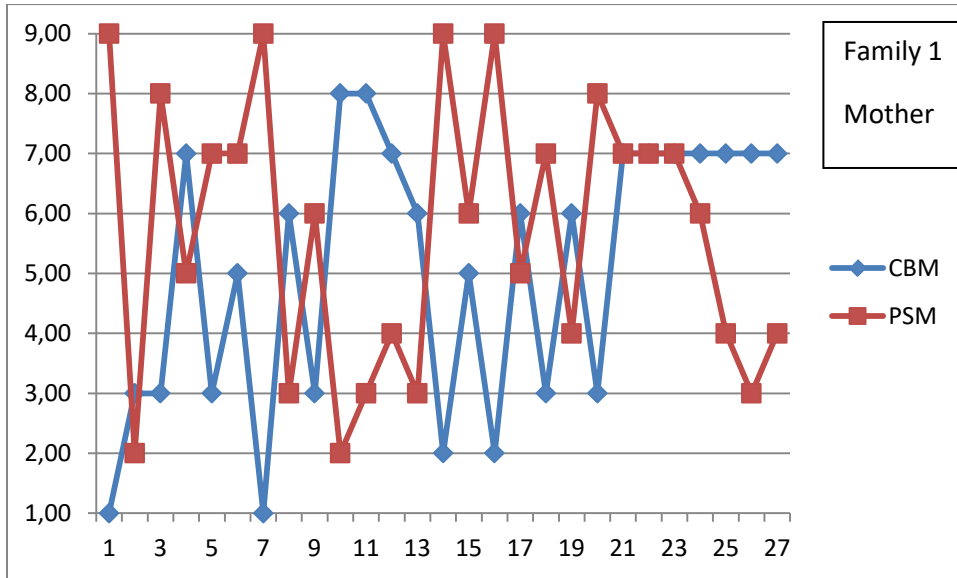
Table 7 (Continued)

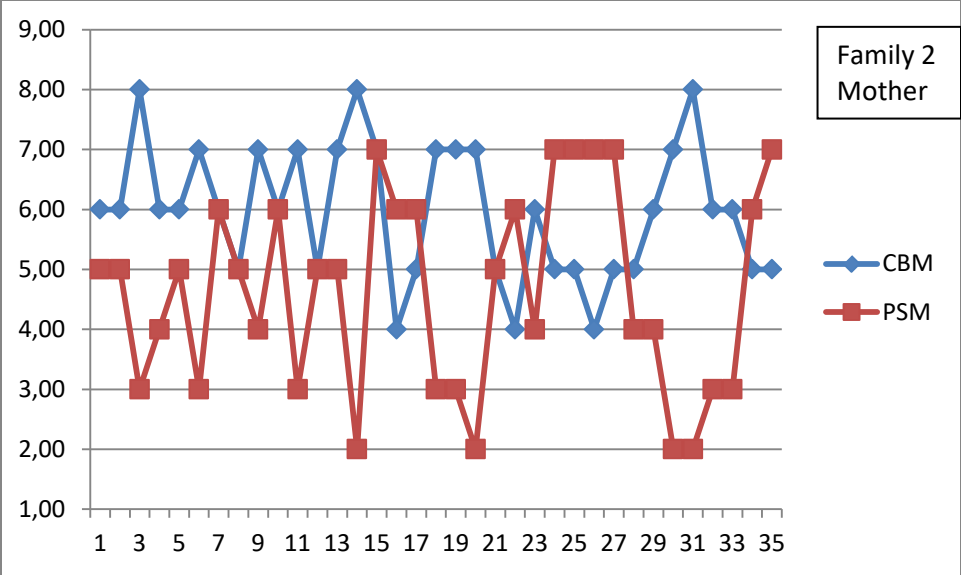
Family 4											
<i>Lagged</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>
<i>Cross</i>	CBM-	ESCM-	Goal1M-	Goal2M-	Goal3M-	MOTM-	MOTM-	MOTM -	MOTM -	MOTM-	MOTM-
<i>Correlation</i>	PSM	PSM	PSM	PSM	PSM	CBM	ESCM	Goal 1M	Goal 2M	Goal 3M	PSM
	(<i>N</i> = 29)	(<i>N</i> = 29)	(<i>N</i> = 29)	(<i>N</i> = 29)	(<i>N</i> = 29)	(<i>N</i> = 17)	(<i>N</i> = 17)	(<i>N</i> = 17)	(<i>N</i> = 17)	(<i>N</i> = 17)	(<i>N</i> = 17)
CCF -2	-.05	.13	.07	-.08	-.16	-.01	.30	.09	.01	-.02	.16
CCF -1	.06	.62***	.17	.01	.02	.39	-.07	.44*	.41*	.33	-.30
CCF -0	-.56**	.35*	-.32	-.60***	-.57**	.05	-.52*	.14	-.13	.20	-.11
CCF +1	-.12	.12	.06	-.46**	-.44*	-.19	-.10	-.23	-.32	-.25	.37
CCF +2	-.01	.14	.14	-.14	-.25	.14	.20	.20	.22	.21	-.24

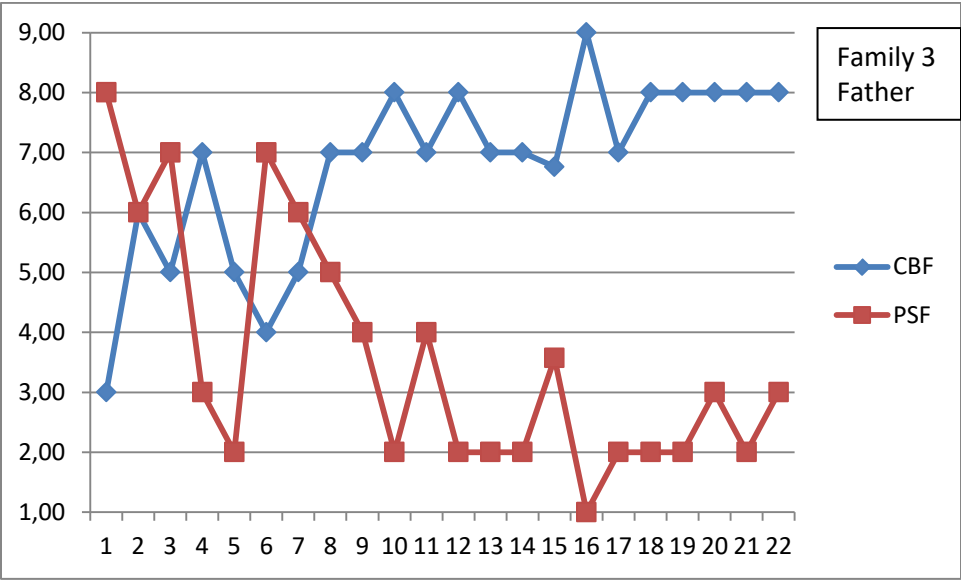
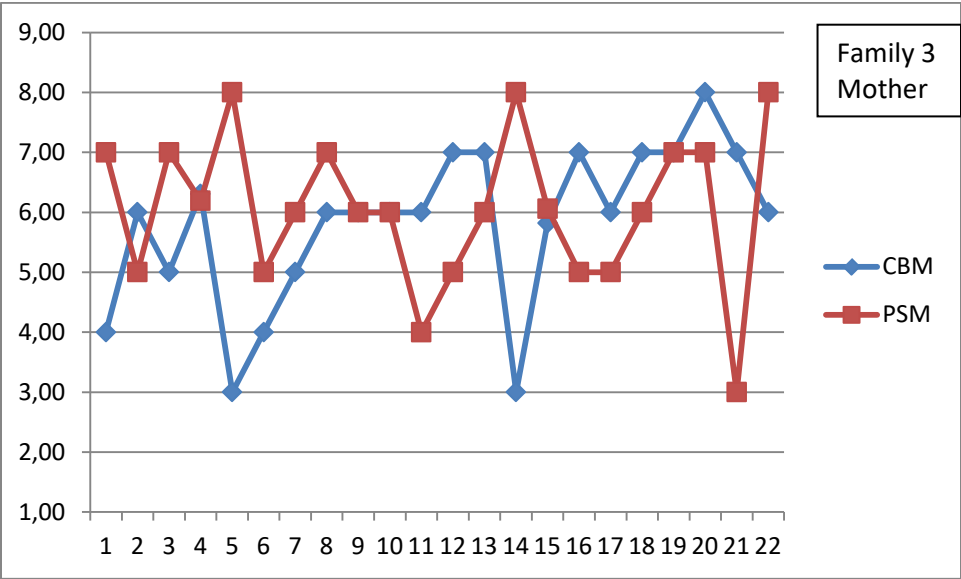
Note. *R* CBM-PSM = cross-lagged correlation between Child Behavior as reported by Mother and Parenting Stress Mother; *R* ESC-PSM = cross-lagged correlation between Escalations between parent and child as reported by Mother and Parenting Stress Mother; *R* Goal 1-PSM = cross-lagged correlation between Goal 1 as reported by Mother and Parenting Stress Mother; *R* Goal 2-PSM = cross-lagged correlation between Goal 2 as reported by Mother and Parenting Stress Mother; *R* Goal 3-PSM = cross-lagged correlation between Goal 3 as reported by Mother and Parenting Stress Mother; *R* MOTM-CBM = cross-lagged correlation between Motivation Mother and Child Behavior as reported by Mother; *R* MOTM-CBM = cross-lagged correlation between Motivation Mother and Child Behavior as reported by Mother; *R* MOTM-ESCM = cross-lagged correlation between Motivation Mother and Escalations between parent and child as reported by Mother; *R* MOTM-Goal 1M = cross-lagged correlation between Motivation Mother and Goal 1 as reported by Mother; *R* MOTM-Goal 2M = cross-lagged correlation between Motivation Mother and Goal 2 as reported by Mother; *R* MOTM-Goal 3M = cross-lagged correlation between Motivation Mother and Goal 3 as reported by Mother; *R* MOTM-PSM = cross-lagged correlation between Motivation Mother and Parenting Stress Mother.

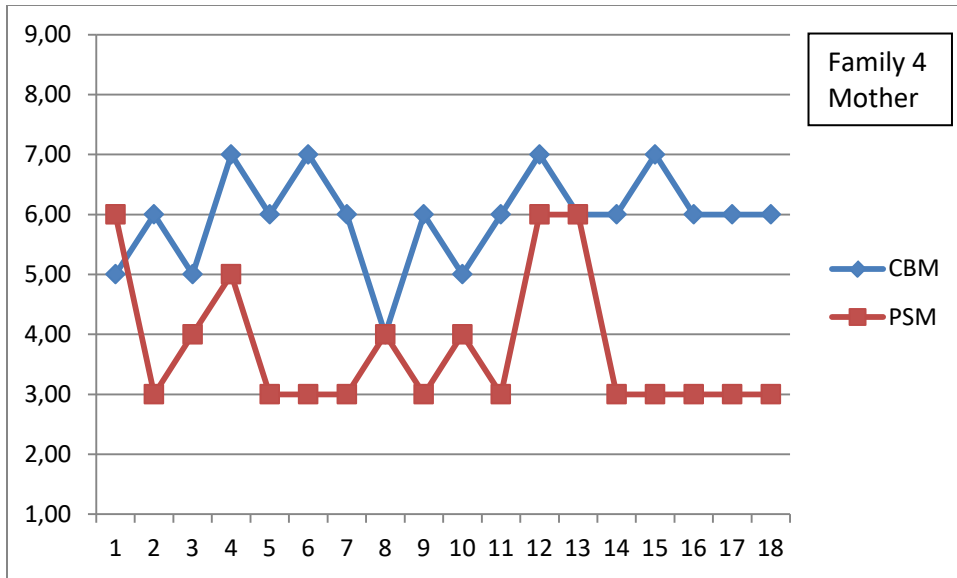
* $p < .05$. ** $p < .01$. *** $p < .000$.

Figures









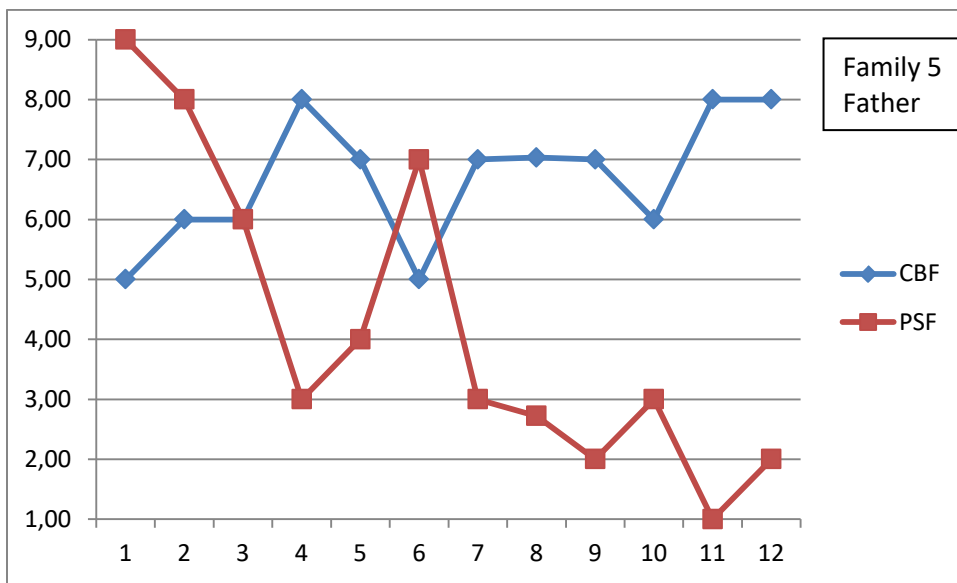
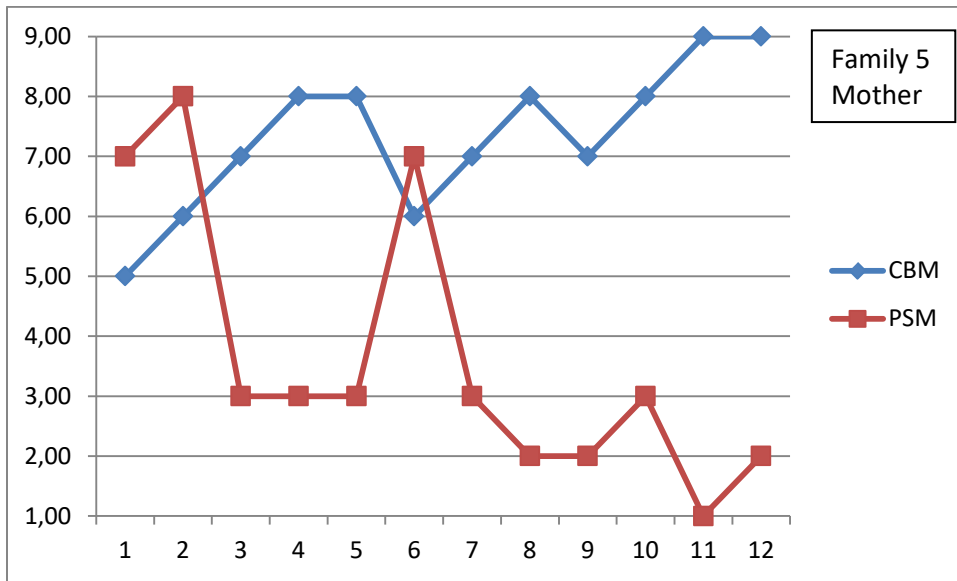


Figure 1. Session ratings for child behavior and parenting stress by mothers and fathers. CBM = Child Behavior Mother, CBF = Child Behavior Father (1= very dissatisfied with behavior; 9 = very satisfied with behavior), PSM = Parenting Stress Mother, PSF = Parenting Stress Father (1= very low; 9 = very high).