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Case management for child protection services: A multi-level evaluation study



Inge Busschers^{a,b,*}, E.S. van Vugt (Eveline)^c, G.J.J.M. Stams (Geert Jan)^c

^a Youth Protection Amsterdam Area, Overschiestraat 57, 1062 HN Amsterdam, The Netherlands

^b Amsterdam University of Applied Sciences, Research group on Implementation and Effectiveness in Youth Care Services, Wibautstraat 5a, 1091 GH Amsterdam, The Netherlands

^c University of Amsterdam, Research Institute on Child Development and Education, Nieuwe Achtergracht 127, 1018 WS Amsterdam, The Netherlands

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ABSTRACT

This article presents an evaluation study of a case management method for child protection services, the Delta Method for Family Supervision, in terms of supervision order duration and occurrence and duration of out-of-home placements. Additionally, case and case manager characteristics were examined. Data was collected about 224 cases, 58 case managers and 30 team managers of all 15 offices of the Child and Youth Protection Services in the Netherlands. In all cases the Delta Method was applied. Data were obtained by interviews, questionnaires and case files. Multi-level analysis was performed to study the influence of independent variables on supervision order duration, and the occurrence and duration of out-of-home placements. Case characteristics related to 87% of the differences in the duration of supervision order, case manager characteristics to 13% of the differences. Some case manager characteristics about applying the Delta Method were significantly related to shorter duration of the supervision order and the occurrence and duration of out-of-home placement. Case characteristics also showed strong relations. Together with the more general aspects of case management supported by this study, such as a one family and one worker approach, this contributes to a more effective practice of case management for child protection services.

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1. Introduction

In the Netherlands, families with parenting problems are generally referred to local help. However, if a child's safety is jeopardized, a family supervision order can be issued.¹ Family supervision is a compulsory, but temporary child protection measure that can be imposed for a maximum of twelve months. When safety is not met within this period, the supervision order can be extended by the court with an extra 6 or 12 months. During supervision, parents retain parental responsibility for their child, even in case of temporary out-of-home placement (e.g., residential placement or foster care), but must accept the help and support of a case worker.

The coordination and supervision of care provided under the supervision order forms part of a case management approach. Case management aims to increase access to the resources people need for living and functioning in the community, to foster their participation and to reduce attrition from the care needed (Hall, Carswell, Walsh, Huber, & Jampoler, 2002). Characteristics of case management are the assessment of problems and needs, planning of and referral to care, and

ongoing support during the trajectory (Burns, Fioritti, Holloway, Malm, & Rössler, 2001; Hall et al., 2002).

Although there is a growing body of literature on programs that aim to prevent or reduce the risk for child maltreatment (Euser, Alink, Stoltenborgh, Bakermans-Kranenburg, & Van IJzendoorn, 2015; Swenson, Schaeffer, Henggeler, Faldowski, & Mayhew, 2010; Turnell & Edwards, 1999), little knowledge exists about the effectiveness of routine services, such as case management provided within the child protection system (Euser et al., 2015; O'Brien, 2011). According to a review by Holwerda, Reijneveld, and Jansen (2014), the effectiveness of only two case management methods for multi-problem families have undergone evaluation, both in the United States, with inconclusive results (Goodson, Layzer, St Pierre, Bernstein, & Lopez, 2000; Lowell, Carter, Godoy, Paulicin, & Briggs-Gowan, 2011). One study was a randomized control trial, which showed that families allocated the program received more adequate services, their needs were better met, and there was a significantly lower chance of involvement with child protection at a follow up 36 months later (Lowell et al., 2011). The other randomized control trial showed that case management was not effective in referring families to the appropriate services, and there were no differences in cognitive and social development of the children, parenting behavior and socio-economic outcomes, such as work and income between families receiving the program and the control group. A five year follow-up study showed that most families were still facing

* Corresponding author.

E-mail address: i.busschers@jbra.nl (I. Busschers).

¹ For more information about the Dutch child protection system see <http://www.youthpolicy.nl>.

problems (Goodson et al., 2000). However, both case management programs in this review were not applied as a compulsory supervision order, which may have resulted in additional challenges, such as resistance and distrust of parents (Forrester, Westlake, & Glynn, 2012; Kalsbeek, 2008).

In 2005, a family supervision order in the Netherlands lasted on average four years (Bartelink, 2010), much longer than the intended 12 months. The placement of children in out-of-home care was also not applied as intended: out-of-home care was often characterized by multiple consecutive placements. In addition, more than one third of all children under supervision had three or more changes in placement during supervision, and the percentage of children in out-of-home care increased from 28% at start to 51% when two to three years under supervision (Slot, Theunissen, & Duivenvoorden, 2002). Questions were raised about the performance of the existing child protection organizations and professionals. Therefore, in 2005, a new working method was introduced to address the long lasting family supervision orders and the number and duration of out-of-home placements in the Netherlands, coordinated nationally by the Child and Youth Protection Services (CYPS). Nevertheless, between 2004 and 2007, the number and length of supervision orders and out-of-home placements continued to increase (Ministry of Justice, 2008). Although similar trends were found internationally (Gilbert, 2012), this increase was partly due to a number of fatal child maltreatment incidents in the Netherlands for which case workers were held responsible (e.g., Inspection Youth Care, 2005). These incidents were followed by an intensified focus on child safety and rigorous registration measures about all meetings and phone calls with children and caregivers to monitor child safety. These developments resulted in an increased focus on the effectiveness of family supervision orders (Ministry of Justice, 2005), and after several pilots between 2004 and 2007, the nationwide implementation of the Delta Method for Family Supervision came into effect in 2008 (Van Montfoort & PI Research, 2009).

The Delta Method was the first national case management method for child protection and was the starting point for a uniform and methodical approach for child protection in the Netherlands. The Delta Method is applied by social workers who work as case managers. They meet regularly with the family to assess risk factors and the needs of the family, and they refer the family to specific interventions. Case managers also coordinate the work of other professionals, and monitor and support the family during interventions. They do not provide care themselves. Although the Delta Method for Family Supervision was developed to improve case management in child protection services, comparable approaches can be found internationally, such as the Signs of Safety approach (Turnell & Edwards, 1999).

Two key aspects of the Delta Method had to improve the child protection services in the Netherlands: a systematic assessment of child safety and a methodical, stepwise work approach for the evaluation of goal attainment. Both elements were nonexistent. More specifically, case managers did not systematically make use of (risk) assessment tools to determine the level of risk for child maltreatment in their decisions to end or continue supervision orders or out-of-home placements. Without the formal evaluation of child safety and goal attainment, it often remained unsure whether safety was at stake or not, and supervision orders were sometimes unnecessarily extended or ended without insight into child safety. In addition, the introduction of the Delta method demanded a more intensive collaboration of the case manager with the family. Therefore, the implementation of the Delta Method was accompanied by a case load reduction of 23 to 15 cases per full time professional (Van Montfoort & PI Research, 2009).

The Delta Method includes four consecutive steps for the professional to complete with the family, which is designated as the Four Steps Model (Van Montfoort & PI Research, 2009): 1) formulating concerns, strengths and the family's perspective on the problems, 2) translating the concerns into possible threats for child development, 3) addressing the desired child development outcomes and 4) formulating concrete

goals, and appropriate methods to reach these goals (such as meetings, specific interventions or out-of-home placement) in an Action Agenda. A supervision plan that includes the Four Steps is used to monitor progress on goals and child safety.

Two central competencies used by case managers, and which are assumed to increase the effectiveness of the Delta Method, are 'engaging' and 'positioning' (Van Montfoort & PI Research, 2009). Engaging means that the case manager collaborates with and relates effectively to the child and its family by matching the family's wishes to their strengths. Research shows that families referred to child protection services are often resistant to services (Forrester et al., 2012) or distrustful towards social workers (Kalsbeek, 2008; Forrester et al., 2012). Therefore, engaging skills are needed for the professional to create a good working alliance (Dawe, Harnett, & Frye, 2008; Orobio de Castro, Veerman, Bons, & Beer, 2002; Rots-de Vries, van de Goor, Stronks, & Garretsen, 2011).

Positioning means that case managers hold a clear position in their contact with the child's caregiver and address how safety and a healthy child development should be warranted. They are focusing on the roles, tasks, responsibilities and obligations of each person involved to improve or maintain child safety (Van Montfoort & PI Research, 2009). Professionals are explicit about the risks for the child and actions that are needed, while preserving a good working alliance with the parents (Forrester et al., 2012). It is suggested that understanding the viewpoint of parents, even when there is no agreement, promotes an empathic and caring working relationship (Forrester et al., 2012). By alternately switching between engagement and positioning techniques, the professional can work effectively with the family while ensuring the child's safety (Van Montfoort & PI Research, 2009).

The aim of the present study was to examine whether the newly introduced Delta Method was related to reducing the duration of the supervision order and occurrence and duration of out-of-home placements by means of multi-level analysis. The Delta Method meant an enormous change for professionals by the introduction of a structural assessment of safety, and a more systematic work approach. We hypothesized that all aspects of the Delta Method were related to outcomes in terms of shorter duration of supervision orders and fewer and shorter out-of-home placements. Additionally, we examined the influence of child, family and professional characteristics, as it can be expected that these variables are related to the outcomes (Glisson, Bailey, & Post, 2000; Inkelas & Halfon, 1997; Pritchett, Gillberg, & Minnis, 2013).

2. Methods

2.1. Design

A multi-level model was used to examine the relation between case characteristics, case manager and team characteristics and the outcome measures, that is, duration of supervision order and occurrence and duration of out-of-home placement during supervision. Data were obtained at case level (level 1), at case manager level (level 2) and at team level (level 3): cases were nested in case managers and case managers in teams, with their respective team managers. It was not possible to include a control group in this study, as the Delta Method had been implemented at all offices of the CYPS.

2.2. Participants

2.2.1. Selection

Data were obtained between September and December 2009. From all 15 offices of the Dutch CYPS, two team managers were randomly selected ($N = 30$) and for each team, two case managers with at least one year experience as a case manager ($N = 60$). For each case manager, four completed family supervision cases were selected ($N = 240$). In 2009, there were approximately 1600 case managers and 30,000 cases of family supervision in the Netherlands. A parallel random selection of team managers, case managers and cases took place, when

participants were not able or willing to participate. The parallel selection was used two times for team managers (6.7%) and eight times for case managers (13.3%).

2.2.2. Team managers

Most team managers responded to the questionnaire ($N = 28$). Team managers were both female (51.9%) and male (49.1%), and on average 47.5 years of age ($SD = 7.5$). All team managers completed at least higher vocational education and had on average 58.4 months ($SD = 52.8$) experience as a team manager.

2.2.3. Case managers

All but one case manager ($N = 59$) responded to the questionnaire. Case managers were mainly female (70.2%). Their average age was 39.6 years ($SD = 10.9$). All case managers completed at least higher vocational education, had on average 74.3 months ($SD = 70.1$) experience as a case manager, and on average 19.2 months ($SD = 0.3$) experience with the Delta Method. The average case load of case managers was 18–20 cases per full time professional instead of the aimed 15 cases.

2.2.4. Cases

In total, 224 of the 240 cases were included in this study. Not all case managers had completed 4 family supervision cases since the implementation of the Delta Method, even though they had at least one year work experience with the Delta Method. Cases were built around one child and cases were linked to the last case manager who was involved with the family. Duration of supervision was on average 37.5 months ($SD = 33.0$); >3 years. A total of 58.1% of the children experienced an out-of-home placement during supervision, on average for 17 months ($SD = 30.0$); almost 1.5 years. Furthermore, on average 2 case managers were involved with a family during the supervision order (range 1–8). Half of the cases had one case manager involved, 27% had two case managers, 12% had three case managers and 11% had four or more case managers involved during supervision. At the start of the supervision order, the average age of children was 10.9 years ($SD = 5.3$). As many boys (51%) as girls (49%) were under the supervision of a case manager. Forty-three percent of the children had a non-native background, indicating that at least one of their parents was born in a foreign country. Most children (94%), however, were born in the Netherlands.

2.3. Instruments

Data were obtained by a standardized set of instruments; administrative records for the outcome measures, a code sheet for the cases, a questionnaire for professionals and a questionnaire for team managers. Items measuring a similar construct were combined into scales after Principal Component Analysis (PCA).

2.3.1. Administrative records

The outcome measures were obtained from the administrative records of the CYPS.

2.3.2. Code sheet

The code sheet for analyzing the cases contained four sections. The first section addressed general background characteristics of the child and the family as observed from the case files (8 items). Items were age of child at the start of supervision, sex, country of birth, living situation (with biological parent or not), cultural background, and number of siblings living in the family (see Table 1).

The second section addressed the situation before the start of the supervision order, including history of services in the family as observed from the case files (88 items). The items on characteristics of the child and the family were abstracted from the Protocol for Analysis of Concerns (Zorgpunten Analyse Protocol, ZAP) instrument (Lunenburg, Bijl, and Slot, 2006), an instrument used in a previous study on the

implementation of the Delta Method (Slot, van Tooren, & Bijl, 2004). Items were added to collect information on the child and its family. For child characteristics, four scales were constructed after PCA (see Table 2). One for internalizing problems (4 items, with a sufficient reliability of $\alpha = 0.62$), one for externalizing problems (4 items, with a good reliability of $\alpha = 0.75$). One scale for concerns about children up to age 11 (11 items, with a good reliability of $\alpha = 0.89$) and one for concerns about adolescents (9 items, with a good reliability of $\alpha = 0.76$). After standardization, these two scales about 'concerns' were combined and contained items such as concerns about health, friendship, learning disabilities and attachment. For family characteristics, one scale was constructed for concerns about 'parenting and neglect' (4 items, with a good reliability of $\alpha = 0.78$). Single items about the family were used for case history, such as 'sexual abuse', 'physical abuse', 'divorce before start of supervision'. For family system and environment characteristics, one scale was constructed for concerns about school and learning (4 items, with a good reliability of $\alpha = 0.87$). The second section of the code sheet also included items about family services, such as 'educational support' and 'social work'.

Table 1

Variables included in analysis: data from case files ($N = 224$) and case managers ($N = 58$).

Variables	Data source	Examples of variables
Step 1 Characteristics child at start	Case files	Age, sex, country of birth, provisional supervision order or not, living situation, previous out-of-home placement
Step 2 Background characteristics family	Case file	Number of children in the family, divorce or not, cultural background
Step 3 Characteristics family at start	Case file	Crime in de family, maltreatment in the family, concerns regarding social network of the family
Step 4 History of abuse and neglect	Case file	Sexual abuse, physical abuse, pedagogical neglect
Step 5 Concerns at start of case management	Case file	Internalizing and externalizing psychopathology, learning disabilities, school related problems and other concerns about the child
Step 6 Received services	Case file	Educational support, social work
Step 7 Characteristics supervision order	Case file and administrative data	Number of case managers and application of out-of-home placement during supervision order
Step 8 Characteristics Delta Method	Case file	Supervision plan according to format, concrete formulated goals on developmental, parenting tasks and skills, degree of use of the skill 'engagement'
Step 9 Characteristics case manager	Questionnaire case manager	Age, sex and work experience
Step 10 Characteristics implementation	Questionnaire case manager	Job related wellbeing of case manager, willingness to change and extent to which the implementation strategy was fitting
Step 11 Characteristics application Delta Method	Questionnaire case manager, questionnaire team manager	Number of months experience with Delta Method, number of cases in case load and application of the Delta Method according to the team manager

Table 2
Scales from code sheet on case level ($N = 224$) constructed after Principal Component Analysis.

Scale	Items	N	Mean	SD	α
Child internalizing problems	4	216	0.42	0.55	0.62
Child externalizing problems	4	220	0.68	0.71	0.75
Child concerns ≤ 11 years	11	111	0.77	0.62	0.89
Child concerns ≥ 12 years	6	113	1.27	0.60	0.76
Family level concerns 'parenting and neglect'	4	210	0.94	0.68	0.78
System level concerns 'school and learning'	4	224	2.02	0.93	0.87
Engagement by case manager	5	224	2.24	0.70	0.82

The third section included items about the application of the core elements of the Delta Method (25 items) as observed from the case files. A 5-item scale was constructed for 'engagement by the case manager' with a good reliability ($\alpha = 0.82$). Also three single items were used, concerning 'supervision plan according to Delta Method', 'clearly described and well operationalized parenting goals' and 'clearly described and well operationalized developmental goals'.

The fourth section included supervision order characteristics as observed from the case files and administrative records (11 items), such as the number of involved case managers, duration of out-of-home placement, previous out-of-home placements and provisional supervision orders in the past.

2.3.3. Questionnaire case managers

The questionnaire for case managers contained five sections. The first section was about work experience, education, training and case-load (17 items). The second section included items about the application of the elements of the Delta Method (33 items) on a 5-point Likert scale (1 = does not succeed at all, 2 = does not succeed, 3 = not bad and not good at, 4 = succeeds, 5 = succeeds very well). After PCA, four scales were constructed: 'engagement according to case manager' (6 items, $\alpha = 0.74$), 'positioning according to case manager' (4 items, $\alpha = 0.81$), 'methodically approach by case manager' (5 items, $\alpha = 0.76$) and 'discussing safety with family' (7 items, $\alpha = 0.77$), see Table 3. The third part of the questionnaire included the 'Decision Determinants Questionnaire' (DDQ) (Bijl & van den Bogaart, 1992), to gain insight in the willingness to change. The DDQ contains 8 subscales (ability, values, idea, circumstances, timing, obligation, resistance and yield) and a 7-point Likert scale (ranging from 1 = totally agree to 7 = totally disagree). Good psychometric properties of the DDQ are shown by Bijl and van den Bogaart (1992). In the present study, reliability of the subscales varied between $\alpha = 0.60$ ('obligation' and 'circumstances') and $\alpha = 0.93$ ('yield'). The total score is the average score of the 8 subscales ($\alpha = 0.86$). The fourth part of the questionnaire contained items about the implementation of the Delta Method at the management and organizational level (13 items), retrieved from Stals, Yperen, Reith, and Stams (2008). The fifth section contained items about job related satisfaction. Three topics (29 items) were selected from the 'Questionnaire Experience and Assessment of Work' (Van Veldhoven, Meijman, Broersen, & Fortuin, 2002).

Table 3
Scales from questionnaires ($N = 58$) constructed after Principal Component Analysis.

Scale	Items	N	Mean	SD	α
Engagement by case manager	6	57	3.45	0.50	0.74
Positioning by case manager	4	57	4.26	0.41	0.81
Methodical approach by case manager	5	56	2.98	0.68	0.76
Discussing safety with family	7	57	3.91	0.48	0.77
Willingness to change: DDQ	41	57	3.53	0.81	0.86
Experience implementation	7	56	6.20	1.53	0.90
Application of Delta Method according to team manager	32	52	2.37	0.34	0.93

Note 1. DDQ = Decision Determinants Questionnaire (Bijl & van den Bogaart, 1992).

2.3.4. Questionnaire team manager

Team managers filled in the same questionnaire as case managers. One section was added (32 items), with statements regarding the application of the Delta Method by the case managers. Answer categories were 'point of improvement', 'sufficient' and 'good'. Items were retrieved from Heinrich and Krooi (2009). After PCA, all items were combined into one scale, yielding a good reliability ($\alpha = 0.93$), see Table 3.

2.4. Procedure

All 15 offices of the Dutch CYPS were selected. The questionnaires for team managers and case managers were sent by mail. Team managers and case managers needed on average 90 min to complete the questionnaire. Cases were coded by trained student assistants under supervision of the researchers. After the coders had reached sufficient interrater reliability ($\text{Kappa} > 0.80$), they coded the cases.

2.5. Statistical analyses

Statistical analyses were performed using MlwiN (Rasbash, Steele, Brown, & Goldstein, 2009), a software package often used for multi-level analysis.

2.5.1. Analyses

There were 14% missing values in the code sheet, mostly about child concerns. Missing data were estimated using expectation maximization in SPSS (Schafer & Olsen, 1998). The degree to which case managers applied the Delta Method was studied by descriptive statistics and analysis of variance. The influence of the independent variables at the case and professional level on the duration of the supervision order, on out-of-home placement and its duration was studied by means of multi-level analysis (Goldstein, 2011). The first dependent variable 'duration of supervision order' was transformed to a normal distribution by a logarithmic transformation (Tabachnick & Fidell, 1996). The second dependent variable was a dichotomous variable 'out-of-home placement or not'. The third dependent variable 'duration of out-of-home placement' was also transformed to a normal distribution by a logarithmic transformation.

Multi-level analysis was used to examine relations at the team, case manager and case level. No significant team level effects were found (see below). When significant relations at case manager level (level 2) were lacking, hierarchical multiple or logistic regression analysis was solely performed at the case-level. To be able to identify the unique contribution of the Delta Method variables, the Delta method variables were added at the end (see Table 1).

3. Results

3.1. Predictors of duration supervision order

3.1.1. Multi-level analysis

A hierarchical procedure was followed for multi-level analysis (Goldstein, 2011). As the team level was not significant, we conducted two-level analysis, with all (unexplained) variance at the team level distributed at the case manager level. Then, the independent variables were selected (selection at $p < 0.05$ and removal at $p > 0.10$) and added to the model in 11 consecutive steps. Variables were added as clusters. In the last steps characteristics of the Delta Method were added, so that the unique influence of the application of the Delta Method could be examined. When variables from a cluster did not improve the model, the variables were all removed in order to prevent chance capitalization. Analyses were performed on data from 224 cases and 58 case managers.

Table 4 shows the results of the multi-level analysis, where the first model (intercept only model), without predictors, showed that 87% of the variance in the duration of the supervision order was caused by

Table 4
Multi-level analysis: duration of supervision order.

Predictors	Null model	Explaining model	
		b	t
Intercept	1.45 (0.02)		
Case file and client characteristics			
Provisional supervision order		−0.20	3.77***
Out-of-home placement during supervision order		0.23	4.33***
Age of child at start supervision order		0.26	4.58***
Concrete formulated parenting goals		0.15	2.80**
Number of involved case managers		0.36	6.69***
Case manager characteristics			
Number of months working with Delta Method		0.12	2.05*
Number of months work experience as case manager		0.14	2.50*
Variance components			
Case file and client characteristics	0.0877 (87%)	0.0565	
Case manager characteristics	0.0130 (13%)	0.0039	
Explained variance (%)			
Case file and client characteristics		31.00	
Case manager characteristics		9.00	
Model fit			
χ^2	4.66*	110.99***	

Note 1. $N = 224$.Note 2. * $p, 0.05$; ** $p, 0.01$; *** $p, 0.001$.

Note 3. Total explained variance is 40%.

differences in case characteristics and 13% by case manager characteristics: $\chi^2(1) = 5.66, p < 0.05$. The model with 7 predictors showed significant improvement of the model, $\chi^2(7) = 110.99, p < 0.001$: containing 5 predictors at level 1 and 2 predictors at level 2.

More specifically, case characteristics (level 1) explained 87% of the differences in duration of the supervision order. Approximately half of this percentage was explained by five variables, together explaining 31% of the differences in duration. Out-of-home placement during supervision ($b = 0.23$) and a larger number of involved case managers ($b = 0.36$) were related to an increase in duration. Provisional supervision orders in the past ($b = -0.20$), a higher age of the child at start ($b = -0.26$) and concrete parenting goals in the supervision plan ($b = -0.15$) were related to a decrease in duration of the supervision order.

Case manager characteristics (level 2) explained 13% of the differences in duration of the supervision order. Approximately two third of this percentage was explained by two variables, together explaining 9% of the differences in duration. More work experience as a case manager was related to an increase in duration ($b = 0.14$), whereas more work experience with the Delta Method was related to a decrease in duration of the supervision order ($b = -0.12$).

Two variables in the model addressed the positive influence of the Delta Method on the duration of the supervision order, namely, formulating concrete goals (level 1) and case manager's experience with the Delta Method (level 2). In terms of change in duration of the supervision order, these results showed that formulating concrete goals was related to a decrease of 8 months, and every extra three months experience with the Delta Method was related to a decrease of one month supervision. At the same time, every extra year work experience as a case manager was related to an increase of half a month. Thus, a case manager with an average work experience (6.2 years or 74 months) needs an extra 2.5 months for the execution of a supervision order compared to a case manager with 12 months less experience.

Other variables related to an increase in duration of the supervision order were the number of involved case managers and out-of-home placement during supervision order. Every extra case manager was related to an increase of 7 months, an out-of-home placement was related to an increase of 11 months of the supervision order. Two variables

were related to a decrease in duration: a conditional supervision order in the past (decrease of 12 months) and age of the child. Every extra year of age of the child at the start of the supervision order was related to a decrease of 2 months.

3.2. Predictors of out-of-home placement

3.2.1. Logistic regression analysis

A hierarchical procedure was followed for multi-level analysis (Goldstein, 2011), with a dichotomous dependent variable (out-of-home placement or no out-of-home placement). There were no significant team and case manager level effects. We therefore conducted simple logistic regression analysis, because we were still interested in the effects of case characteristics on out-of-home placement. The same predictors were added to the model as in the analyses of the duration of the supervision order. Analyses were performed on data from 224 cases and 58 case managers. There was a significant model [$\chi^2(4) = 57.47, p < 0.001$] with four variables explaining 30% of the differences: placement in out-of-home care prior to the supervision order, concerns about parenting and neglect, a supervision plan according to the Delta Method, and the number of case managers involved.

Table 5 shows that a previous out-of-home placement increased the odds of out-of-home placement during supervision by a factor 8.31. When there were concerns about parenting and neglect, the odds ratio for out-of-home placement was 1.91. If a supervision plan was made according to the Delta Method the odds of out-of-home placement decreased by 52%. Every extra involved case manager increased the odds of out-of-home placement by 32% (Odds Ratio = 1.32). The average number of case managers involved was 2.

3.3. Predictors of duration of out-of-home placement

3.3.1. Multiple hierarchical regression analysis

There were no significant team and case manager effects. Although no case manager or team level characteristics could predict duration of out-of-home placement, we were interested to see whether case level factors explained the duration of out-of-home placement. We therefore conducted simple multiple hierarchical regression analysis, including all case variables, according to the previously described consecutive steps. The dependent variable out-of-home placement was based on the total duration of out-of-home placement during the supervision order. Independent variables were selected step by step (selection at $p < 0.05$ and removal at $p > 0.10$). Analysis was performed on $N = 124$ cases, where children were placed out-of-home during supervision. The independent variables were step by step added to the model, similar to step 1 till 8 of the multi-level analysis on duration of supervision order.

The three variables with unique influence on the duration of the out-of-home placement during supervision order together explained 18% of the variance [$F(3120) = 8.91, p < 0.001$], see Table 6. Age of the child at the start of the supervision order explained 5% of the differences in duration of out-of-home placement, the number of case managers involved explained 7% of these differences and the degree to which parenting goals were formulated in a concrete way explained 6% of the differences. Older age at start of the supervision order was related

Table 5
Logistic regression analysis: out-of-home placement or not.

Predictors	β	Wald	Odds ratio
Out-of-home placement before supervision order	2.12	29.43**	8.31
Concerns family level 'parenting and neglect'	0.65	7.70*	1.91
Supervision plan according to Delta Method	−0.74	5.28*	0.48
Number of involved case managers	0.28	4.81*	1.32

Note 1. $N = 224$.Note 2. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Note 3. $\chi^2(4) = 57.47, p < 0.001$.

Table 6
Multiple hierarchical regression analysis: duration out-of-home placement.

Predictors	R	R ²	ΔR ²	FCh	b	t
Age of child at start supervision order	0.21	0.05	0.05	5.88	−0.23	−2.72**
Number of involved case managers	0.35	0.12	0.07	10.17	0.25	2.94**
Concrete formulated parenting goals	0.43	0.18	0.06	9.14	−0.25	−3.02**

Note 1. N = 124.

Note 2. * p < 0.05; ** p < 0.01; *** p < 0.001.

Note 3: F (3120) = 8.91, p < 0.001.

to a decrease of 2 months, drafting concrete parenting goals was related to a decrease of 14 months and every extra involved case manager was related to 6 extra months of out-of-home placement. Table 7 provides an overview of all variables and their relation to the outcomes.

4. Discussion

The objective of this study was to examine the association of the Delta Method for Family Supervision with outcomes in terms of the duration of supervision order and the occurrence and duration of out-of-home placements. Case characteristics related to 87% of the differences

Table 7
Mean, standard deviations and correlations or t-test of variables to duration of supervision order, duration and occurrence of out-of-home placement.

Variables added in steps	Duration Supervision order			Duration out-of-home placement			Occurrence out-of-home placement				t-test
	(N = 224)			(N = 124)			No (N = 100)		Yes (N = 124)		
	M	SD	R	M	SD	R	M	SD	M	SD	
1. Characteristics child at start											
Living situation	0.28	0.45	0.09	0.43	0.50	0.08					
Age of child in months	130.80	63.49	−0.26 **	128.16	64.74	−0.21 *	134.08	62.08	128.16	64.74	0.69
Sex child	0.49	0.50	−0.04	0.44	0.50	0					
Country of birth child	0.06	0.23	−0.07	0.06	0.23	−0.05					
2. Characteristics family: background											
Cultural background	0.43	0.50	−0.05	0.41	0.49	−0.13					
Number of siblings living in family	2.20	1.36	0.08	2.09	1.27	−0.06	2.35	1.46	2.09	1.27	1.40
Divorce/separation before supervision order	0.64	0.48	0.05	0.62	0.49	0.06					
3. Characteristics family at start											
History of criminal offending within family	0.42	0.50	−0.15 *	0.37	0.49	−0.14					
Maltreatment of child	0.34	0.47	−0.08	0.37	0.49	−0.13					
Sexual abuse of the child	0.12	0.32	0.11	0.10	0.30	0.14					
4. History of abuse and neglect											
History of sexual abuse within family	0.13	0.34	0.04	0.15	0.35	0.10					
History of physical maltreatment within family	0.34	0.47	−0.08	0.37	0.49	−0.13					
History of pedagogical neglect within family	0.38	0.49	0.27 ***	0.48	0.50	0.13					
5. Concerns											
Internalizing problems	0.43	0.54	−0.06	0.43	0.57	−0.06	0.43	0.51	0.43	0.57	−0.03
Externalizing problems	0.68	0.71	−0.09	0.73	0.74	−0.02	0.63	0.67	0.73	0.74	−1.05
Other concerns on child level	0.00	1.00	0.10	0.18	1.05	0.11	−0.23	0.88	0.18	1.05	−3.20 **
Concerns parenting and neglect	0.97	0.69	0.20 **	1.11	0.65	0.18 *	0.79	0.69	1.11	0.65	−3.52 ***
Concerns school and learning	0.87	0.78	−0.03	0.89	0.78	0.02	0.85	0.78	0.89	0.78	−0.43
6. Received services											
Received services child	0.71	0.45	−0.09	0.77	0.43	−0.18 *					
Received services parent	0.72	0.45	0.14 *	0.75	0.43	0.05					
7. Characteristics supervision order											
Out-of-home placement or not	0.57	0.50	0.29 ***								
Number of involved case managers	1.96	1.31	0.45 ***	2.18	1.41	0.29 ***	1.69	1.11	2.18	1.41	−2.91 **
Out-of-home placement previous to supervision order	0.31	0.46	0	0.46	0.50	0.03					
Out-of-home placement or not at start supervision order	0.37	0.48	0.06	0.63	0.49	0.05					
Duration of provisional supervision order in months	0.21	0.40	−0.15 *	0.31	0.46	−0.05					
8. Characteristics Delta Method											
Engagement by case manager	2.34	0.60	−0.05	2.30	0.57	−0.17	2.39	0.64	2.30	0.57	1.11
Supervision plan according to Delta Method	0.60	0.49	−0.16 *	0.53	0.50	−0.07					
Clearly described and well operationalized parenting goals	0.49	0.50	−0.18 **	0.42	0.50	−0.25 **					
Clearly described and well operationalized developmental goals	0.60	0.49	−0.09	0.58	0.50	−0.19					
9. Characteristics case manager											
Sex case manager	0.69	0.46	0	0.68	0.47	−0.07					
Age case manager	39.28	10.46	0.15 *	39.32	10.19	0.24 **	39.23	10.83	39.32	10.19	−0.07
Work experience as case manager in months	91.57	91.59	0.20 **	92.81	92.74	0.18 *	90.03	90.57	92.81	92.74	−0.23
10. Characteristics implementation											
Relation with colleagues	1.47	0.30	−0.08	1.48	0.28	0.01	1.45	0.32	1.48	0.28	−0.83
Relation with team manager	1.53	0.33	0.07	1.55	0.32	0.09	1.50	0.34	1.55	0.32	−1.10
Amount of work and rush	2.30	0.40	0.04	2.27	0.39	0.05	2.35	0.40	2.27	0.39	1.58
Attitude case manager according to team manager	2.36	0.32	−0.08	2.34	0.32	−0.16	2.40	0.31	2.34	0.32	1.33
Willingness to change: DDQ	3.48	0.73	0.04	3.52	0.79	0	3.42	0.65	3.52	0.79	−0.95
Experience with implementation	6.24	1.44	−0.05	6.21	1.50	0.06	6.28	1.36	6.21	1.50	0.35
11. Characteristics application Delta Method											
Engagement by case manager	3.47	0.48	−0.09	3.45	0.48	−0.04	3.50	0.47	3.45	0.48	0.76
Positioning by case manager	4.27	0.39	−0.04	4.26	0.40	−0.13	4.27	0.38	4.26	0.40	0.27
Methodical approach by case manager	2.99	0.64	−0.04	2.95	0.65	0.03	3.04	0.63	2.95	0.65	1.05
Discussing safety with family	3.91	0.46	−0.01	3.92	0.48	−0.10	3.90	0.44	3.92	0.48	−0.23
Work experience with Delta Method in months	18.94	9.80	−0.15 *	18.57	8.96	−0.05	19.39	10.79	18.57	8.96	0.62
Case load of 17 cases or not	0.73	0.44	0.03	0.69	0.47	0.19 *					

Note 1. * p < 0.05; ** p < 0.01; *** p < 0.001.

in the duration of the supervision order, while case manager characteristics contributed to 13% of the differences. Some case manager factors were significantly related to the outcomes. A supervision plan according to the Delta Method decreased the odds of out-of-home placement. This is in line with the literature showing that the elaboration of goals in concrete implementation intentions (what, when and how to achieve goals) contributes to goal achievement (Gollwitzer & Sheeran, 2006). The use of such implementation intentions is particularly useful for people with poor self-regulatory skills or cognitive disturbances (Brandstätter, Lengfelder, & Gollwitzer, 2001; Lengfelder & Gollwitzer, 2001), as might be the case with a large part of the population of children and families under supervision. Even though causality cannot be claimed, it should be emphasized that some aspects of the Delta Method were unique predictors of major outcomes, as some alternative explanatory factors were controlled for in the multivariate analyses, such as complexity of the case and age of the child.

The other three key aspects of the Delta Method did not show significant associations with the outcomes. Although engagement and positioning techniques are assumed important factors to improve the *working alliance* with families (Dawe et al., 2008; Orobio de Castro et al., 2002; Rots-de Vries et al., 2011), no significant associations were found between engagement and positioning and the duration of the supervision order and the occurrence and duration of out-of-home placements. This working relationship is often considered a *common therapeutic factor* in working with families in youth care (Chorpita, Becker, Daleiden, & Hamilton, 2007; Van Yperen, van der Steege, Addink, & Boendermaker, 2010). Possibly, engagement and positioning competencies may have an indirect effect on the outcomes. Additionally, no significant associations were found for the structural assessment of child safety. This might be explained by the fact that case managers only closed a case when sufficient levels of child safety were reached.

Characteristics of cases and case managers also showed important effects on the duration of the supervision order and the occurrence and duration of out-of-home placements. Important predictors were previous out-of-home placement(s), provisional supervision orders in the past, concerns about parenting and neglect, the child's age at start, age of the case manager, work experience as case manager and with the Delta Method, and the number of involved case managers. A higher age of the child at start of the supervision order was related to a decrease in duration of both supervision order and out-of-home placement, which is in contrast to other findings (Euser et al., 2015; Pritchett et al., 2013). In the systematic review of Pritchett et al. (2013), most studies reported more positive results for younger children, and a positive effect of the young age was also found in the meta-analysis of Euser et al. (2015). However, this latter effect disappeared after controlling for year of publication and sample size. No significant associations were found for internalizing and externalizing problems of the child, whereas most studies in the Pritchett review (2013) and Glisson et al. (2000) found child mental health to have a negative effect on placement outcomes and the transition out of care. Although concerns about parenting and neglect were related to the outcomes in our study, the effects of parenting and other family characteristics have not been consistently reported among other studies (Euser et al., 2015; Glisson et al., 2000).

When the supervision order was preceded by a provisional supervision order, the duration of the supervision order decreased with 12 months. Provisional supervision orders are supervision orders that can be imposed when a child is in acute and severe danger, which usually coincides with a request for an authorization for custodial placement. It is interesting that a provisional supervision is associated with a decrease in the duration of the supervision order, given that overall previous child protection involvement (and previous maltreatment and neglect) is arguably the single best predictor of future child protection involvement (Hindley, Ramchandani, & Jones, 2006; Stith et al., 2009). However, as the supervision order takes place after the provisional supervision order, the total time under supervision (provisional

and regular) increases, while duration of the supervision order decreases.

Interesting in the scope of improving case management for child protection is the impact of the number of involved case managers. The importance of having only one involved (and dedicated) case manager is widely recognized as an important general principle for working effectively with multi-problem families (Bolt & Van der Zijden, 2014; Van Yperen et al., 2010). It is therefore highly recommended that an alteration of involved professionals should be prevented. Causality was not examined, and we therefore have to keep in mind that this association between the number of involved case managers and duration of the supervision order might also be explained by the fact that the chance for staff turnover is greater when the supervision order duration is longer.

Another effect was found for the case manager's work experience with the Delta Method, suggesting that work experience in general does not contribute to better outcomes, while work experience with the Delta Method does. If this is true, it is important to facilitate not only training, but also ongoing supervision in the application of the Delta Method, as it is known that coaching or supervision can enhance the application of treatment programs and interventions (Goense, Boendermaker, & van Yperen, 2016).

4.1. Strengths and limitations

A strength of this study is its ecological validity, because data were derived from a real world setting. Moreover, random selection of team managers, case managers and cases is a necessary condition for higher degrees of external validity. The current study needs to be considered in the context of some limitations.

First of all, we were not able to include a comparison group, and thus examine the effectiveness of the Delta Method. Inclusion of a comparison group with another type of services was not possible, as all case managers were supposed to work in accordance to the Delta Method. Yet, independent variables about Delta Method application were used to explain differences in outcome variables.

Second, the statistical power at the team level was low, as we only included 30 team managers from 15 distinct offices. This might explain why no significant effects were found at the team level. Third, the application of the Delta Method was measured by items derived from the study of Heinrich and Krooi (2009). Ideally, trained researchers or experts rate program integrity based on direct observations of the professional's behavior (Perepletchikova & Kazdin, 2005), using a validated instrument that addresses both adherence and competence of professionals (Perepletchikova, Treat, & Kazdin, 2007) to assure internal validity (Cook & Beckman, 2006; Martinez, Lewis, & Weiner, 2014). It is recommended to develop and use such an instrument for the Delta Method for future research. Third, client and case file characteristics were obtained by a code sheet based on the ZAP-instrument (Lunenburg et al., 2006), which was not validated. This may clarify that even though 87% of the differences in the duration of the supervision order were attributed to case characteristics, only a few variables were identified that explained variance.

4.2. Implications

Despite a wide practice of case management, this is one of the first studies that examined the assumed effective elements of a case management approach for child protection in a mandated setting (Euser et al., 2015; Lee et al., 2014; O'Brien, 2011). This study revealed significant effects of the Delta Method on the duration of the supervision order and the occurrence and duration of out-of-home placements. Therefore, this study supports further implementation of the Delta Method for Family Supervision. At the same time, it is worth mentioning that there are important research and practice implications.

One of the directions of future research could be to investigate the effective aspects of other case management programs for child

protection purposes. For well-established programs a distillation and matching model has been developed (Chorpita et al., 2007), which makes it possible to identify effective program components. Such research could be used to examine the common elements for effective case management.

Additionally, as Euser et al. (2015, p. 12) recommend, it is also important to examine whether effective intervention programs are able to reduce the occurrence and duration of out-of-home placements. As part of the case management trajectory, families are referred to specific treatments, programs or services. The application and effectiveness of these interventions need to be taken into account.

As a practical implication it is recommended to develop more specific programs or program elements that help to more effectively engage caregivers to build a working relationship. Well-described program elements make it possible to support and monitor professionals' application of these skills in practice. In two Dutch CYPS centers, the Delta Method is now integrated with the Functional Family Parole model (Alexander, Waldron, Robbins, & Neeb, 2013) to further promote skills of professionals, such as engagement and motivation techniques.

Finally, this study showed that the Delta Method for Family Supervision helps to reduce the length of family supervision orders and the occurrence and length of out-of-home placements. Together with the general principles of effective case management, in particular a 'one family one worker approach', this knowledge contributes to a more effective practice of case management for children growing up in unsafe conditions.

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