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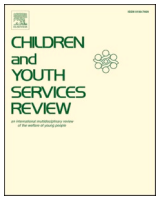

Improving interventions for families with multiple problems: Identifying elements that predict improvement

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ABSTRACT

Introduction: Many interventions have been developed to reduce the problems of families with multiple problems (FMP) and to prevent children's out-of-home placement. Evidence is increasing about the effects of these interventions, but is scarce about the elements of care determining these effects. The aim of this study is to examine to what extent provided elements are associated with improved outcomes for FMP.
Methods: We collected data from 499 FMP that received an intensive family intervention. Practitioners collected information every four weeks about provided practice elements (content), the method of provision, recipients and program elements (structure). Parents filled out questionnaires at the start, at the end, and three months after conclusion of the intervention. We used the Reliable Change Index (RCI) to discriminate improvement and non-improvement regarding four outcomes: child externalizing behavior, child internalizing behavior, parenting stress, and social contacts.
Results: We found that parenting stress was more likely to be reduced when skills were more often practiced with the family. We found no associations between practice elements, methods or recipients and other outcomes. We neither found associations between provided program elements and improved or non-improved outcomes.
Conclusion: Our research shows that the majority of the individual elements show no or only very limited effect, except for practicing skills with family members. To gain more insight into the contribution of elements of interventions for FMP, we recommend looking further into the association between provided elements and other factors such as the therapeutic alliance and severity of problems.

1. Introduction

Families with multiple problems (FMP) are families whose lives are characterized by a wide range of problems in different areas of life (Spratt & Devaney, 2009; Tausendfreund et al., 2016), including problems with child behavior, parenting and child-rearing, family functioning, and with their environment, social network and mental health (Bodden & Deković, 2016). The problems interfere in such a way that it is difficult for both FMP and practitioners to decide which problems are most important to tackle in care. Despite all the help they receive, families are often unable to resolve persistent problems. As a result, practitioners often have to deal with negative attitudes and care avoidance in these families (Morris, 2013; Spratt, 2011; Tausendfreund et al., 2016).

Various interventions are available to reduce problems faced by FMP, to improve family functioning and prevent children's out of home placement (van Assen et al., 2020). Examples are Multisystemic Therapy (MST) (Henggeler et al., 2009), Multi Dimensional Family Therapy

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(MDFT) (Liddle & Hogue, 2001), Intensive Family Therapy (IFT) (van Rooijen, 2019), and 10 for the Future (10ftF) (Leger des Heils Noord, 2006). These interventions have been developed to help families to create safe environments for children. However, outcomes of effectiveness studies of these interventions are inconclusive. Whereas some studies show promising effects on child-focused problems and family functioning (Tausendfreund et al., 2014; van der Pol et al., 2017; van der Stouwe et al., 2014; Veerman et al., 2005; Veerman & de Meyer, 2015), other research shows that effect sizes vary between interventions, countries, and even different studies of the same intervention (Carr, 2019; Evenboer et al., 2018; Holwerda et al., 2013). A recent review on home based interventions for FMP shows positive effects on child outcomes and a lower number of stressful experiences during the intervention, but also demonstrates that significant problems remained after closing the intervention, and out of home placement increased a year later (van Assen et al., 2020).

One of the reasons for the difference in effects found across studies may be attributed to differing elements in the various interventions, besides other issues like differences in treatment fidelity (Martin et al., 2023), differing contexts in which the effects of interventions were examined (Evenboer et al., 2018) and different study designs as used (Becker et al., 2017; Higgins et al., 2011). To explore similarities and differences between interventions for FMP, studies have assessed their core elements, and categorized these as practice elements, the techniques provided to the family by a practitioner (training parenting skills, activating the social network); method of provision (homework/ modelling); and program elements, the structure in which these are provided (intervision/ supervision/ duration of visits). It appears that a large overlap exists between interventions for FMP (Garland et al., 2008; Lee et al., 2014; Visscher et al., 2020b) regarding practice elements like assessments, problem solving skills and parenting skills, as well as methods of provision, such as giving homework and practice by role-play (Garland et al., 2008; van der Pol et al., 2019). With regard to the program elements, significant differences across interventions were found regarding the duration of the intervention, the intensity of contacts between professionals and clients, and the nature of supervision or intervision (Tambling & Johnson, 2020; Visscher et al., 2020b).

Even though the elements that are part of interventions for FMP are clearly described in their manuals (Henggeler et al., 2010; Liddle et al., 2014; van Rooijen, 2019; Leger des Heils Noord, 2006) and in different studies (Garland et al., 2008; Lee et al., 2014; Visscher et al., 2020b) the application of elements in daily practice often deviates from these as prescribed. Practice elements most often provided concerned assessing problems or gathering information, planning and evaluating the intervention, working on (behavioral) change, learning parenting skills, and maintaining practitioner-client collaboration (Tausendfreund et al., 2015; Visscher et al., 2020a). Practice elements less often provided, involved helping with concrete needs and activating the social network (Visscher et al., 2020a). The same study shows that psycho-education and instruction were most often provided, whereas elements involving practicing skills with family members were less often offered. Regarding recipients, research showed that parents are most often recipients of interventions, and children less often (Tausendfreund et al., 2015; Visscher et al., 2020a). As for program elements, practitioner visits to the family tended to decrease during the intervention, and practitioners were usually supported by supervision (Visscher et al., 2020a).

Now that we know more about similarities and differences between interventions for FMP and their content and structure in daily practice, the next step in assessing the effectiveness of this care is to examine which elements are related to improved outcomes. Visscher et al. (2022a) studied the effectiveness of different combinations of practice elements provided to FMP. These combinations of practice elements were not found to be associated with changes in parenting stress or a child's internalizing and externalizing problems. However, unlike practice elements, provided program elements like telephone contacts and intervision were found to be associated with improved outcomes, especially in certain subgroups (parents and/or children having an intellectual disability or psychiatric problems).

Insight in the effects of separate practice elements of interventions for FMP, their method of provision, and their recipients is currently lacking. The aim of this study was, therefore, to examine to what extent provided elements are associated with improved outcomes for FMP. Insight into the effectiveness of these elements can provide input to improve interventions for FMP. Based on these insights the content of these interventions can be strengthened by adding, adjusting or omitting elements that are found to be associated with positive outcomes or not.

2. Method

2.1. Sample and procedure

We collected data from both practitioners and parents (by parents we also mean other caregivers) by means of questionnaires. In addition, we approached all child and adolescent social care (CASC) providers that offered at least one of the interventions found effective in the Netherlands (Multisystemic Therapy [MST], Multidimensional Family Therapy [MDFT], Intensive Family Treatment [IFT], Families First [FF] and Family Central [FC]). Parent Interventions were labelled effective when they showed at least a moderate effect size of 0.5 in the Dutch context regarding outcomes like child behavior problems or parenting stress (Evenboer et al., 2018).

Of the 47 CASC-organizations approached, 26 agreed to participate in our study. Care in these organizations was provided by a team of practitioners consisting of child and family social workers, family coaches, and therapists. Reasons for organizations to decline participation were that they were already taking part in another study, or did not want to spend their scarce manpower and resources to participate in any study. The organizations approached were comparable regarding their size and the client population targeted.

Practitioners of participating CASC organizations asked parents who met the following inclusion criteria to participate: a) they received one of the selected interventions, b) their child targeted in the FMP was aged four years or older with a maximum age of 18, at the start of the intervention, and c) they were able to complete the questionnaires in Dutch. Families in which the targeted child was younger than 4 yours of age were not included in this study because some of the included interventions were not developed for children younger than 4 years (e.g. MST, MDFT). Data was collected by using a web-based questionnaire system (BergOp). Parents were asked to fill out the questionnaires online at the start of the intervention (T0), at the end (T1), and three months after conclusion of the intervention (T2). We asked parents to complete the questionnaire within 21 days, a reminder was sent after 14 days. We rewarded parents and adolescents with a token gift of ten euros after every completed questionnaire.

To gain information about the provided elements, we asked practitioners to fill out a digitalized form of the taxonomy of interventions for families with multiple problems (TIFMP) via BergOp (Visscher et al., 2018) every four weeks, which meant they were asked to register which practice and program elements they provided, in which way and to whom. They were requested to complete the TIMPF within 10 days; a reminder was sent after five days. Respondents provided informed consent prior to the study.

2.2. Measures

2.2.1. Improvement

Improvement in outcomes was assessed regarding four domains: child externalizing problems, child internalizing problems, parenting stress, and social contacts; for each domain we defined improvement as Reliable Change Index (RCI) ≥ 1.96. The RCI determines significant and clinically relevant change for a client on specific outcomes between two measurement waves (de Beurs et al., 2016; Jacobson & Truax, 1991).

The Reliable Change Index was used to place families in different categories and use the clinical significance cut-off as an objective indicator for improvement with clinical relevance (Zahra and Hedge, 2010). The RCI was computed via existing RCI Calculators (Veerman et al., 2016; Verhulst & van der Ende, 2013; Vermulst et al., 2012) and was based on the change between T0 and T1 and between T0 and T2.

Scores on the RCI can be grouped under three categories: 1) Significant improvement in score between two measurement waves, RCI $\geq$ 1.96), 2) no reliable change (no significant increase or decrease, RCI $<$ 1.96->-1.96), and 3) significant deterioration in score between two measurement waves, RCI $<$ -1.96) (Wise, 2004) We labeled outcomes resulting in RCI $\geq$ 1.96 as improved, and in RCI $<$ 1.96 as non-improved (Jacobson & Truax, 1991). We chose to use two categories instead of three to specifically identify elements for families that show improved outcomes.

2.2.2. Outcomes

Child externalizing and internalizing problems was measured using the Child Behaviour Checklist (CBCL) (Verhulst & van der Ende, 2013) filled out by parents. The CBCL assesses social competence and emotional/behavioral problems in children aged 1 to 18. For this study we used the raw scores on the Externalizing Broad-band scale (35 items) and Internalizing Broad-band scale (32 items) for analysis. A higher raw score was associated with more problems in the child experienced by the caregiver. Items consist of a three-point Likert-type scale (0 = not true, 1 = somewhat true, 2 = certainly true). For internalizing and externalizing problems measured by the CBCL, the Cronbach's alpha coefficients of the study sample were respectively 0.88 and 0.92.

Parenting Stress was measured by means of the Parenting Stress Questionnaire (OBVL, Opvoedingsbelastingvragenlijst) (Vermulst et al., 2012); this was parent-reported. The questionnaire consists of 34 items with a three-point Likert scale (0 = not true, 1 = somewhat true, 2 = certainly true). The 34 items are divided over five subscales: parent–child relation problems, parenting problems, depressive mood, parental role restriction, and physical health problems (e.g., I feel cheerful when my child is with me, my child listens to me, I feel drained). For this study, raw scores on these subscales were summed up to compute a score for total parenting stress which were used for analysis. A higher raw score on this total scale was associated with a higher level of parenting stress. For parenting stress measured with the OBVL, the Cronbach's Alpha coefficients of the study sample was 0.94.

Social contacts were measured using the subscale Social Contacts of the Questionnaire Family Functioning of Parents (VGFO, Vragenlijst Gezinsfunctioneren voor Ouders) (Veerman et al., 2016) which was also parent-reported. This subscale consists of five items with a four-point Likert scale (1 = 'Does not apply to our family or to me', 2 = 'Applies a little to our family or to me', 3 = 'Applies reasonably to our family or to me', 4 = 'Applies completely to our family or to me). Scores on all five items (e.g., your friends and family support you through difficult times, your family has regular contact with relatives or friends) were added up to compute a raw score for social network problems. A higher raw score was associated with less social network problems. For the subscale Social Contacts, the Cronbach's Alpha coefficients of the study sample was 0.79.

2.2.3. Provided elements

To systematically measure the provided practice elements, methods, recipients and program elements, practitioners filled out the Taxonomy of Interventions for Families with Multiple Problems (TIFMP) (Visscher et al., 2018). We divided practice elements into eight main categories:

a) *Assessment of problems* – elements aimed at collection and structuring of information about the family and the problems they experience (e.g., analysis of the family system);
b) *Planning and evaluation* – elements designed to translate problems of the family into goals, and the evaluation of these goals (e.g., evaluating the treatment plan)
c) *Working on change* – elements aimed at achieving change (e.g., working on desired behavior);
d) *Learning parenting skills* – elements aimed at increasing parenting skills (e.g., learning to monitor the child);
e) *Helping with concrete needs* – elements aimed at easing the burden of practical tasks (e.g., administration and financial control);
f) *Activating the social network* – elements aimed at engaging the social network to provide help and support (e.g., maintaining the social network);
g) *Activating the professional network* – elements aimed at adapting goals, appointments and procedures with other practitioners working with the family (e.g., referral to other organizations or authorities);
h) *Maintaining practitioner-client collaboration* – elements aimed at maintaining and promoting collaboration between the practitioner and the client (e.g., working on motivation).

In addition to the practice elements provided, every four weeks we gathered data for each participating family about the intensity of the registered practice elements; the method by which the registered practice element was provided for the main categories: C) Working on change, D) Learning parenting skills (i.e., psycho-education, instruction, practicing skills with the family, modeling, homework), and E) Helping with concrete needs (i.e., helping themselves, giving advice or referring the family to another person or organization)); and to whom the registered practice element was provided (child, parent(s), sibling(s) and/or other persons outside the family).

We registered various program elements: the number of visits to the family, the mean duration of these visits, and the number of phone contacts between the family and practitioner. Also, we asked practitioners whether they had received intervision, supervision, and/or consultation regarding the participating family in the past four weeks. Intervision, supervision and consultation are organized meetings in which the family is discussed with colleagues (intervision), a supervisor (supervision) or an independent expert (consultation) (Visscher et al., 2018). More details about the registered data can be found elsewhere (Visscher et al., 2022a).

2.2.4. Background characteristics

We obtained information on several relevant socio-demographic and problem-related characteristics. Socio-demographic variables concerned age and gender of the child, ethnicity of the caregiver (non-western/western [i.e., born in Europe [[excluding Turkey]], North America, Oceania, Indonesia or Japan]) and marital status ("one-parent family" [divorced/not living together, widowed, single] or "two-parent family" [married or living together with a partner]). Educational level of parents was categorized as "low" (no education, primary education, lower or preparatory vocational education, lower general secondary education), "medium" (intermediate vocational education or apprenticeship, higher general senior secondary education or pre-university secondary education), and "high" (higher vocational education or university).

We also measured: financial problems (having trouble in the past year to make ends meet): 0 = No (original answers: 'No, not at all' and 'No, but I have to keep expenses low') and 1 = Yes (original answers: 'Yes, a little' and 'Yes, a lot'). Practitioners reported suspicion of comorbid disorders (e.g., intellectual disabilities, psychiatric problems or substance use in the parent/caregiver, child or both parent/caregiver and child): 'Yes', 'No' or 'I don't know' (the latter being considered as missing data). Practitioners reported other care use by the family by answering the question whether other care was involved with the family (yes or no).

2.3. Statistical analyses and data management

To ensure acceptable sizes of outcome categories (improved and non-improved), we imputed missing outcomes by means of multiple imputations. We excluded independent variables with large intercorrelations (i.e., Pearson's r > 0.65) to avoid multicollinearity problems. This applied to the variables methods 'modeling' and 'homework'). We performed all analyses using SPSS Statistics 25.

We first assessed background characteristics of the sample by means of descriptive statistics. Second, on the basis of the RCI we divided the sample into two groups (improved versus non-improved) for each outcome measure. Outcomes resulting in RCI ≥ 1.96 were labeled as improved, and outcomes with RCI < 1.96 were labelled as non-improved. Third, we assessed differences in these groups regarding practice elements, method of provision (psycho-education, instruction, modeling, practicing skills with the family, homework), recipients (youth, parent(s), siblings, network), and program elements (number and duration of visits, phone contacts, intervision, supervision, consultation), using one-way ANOVA. Only variables showing significant differences between the improved and non-improved families were retained as predictors in the subsequent logistic regression analysis. Fourth, binary logistic regression analysis was used to assess the associations between practice elements, methods, recipients and program elements (predictors) on the one hand, and (non–)improvement with regard to the different outcomes on the other hand. To control for similar predictors, we performed multiple analysis one after another (i.e., all practice elements, all methods etc.). In addition, we also controlled for gender, age and baseline scores of outcome measures.

3. Results

3.1. Characteristics of the sample

The study sample consisted of 473 families. Of the 499 included families at the start we excluded 26 due to missing data on provided elements and outcomes. Table 1 presents background characteristics of the sample. The educational level of parents was mainly scored as medium. According to the professionals, almost half of the parents and children experienced psychiatric problems. More than half of the families received other care, in addition to the intervention under study. To provide insight into the number of families compared (improved or not improved), Table 2 reports percentages of families that had improved directly after conclusion of the intervention (T1) and three months afterwards (T2).

Table 1
Background Characteristics of the Sample (N = 473).

Socio-demographic/ problem- related factor Category	n (%)
Gender of child	
Boy	299 (60.8 %)
Age of child, mean (SD)	12.43 (3.61)
Ethnicity parent	
Western	306 (95.0 %)
Marital status parent	
Two-parent family	214 (61.8 %)
Educational level parent	
Low	68 (22.7 %)
Medium	183 (61.2 %)
High	48 (16.1 %)
Financial problems parent	
Yes	110 (32.7 %)
Intellectual disability child	
Yes	115 (27.0 %)
Intellectual disability parent	
Yes	72 (16.9 %)
Psychiatric problems child	
Yes	165 (48.2 %)
Psychiatric problems parent	
Yes	169 (49.4 %)
Substance use child	
Yes	40 (9.6 %)
Substance use parent	
Yes	32 (7.7 %)
Other care involved in family	
Yes	240 (53.0 %)
Internalizing problems, mean (SD)	63.2 (9.79)
Externalizing problems, mean (SD)	66.3 (10.05)
Parenting stress, mean (SD)	67.6 (10.48)
Social contacts, mean (SD)	42.8 (11.99)

Note: Reported percentages are valid percentages.

Table 2
Families with Improved Outcomes (Reliable Change Index ≥ 1.96) (N = 473).

	T0-T1			T0-T2		
	n	%	Mean	n	%	Mean
Child Externalizing problems	239	50.5	2.03	222	46.9	1.87
Child Internalizing problems	145	30.7	1.22	163	34.5	1.31
Parenting Stress	224	47.4	2.05	239	50.5	2.67
Social Contacts	109	23.0	1.00	119	25.2	.42

3.2. Provided elements associated with (non–)improved outcomes

Regarding the method used to provide practice elements, we found that when these elements were provided by practicing skills with the family, parenting stress more often decreased between T0 and T1 and between T0 and T2, as shown in Table 3 (T1: odds ratio, OR = 1.01; 95 % Confidence Interval, 95 % CI = 1.00–1.02, T2 OR = 1.02, 95 % CI = 1.00–1.03). We found no associations between the method of provision of practice elements and child externalizing and internalizing problems or social contacts.

We found no associations between practice elements, recipients of these elements, and program elements on the one hand and improved or non-improved outcomes on the other hand.

This study aimed to examine to what extent the provision of separate practice elements, the method of provision and the recipients of those elements, and program elements, were associated with improved outcomes. Regarding methods by which practice elements are provided, we found that when certain skills were more often practiced with the family, parenting stress was more likely to reduce. We found no associations between practice elements, program elements, methods of provision and recipients on the one hand, and improvement in child externalizing and internalizing problems or social contacts on the other hand.

The association we found between practicing skills and improvement in parenting stress is in line with findings of previous research showing that practicing behavior has a positive effect on parental outcomes (Wyatt Kaminski et al., 2008), and that FMPs in particular benefit from practicing skills and empowering strategies (Damen et al., 2021; Holwerda et al., 2013; Visscher et al., 2020b). Parents' experience of having more parental control and an increasing sense that they can influence a given context, seems to strengthen parental empowerment (Damen et al., 2017; Zimmerman, 1995). Although empowering parents by practicing skills may help to reduce levels of parenting stress, research shows that practicing skills is rarely provided to FMP (Tausendfreund et al., 2015; Visscher et al., 2020a).

Although families do show improvement on outcome measures, as shown in Table 2, we found no separate practice elements to be associated with this improvement. One explanation may be that we aimed to examine differences between separate practice elements, whereas other studies show that practice elements are most often provided simultaneously (Lee et al., 2014) and effects may interfere. However, we controlled for other practice elements to avoid any interference. This can lead to very reliable results however fail to reflect daily practice. The fact that families did show improved outcomes, might suggest that other

Table 3
Associations between Practice Elements, Method of Provision, Recipients and Program Elements, and Improved Outcomes: Results of Binary Logistic Regression Analyses (N = 473).

	Child Externalizing problems				Child Internalizing problems				Parenting Stress				Social Contacts			
	T1		T2		T1		T2		T1		T2		T1		T2	
	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.
Practice elements																
A. Assessment of problems																
Discussion of guiding question	–	–	–	–	–	–	–	–	–	–	0.96	0.26–3.51	–	–	–	–
Analysis of competences	–	–	–	–	–	–	–	–	1.16	0.57–2.30	–	–	–	–	–	–
Analysis of family system	–	–	–	–	–	–	–	–	–	–	0.90	0.34–2.36	–	–	–	–
Analysis of school functioning	–	–	1.38	0.34–5.56	–	–	–	–	–	–	–	–	–	–	–	–
Analysis of individual problems	0.99	0.49–1.81	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Discussing results from questionnaires	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.76	1.03–29.82
B. Planning and evaluation																
Designing treatment plan	1.19	0.55–2.55	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Evaluating working points or (behavioral) agreements	–	–	–	–	–	–	–	–	1.18	0.52–2.69	–	–	–	–	–	–
D. Learning parenting skills																
Learning to apply mild punishments and negative consequences	–	–	1.13	0.26–4.85	–	–	–	–	–	–	–	–	–	–	–	–
Learning to handle conflicts	–	–	–	–	–	–	–	–	–	–	–	–	1.01	0.63–1.64	–	–
Learning to set rules	–	–	0.95	0.43–2.07	–	–	–	–	–	–	1.55	0.73–3.30	–	–	–	–
Learning to collaborate	–	–	–	–	–	–	–	–	–	–	1.90	0.54–6.90	–	–	0.76	0.23–2.53
F. Activating the social network																
Mobilizing and expanding social support	0.95	0.34–2.66	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Stimulating leisure time	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.24	0.24–6.31
G. Activation of professional network																
Referring to other organizations or authorities	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.88	0.21–39.18
H. Maintaining practitioner-client collaboration																
Talking about resistance to care	–	–	–	–	0.50	0.13–1.98	0.59	0.20–1.75	–	–	–	–	–	–	–	–
Working on motivation	1.04	0.91–1.18	–	–	–	–	–	–	–	–	–	–	–	–	–	–

	Child Externalizing problems				Child Internalizing problems				Parenting Stress				Social Contacts			
	T1		T2		T1		T2		T1		T2		T1		T2	
	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.	Exp. (β)	95%C.I.
Method of provision																
Psycho-education	–	–	–	–	–	–	–	–	–	–	–	–	1.01	0.99–1.02	–	–
Practicing skills	–	–	–	–	–	–	–	–	**1.01***	**1.00–1.02**	**1.02***	**1.00–1.03**	–	–	–	–
Recipients																
Youth	–	–	–	–	–	–	1.00	0.99–1.01	–	–	–	–	1.01	0.99–1.01	1.00	0.99–1.01
Program elements																
Number of visits	–	–	1.01	0.94–1.08	–	–	–	–	–	–	–	–	–	–	–	–
Duration of visits	–	–	–	–	–	–	–	–	0.99	0.99–1.01	–	–	–	–	–	–
Phone contacts	–	–	–	–	–	–	–	–	–	–	–	–	1.03	0.93–1.13	1.07	0.96–1.19
Consultation	–	–	1.06	0.95–1.19	–	–	–	–	–	–	–	–	–	–	–	–

*p-value < 0.05 Note. In these analyses we controlled for age and gender of the child and raw baseline scores for the specific outcome. Note: variables shown only when $p < .05$ on ANOVAs *(for Category C and E all variables yielded $p > .05$).*

factors such as the severity of the child's behavioral problems (Reitz et al., 2006; Shelleby & Shaw, 2014) or factors included in interventions as a package including the therapeutic relationship and the alliance between practitioner and client might play a role (van Yperen et al., 2010; Welmers-van de Poll et al., 2021a). Moreover characteristics like the educational level (Leitão et al., 2021) and personality of the practitioner (Welmers-van de Poll et al., 2021b) may add to this.

We did not find that involving the child as a recipient of elements was associated with improved outcomes. Previous research stresses the importance of involving youth to increase the positive effects of interventions (Edbrooke-Childs et al., 2016; Lee et al., 2014; Tausendfreund et al., 2015; Visscher et al., 2022b). However, it seems that by providing interventions for FMP professionals mainly involve parents to achieve behavioral change (Tausendfreund et al., 2014, 2015; Visscher et al., 2020b). An explanation for this finding might be that practitioners feel more congruent in their alliance with parents and less with the child. Involving the child and enhancing multiple alliances at the same time, can be difficult (Welmers-van de Poll et al., 2021a).

We found no specific program elements to be associated with improved or non-improved outcomes, although previous research has shown that program elements do matter in the effectiveness of care for FMP (Henggeler et al., 2002; Visscher et al., 2022a). An explanation for our contrary finding may be that we used binary outcomes (improved versus non-improved) based on the RCI, instead of continuous outcomes as were used in previous studies. The changes in outcome were maybe too small to be identified with binary outcome measures.

3.3. Strengths and limitations

An important strength of our study is that we examined the provided elements in a very structured way, using a reliable taxonomy (Visscher et al., 2018) based on intervention manuals and field consultation with experts. As this reflects daily practice, the results are meaningful for practitioners. Another strength is that by using the RCI we applied a strict measure of improvement at the level of individual clients (de Beurs et al., 2016). In addition, by measuring three months after finishing the intervention we were able to include a follow-up, thereby providing insights into long-term predictive elements.

Some limitations of the study can be mentioned. First, the finding that practicing skills leads to less parenting stress, might be due to other factors such as client response to certain elements, client engagement or the practitioner-client relationship (Haine-Schlagel & Walsh, 2015; Morawska & Sanders, 2006; van Yperen et al., 2010). In this study, we did not control for these factors, but we controlled as much as possible for confounding. Second, data on outcomes were collected by one informant (parent), whereas previous research has indicated that parents and youth differ in what they consider important regarding the content and results of care (Aarons et al., 2010), and that the same holds for discrepancies between parents and observer scores on child behavioral problems (Bernal et al., 1980, Moens et al., 2018). Confirmation using multiple informants is thus recommended (Dirks et al., 2012). Third, even though practitioners were trained in using the TIFMP, the chance remains of labeling elements inadequate due to misunderstanding about descriptions of elements. This may lead to under- or overrepresentation of elements provided. Fourth, we chose to compare two groups. Families with improved outcomes (RCI > 1.96) on the one hand and families with unchanged and deteriorated outcomes on the other (RCI < 1.96). Even though this may have led to less differentiation in results, our results concerning what leads to improvement are more powerful.

3.4. Implications

Our findings have several implications for practitioners and researchers who are involved in care for FMP. Our finding that practicing skills likely reduces parenting stress, implies that it is important to focus on using this method more in daily practice to achieve and sustain a reduction in parenting stress. Because practicing skills by role-play and homework was found to be underrepresented in daily care for FMP (Visscher et al., 2020b), it may be particularly important to identify barriers faced by practitioners in the application of this method and improve support for practitioners (supervision, intervision) where needed.

We found no associations between the separate practice elements provided and improvement in outcomes. Better understanding of the association between provided elements and other factors (i.e., therapeutic alliance, personality of practitioners, severity of problems) is needed to determine which factors contribute (most) to improving outcomes for FMP. The effect of practice elements on outcomes of interventions might for example be influenced by the therapeutic alliance between the practitioner and the family members. One barrier to overcome and make practice elements work is the distrust towards provided care that families might have due to previous negative experiences. Another option is to study combinations of practice elements, methods of provision and their recipients to help practitioners to better match care to specific FMPs.

Even though we did not find associations between improved outcomes and involving the child in interventions for FMP, there still is a need to study why children are underrepresented as recipients in interventions for FMP. Providing practitioners with tools to help them involve children of different ages could improve the effectiveness of interventions.

4. Conclusion

Methods by which practice elements are provided to FMP are associated with improved outcomes. More specifically, practicing skills with the family was found to be associated with a reduction in parenting stress. This information provides new insights into methods that contribute to improved outcomes for FMP, and may enable practitioners to optimize care for FMP in daily practice. Our research shows that the majority of the individual elements show no or only very limited effect. To gain more insight into the contribution of elements of interventions, we recommend looking further into the association between provided elements and other factors such as the therapeutic alliance and severity of problems.

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Ethical approval

The Medical Ethics Committee of the University Medical Center Groningen in the Netherlands provided a waiver for this study (reference number METc2016.005 dated March 7, 2016). The study was registered following the guidelines of the International Standard Randomized Controlled Trial Number Register (ISRCTN No. 22942273).

CRediT authorship contribution statement

F. Hornyák: Writing – original draft, Formal analysis, Conceptualization, Data curation, Investigation, Writing – review & editing, Supervision, Validation. **L. Visscher:** . **M.J.M.H. Delsing:** Writing – review & editing, Formal analysis, Data curation. **K.E. Evenboer:** Writing – review & editing. **R.H.J. Scholte:** Writing – review & editing, Supervision. **S.A. Reijneveld:** . **D.E.M.C. Jansen:** Conceptualization, Writing – review & editing, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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