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Improving parental well-being through a systemic school-based intervention: Findings from Marte Meo and Coordination Meetings (MAC)

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Abstract

When children display disruptive behaviour problems at school or at home, their relationships with others are affected. Taking a systems perspective into account, where all parts of a system mutually influence each other, and considering the reciprocal nature of interactions which imply that children are influenced by and influence their close surroundings, the present study seeks to examine differences in parents' self-reported psychological distress and self-efficacy, and associations with teachers' and parents' reports of children's disruptive behaviour problems. Data from an earlier randomised controlled study were used to compare a systemic school-based intervention – Marte Meo and Coordination Meetings – with services as usual. Results showing a decrease in parental psychological distress, as well as an increase in parental self-efficacy. Associations with reports on disruptive behaviour problems home and in school are presented and discussed.

Keywords

video feedback, systemic school-based intervention, disruptive behavioural problems, randomised controlled trial, parental self-efficacy, parental distress, parent–school partnership

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Introduction

Disruptive behaviour problems (DBP), such as aggressiveness, truancy, non-compliance, defiance, impulsiveness, or oppositional behaviour, are serious issues that are common in childhood and among the most frequent reasons for referrals to Child and Adolescent Mental Health Services (CAMHS) (Epstein et al., 2015; Furlong et al., 2012). DBP are often accompanied by suffering for the children who display such behaviour, but they can also affect those who have close contact with these children – such as parents, teachers, and peers – as well as others who share the same social environment, such as the classroom. A substantial body of research indicates that these children face significant risks regarding their future development (Burkey et al., 2018; Carlisi et al., 2020; Wertz et al., 2018), and the need for early intervention has been emphasised (Bevilacqua et al., 2018). However, mental health conditions such as DBP in young people create significant demands on CAMHS; demands that these services are not able to meet due to resource limitations (Neufeld, 2022). Initiatives have been taken to provide interventions to support vulnerable children across different community services such as preschools and schools (Van Roosmalen et al., 2023). School-based interventions have been shown to be effective in reducing mental health problems among children and adolescents (Grande et al., 2022). Furthermore, preventive interventions implemented within school settings have the potential to reach a broad population of children. Allocating resources to classroom-based interventions for younger students, along with initiating collaboration between the school and parents, has proven particularly effective in building social skills (January et al., 2011; Schmidt et al., 2020; Siddiqui & M. Ventista, 2018; Weare and Nind, 2011). However, children who exhibit DBP can be particularly challenging to manage in the classroom (Nash et al., 2016; Yoder and Williford, 2019). In addition to addressing the child's problems directly in school, it has been proven important to focus on the collaboration between home and school, and on building a strong family–school partnership (Sheridan et al., 2019; Smith et al., 2020). To foster strong collaboration between teachers and parents, it is beneficial if the initial contact comes from the school and is based on mutuality (Stroetinga et al., 2019). It is crucial that this contact supports parents' belief in their ability to influence their child's development, as parental self-efficacy impacts both parental well-being and the child's development (Albanese et al., 2019).

There is broad agreement among researchers that children's development, and the problems associated with children's development, involve a complex interaction between biological, social, and psychological factors (Carbonneau and Tremblay, 2022; Julian and Lumeng, 2022; Rutter, 2006; Tremblay, 2010). These include neurons and neighbourhoods, synapses and schools, proteins and peers, and genes and governments (Sameroff, 2020). In this perspective, the reciprocal nature of interactions is emphasised, and systems perspectives are combined with stage theories. For example, parental mental health problems are a well-established risk factor for child mental health issues (Campbell et al., 2021; Hosman et al., 2009), but child mental health problems can also affect parental mental health (Barroso et al., 2018; Meltzer et al., 2011). Examples of studies on this reciprocity can be found in research on parent training programmes, which, in addition to proving effective in reducing children's disruptive behaviour, also appear to be a promising intervention for improving parental mental health (Barlow et al., 2012).

While collaboration with parents is often recommended for the success of school-based interventions, reviews indicate that research has primarily focused on child outcomes (January et al., 2011; Siddiqui & M. Ventista, 2018; Weare and Nind, 2011). This is also the case for Marte Meo and Coordination Meetings (MAC), a systemic school-based intervention that is the focus of the present article (Axberg et al., 2006; Balldin et al., 2019, 2021). This is hardly surprising, as one can expect the effects to be rather small given that the parental outcomes measure is distal (Ellicott C. Matthay et al., 2021). Additionally, effect sizes tend to be larger for the problems/symptoms that are being targeted (i.e. child DBP) and smaller for non-targeted symptoms/problems (i.e. parental psychological distress) (Yulish et al., 2017). Furthermore, effects on parents could be considered to occur at a preventive level, since only some displays indicated levels of problems/symptoms which render small but not trivial effect sizes (Ellicott C. Matthay et al., 2021). Even though Cohen himself clearly stated that his operationally defined effect sizes (.20 as small, .50 as medium, and .80 as large) were only illustrative (Cohen, 1992), they have been widely applied in research (Tanner-Smith et al., 2018). However, the relevance of using these terms across different contexts without considering the frame of reference has often been questioned (Carey et al., 2023). For example, in a review of meta-analyses on universal preventive interventions targeting school-aged children, Tanner-Smith and colleagues (2018) propose that an empirically based standard for evaluating effects should fall between .07 and .16. This implies that when comparing interventions, very large samples are needed to have the statistical power to detect statistically significant differences, which is a challenge when conducting studies in naturalistic settings.

Marte Meo and Coordination Meetings (MAC) is a systemic school-based video feedback intervention developed to support the development of children displaying disruptive behaviour problems in school (Axberg et al., 2021; Wirtberg et al., 2013). A fundamental assumption in MAC is that 'having problems' is predefined as being connected to the nature of the network of interactions in which the child lives (Wirtberg et al., 2013). Therefore, an important part of MAC is addressing the interaction between the child and their teachers, as well as between the school and home. Furthermore, there is a risk that a self-reinforcing, problem-affirming system develops around the child, placing them in a particularly vulnerable and difficult position. The child might become the nexus point between home and school, having to balance conflicting relationships and different sets of expectations (Aponte, 1976; Axberg et al., 2021). Additionally, family–school partnerships have been shown to be important for children's academic achievements, behaviours, social–behavioural competence, and mental health (Smith et al., 2020). Thus, when developing MAC, addressing cooperation between parents and teachers was found to be crucial, as was working on the interaction between the child and the teachers in school. Adopting a systems perspective proved highly functional, as it readily accommodates multiple methodological orientations and enables two distinct interventions – Marte Meo and Coordination Meetings – rooted in different philosophical and theoretical traditions, to operate within a shared systemic framework (Axberg and Petitt, 2024). Marte Meo is a well-established, more normative and pedagogically oriented model (Aarts, 2006, 2008), whereas Coordination Meetings are non-normative in character and draw on language-system thinking and open-dialogue traditions (Andersen, 1995; Anderson, 1997; Seikkula and Olson, 2003). Despite these differences, the two components that

constitute MAC are understood as a single systemic intervention, grounded in contextuality and an emphasis on relationships between people and systems, as well as the co-construction of meaning (Axberg et al., 2021; Wirtberg et al., 2013).

Taking a systems perspective into account, which emphasises that all parts of a system mutually influence each other (Petitt, 2016), and considering the reciprocal nature of interactions, the present study seeks to examine potential associations between parents' self-reported psychological distress and parental self-efficacy.

Aim

The overarching aim of this study was to examine parents' self-reported psychological distress and parental self-efficacy using data from a randomised controlled trial (Balldin et al., 2019, 2021). This trial originally compared the differences between MAC and Service as Usual (SAU) regarding children's behaviour in school and potential generalisations to the home. More specifically, we hypothesised that there would be a difference in effect sizes between pre- and post-intervention ratings and pre- and follow-up ratings, and that this difference would be larger but not statistically significant for the parents who received MAC compared to those who received SAU. Additionally, specifically for the MAC group, we wanted to explore possible associations between parent- and teacher-reported change scores in children's DBP and parents' reports of psychological distress and parental self-efficacy, as well as potential differences between the parents who received a Marte Meo intervention at home and those who did not.

Method

The research employed a randomised controlled design, with data collected at three time points: before treatment (pre-test), after intervention 8 months later (post-test), and 1-year after treatment (follow-up), with the intention of comparing MAC with SAU. The study was approved by the Swedish Central Ethical Board (Dnr. 2009/323).

Recruitment and data collection

Participants were recruited from four municipalities in western Sweden, where all preschools and elementary schools were encouraged to refer families, whose children exhibited DBP in school. Referrals were made within the schools' existing organisational structure. Teachers who expressed concerns to school health services about a student in their classroom needing support became part of the study process.

If the student met at least one of three criteria (social exclusion, behavioural problems, or poor well-being) and no other healthcare providers were involved, the student and their family became eligible for the study. After obtaining informed consent from parents and teachers, random assignments were conducted using pre-randomised sealed envelopes to determine which intervention would be applied. The contents of the envelope were unknown to the family, school staff, and researchers until after the pre-test was completed or, when relevant, after the family dropped out. A specially trained teacher and a research assistant collected the data at all three points.

Participants

A total of 101 children and their parents were assessed for eligibility and included in the study (see Figure 1). However, two families withdrew before the pre-test phase. A total of 99 children (80 boys and 19 girls) and their parents participated in the pre-test. Both mothers and fathers served as informants, although mothers were the primary respondents, with only three fathers providing responses. The mean age of the parental informants was 35.8 years (SD = 6.4), while the mean age of the children was 6.6 years (SD = 2.5). There were no differences found in pre-test scores between the group receiving MAC or the group receiving SAU on variables such as parental education, marital status, social status, or children's mental health (for details, see Balldin et al., 2019). Attrition between pre-test and post-test ratings was 8.1% and between pre-test and follow-up was 23.2%. There was no statistically significant difference in attrition between the group who had received MAC or SAU. In addition to withdrawal of consent and changes in school or municipality, attrition occurred because respondents were unreachable.

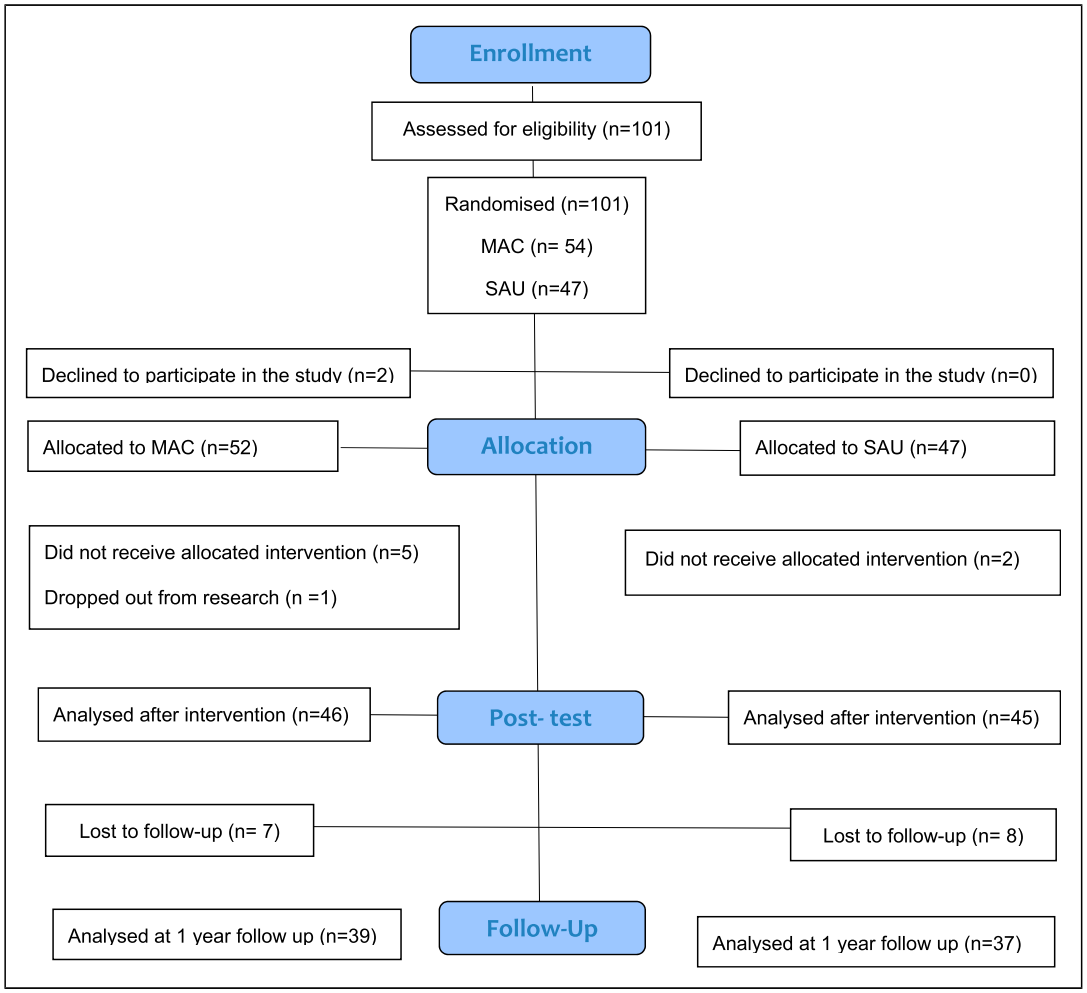

Figure 1. Modified Flow diagram presenting the sample through the study, the numbers of children and their parents who received allocated intervention and participated in the research. Template retrieved from https://www.consort-statement.org/consort-statement/flow-diagram.

The interventions

Marte Meo and Coordination Meetings (MAC) is a systemic, school-based intervention with two core components: Marte Meo, an established video feedback intervention, and Coordination Meetings (Wirtberg et al., 2013). The systemic approach in MAC means that relationships and context are in focus rather than individual vulnerability. In this sense, MAC recognises that children's behaviour is dependent on important relationships as well as context. Therefore, parents and teachers play a significant role in child behaviour by supporting children's opportunities for favourable emotional and psychosocial development. The starting point for MAC is when teachers in preschool or school identify a child who requires and could benefit from extra developmental support. After seeking and obtaining permission from the child's parents and the school health team, contact is made with a local MAC representative who organises a MAC team to join the specific child–teacher–parent system.

The MAC team consists of up to three professionals: (1) a coordinator with training in systemic practice, usually recruited from social welfare services (occasionally from CAMHS); (2) a Marte Meo consultant, a teacher with additional training in working with children with special educational needs, based in the school; and (3) a Marte Meo therapist, who may be involved if the parents wish to receive Marte Meo support at home. In such cases, the therapist is recruited from social welfare services (Wirtberg et al., 2013). Once it has been clarified how many professionals will be part of the MAC team, the next step is for the coordinator to invite the parents and members of the MAC team to an initial coordination meeting. The coordinator leading the meeting is not involved in activities at school or at home. As the third-party facilitator, the coordinator adopts a position of being equally curious about and affirming every participant's narrative concerning themselves and others – even conflicting ones – to facilitate the establishment and maintenance of a climate of epistemic trust (Axberg et al., 2021). This is partly inspired by the work of McCarthy and Byrne (2008), and the idea of creating a 'fifth province' – a safe place where participants can meet and engage in dialogical conversations. The coordinator's role, in addition to fostering this climate, is to help make the context, relationships, and each participant's role clear during the coordination meeting, and to coordinate any interventions at school with potential support at home. However, they also facilitate the exploration of stories about the child, teachers, and parents, and the relationships between them, and the co-creation of new narratives. The overall aim is to clarify roles, establish shared goals, and develop a common understanding of the child's developmental needs from a relational and contextual perspective, while also enabling new ways of seeing the child, teachers, and parents.

In Marte Meo, the adult (i.e. the teacher or parent) first identifies and defines their problem and goals in relation to the child. Then, 5–10 minutes of interaction between the adult and the child is filmed. Situations are filmed, capturing routine everyday interactions. To see interaction between the child and the adult in different situations and contexts, video films on interaction are from structured situations, such as when the teacher gives instructions to the child, as well as unstructured situations, for example when the child plays together with other children. Afterwards, the Marte Meo practitioner (i.e. the consultant or therapist) analyses and edits the video using Marte Meo-principles of

developmental support (Wirtberg et al., 2013: pp. 66-70). In the video feedback, the edited video is used as a tool for change and reviewed together with the adult. During the review, the Marte Meo practitioner and adult collaboratively identify what kind of response from the adult might be helpful in meeting the child's needs in difficult situations. Based on the feedback, the adult is given specific homework to test in interaction with the child. Following the filming and reviews, the Marte Meo practitioner and the adult explore whether and how the change in interaction might be beneficial. This sequence is then repeated, and the intervention concludes with a final coordination meeting. During this meeting, the intervention is evaluated, and participants reflect on their experiences of taking part in MAC. The evaluation may indicate a need or desire for a follow-up meeting or a booster session, although these activities remain optional (see Figure 2).

Service as Usual (SAU) was not defined beforehand. To understand the contents of SAU, both teachers and parents were asked to describe the actions they had been involved in after the intervention. The responses revealed a wide range of actions, from extensive interventions to no support at all, reflecting the traditional approaches often implemented in schools when addressing a child's DBP. The activities included classroom or group observations, consultation, supervision and guidance for teachers, and assessments of the child by psychologists or social services. Interventions occasionally extended beyond the school. The school health team had provided assessments or counselling for parents a few times, and social welfare services or primary care were involved in some cases, offering family-oriented efforts including consultations, family therapy, and assessments. In some cases, combinations of these efforts were reported. For more details, see Balldin et al. (2018). Furthermore, video feedback interventions – a core component of MAC using Marte Meo – were not reported as part of the SAU.

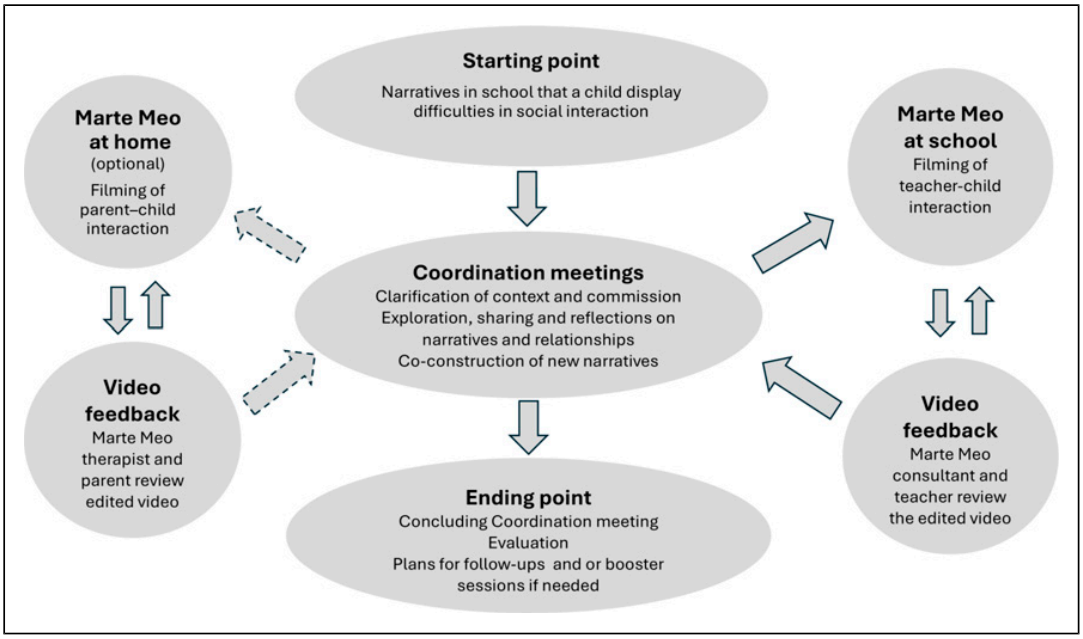

Figure 2. Flow chart MAC procedure elaborated from Wirtberg et al. (2013), p.120.

Measurements

Sociodemographic variables were collected using a survey specifically designed for this study. Respondents provided information on variables such as the parent's and child's gender and age; the parent's income, education, and marital status; the number of relocations; and any benefits received from social services in the past year.

Parental psychological distress (PPL) was measured using the Hopkins Symptom Checklist-25 (HSCL-25) (Derogatis et al., 1974), derived from the 90-item Symptom Checklist (SCL-90) (Derogatis et al., 1973). 1973. The HSCL-25 is a self-report tool designed to assess psychological and emotional symptoms in adults, consisting of two dimensions – Depression (13 items) and Anxiety (10 items) – along with two somatic items. Respondents rated the discomfort caused by specific problems or complaints over the past 7 days using a 5-point Likert scale ranging from 0 ('not at all') to 4 ('extremely'). Higher scores indicate more severe symptoms. The SCL was translated into Swedish by Malling Andersen and Johansson (1998), and its Swedish version has been validated (Fridell et al., 2002). A score greater than 1.75 exceeds the Swedish clinical cut-off value (Lundin et al., 2015; Mattisson et al., 2013). In the current study, the Cronbach's alpha for the HSCL was 0.95.

Parental self-efficacy (PSE) was assessed using the perceived parental control subscale (PPC) of the Parental Locus of Control Questionnaire (Campis et al., 1986). This subscale measures the extent to which parents perceive themselves as capable of controlling their child's behaviour. It consists of 10 items; each rated on a 5-point Likert scale ranging from 1 ('totally disagree') to 5 ('totally agree'). Higher scores correspond to greater perceived control. The scale is considered to have good internal reliability (Campis et al., 1986; Hagekull et al., 2001). A score greater than 3.49 is interpreted as high perceived control in a Swedish population (Hagekull et al., 2001). In this study, the Cronbach's alpha for the PPC subscale was 0.82.

Child disruptive behaviour problems (DBP) were rated by parents and teachers using the Eyberg Child Behaviour Inventory (ECBI) and the Sutter-Eyberg Student Behavior Inventory-Revised (SESBI-R) (Eyberg and Pincus, 1999). Both measures are widely used in research and clinical settings to assess DBP in children aged 2–16 years. They include an Intensity Scale (IS) that captures the frequency of specific disruptive behaviours on a 7-point scale ranging from 1 ('never happens') to 7 ('always happens'), and a dichotomous Problem Scale (PS) that indicates whether the parent or teacher perceives the specific behaviour as 'a problem' (1) or not (0). The ECBI and SESBI-R have been translated into Swedish, and normative data have been published (Axberg et al., 2008; Bergström and Balldin, 2017). Cronbach's alpha for the ECBI IS was 0.81 and for the PS was 0.75. For the SESBI-R, the IS had a Cronbach's alpha of 0.97 and the PS had 0.96. In the present study, we used change scores for the ECBI and SESBI-R, which represent the difference between pre-post and pre-follow-up ratings, respectively (for details, see Balldin et al., 2019; Balldin et al., 2021).

Data preparation and analysis

Data preparation. The first step involved preparing the dataset. Missing data were analysed and imputed. Less than one percent of data was missing for individual items, which

were replaced with the individual's item mean (one item in PPC at T1 and four items in HSCL at T3). The dataset was also examined for potential outliers; however, no outliers were identified. Respondents lost to attrition between pre-test, post-test, and follow-up were not replaced.

Group-level analysis. Next, the data were analysed at the group level. Descriptive statistics, including means, standard deviations, cross-tabulation, and frequencies, were calculated. Group comparisons were conducted using pairwise *t*-tests and Cohen's d to evaluate time effects as well as intergroup differences and within-group effects over time. These analyses provided indices of change, such as statistical significance tests and effect sizes, to assess mean differences. It is important to note that a positive mean group outcome from a treatment does not imply that every group member experienced a positive result. Some individuals may have had negative outcomes, highlighting the fact that the mean only reflects the central tendency of potentially diverse outcomes. To mitigate the risk of overlooking or misinterpreting variability, individual-level analyses were performed.

Individual-level analysis. Individual responses to the intervention varied: some participants responded positively, others negatively, and some showed no change. To capture this variability, we calculated Individual Effect Sizes and categorised the values as mild (≥0.2), moderate (≥0.6) and substantial (≥1.0) (Wyrwich and Wolinsky, 2000). This approach allowed for a more nuanced understanding of the intervention's impact on individual participants.

Associations between change scores. In the final analysis, we calculated change scores from pre-intervention to post-intervention and pre-intervention to follow-up ratings. In these calculations we used square root transformed data to reduce the impact of a few outliers and the non-normality of data from previous studies (Balldin et al., 2019, 2021). We then conducted correlation analyses to explore potential associations between changes in parents' reports of psychological distress and self-efficacy, and changes in parents' and teachers' ratings of child disruptive behaviour.

Results

Parents' pre- and post-test ratings are displayed in Table 1, below, as are pre- and post-test ratings between groups.

Group-level analysis

Analyses of parental psychological distress and self-efficacy at pre-test revealed no statistically significant differences between the MAC and SAU groups, indicating successful randomisation. Additionally, 12% (n = 12) of parents reported a distress level above the clinical cut-off value on the HSCL-25. There was no statistically significant difference in the proportion of parents exceeding the clinical threshold between the MAC group (n = 6) and the SAU group (n = 6). Regarding parental self-efficacy, approximately

Table 1. Parents' self-ratings before, after intervention, and at follow-up.

		Pre-test (T1)			Post-test (T2)			Follow-up (T3)			Paired samples *t*-test				MAC - SAU	
											Pre–post		Pre-follow-up		Pre–post	Pre-follow-up
	Group	N	M	SD	N	M	SD	N	M	SD	*p*	d (95%CI)	*p*	d (95%CI)	d (95%CI)	d (95%CI)
Psychological distress[a]	MAC	52	.76	.65	46	.60	.66	39	.63	.64	.01	.40 (.10 to .70)	.01	.43 (.10 to .75)	.21 (−.07 to .49)	.15 (−.10 to .48)
	SAU	47	.78	.75	45	.77	.74	37	.70	.63	.70	.06 (−.24 to .35)	.34	.16 (.17 to .48)		
Self-efficacy[b]	MAC	52	3.50	.79	46	3.71	.80	38	3.97	.56	.01	.38 (.08 to .69)	<.00	.67 (.31 to 1.02)	−.05 (−.41 to .30)	.29 (−.11 to .69)
	SAU	47	3.70	.66	45	3.92	.62	37	4.01	.63	.01	.39 (.08 to .69)	<.00	.53 (.18 to .87)		

[a]Hopkins Symptom Checklist-25 (HSCL-25).
[b]Parental Locus of Control Questionnaire – perceived parental control subscale (PLOC-PPC).

two-thirds of the parents reported scores above 3.50 on the PLOC-PPC, indicating high perceived parental control, with no statistically significant difference between the groups.

The group analyses showed significant time change in the expected direction for MAC, with effect sizes ranging from .38 to .67 on both outcomes (parental psychological distress and self-efficacy). The effect sizes for SAU ranged from .06 to .53, and while all the differences for the MAC group were statistically significant, only the differences for parental self-efficacy for the SAU group reached the level of significance. There was a marginally significant difference between the MAC and SAU groups in difference between pre- and post-test ratings on parental psychological distress (ANCOVA: F = 3.452, p = .067). While no other comparisons were statistically significant or marginally significant, most of the effect sizes for the differences in change scores between the groups suggested that MAC was preferable to SAU in terms of parental psychological distress at both pre-post and pre-follow-up, and self-efficacy between pre-follow-up ratings, but not between pre-post ratings.

Individual-Level Analysis

The frequencies of the Individual Effect Size between the MAC group and the SAU group on the parental psychological distress and self-efficacy are shown in Table 2 below.

Parental psychological distress and self-efficacy from pre-test to post-test and pre-test to follow-up, showed that between 61% and 63% of parents in the MAC group reported a positive change in Individual Effect Size, 13%–24% reported no change, and 15%–24% reported a negative change (Table 2). In contrast, parents in the SAU group reported 40%–49% positive change, 14%–27% reported no change, and 34%–37% reported negative change. However, chi-square test for independence showed no significant difference between MAC and SAU from pre-test to post-test (Psychological distress: $\chi^2(6) = 7.4$, p = .28; self-efficacy: $\chi^2(6) = 6.0$, p = .46) or from pre-test to follow-up (Psychological distress: $\chi^2(6) = 8.1$, p = .23; self-efficacy: $\chi^2(6) = 7.0$, p = .32). (Table 3)

Associations between change scores on parental psychological distress, self-efficacy, and child disruptive behaviour problems

Eleven (21%) of the parents in the MAC group requested a Marte Meo intervention at home, while 32 (62%) did not. Data were missing for 9 cases (17%). Tables 4 and 5 present the change scores using square root transformed data for parents' self-rated psychological distress (HSCL-25) and self-efficacy (PLOC-PPC), as well as their perceptions of the frequency of their child's disruptive behaviour problems (ECBI-IS) and whether they considered these behaviours problematic (ECBI-PS). Additionally, the tables show teachers' ratings of the frequency (SESBI-IS) of the child displaying disruptive behaviour problems in class and whether they viewed these behaviours as problematic (SESBI-PS). Data for the entire MAC group are displayed, regardless of whether a Marte Meo intervention was conducted at home. Effect sizes for parents who received the intervention versus those who did not are also shown.

The change scores between pre- and follow-up ratings are generally larger, ranging from .117 to 1.773, compared to the change scores between pre- and post-ratings, which

Table 2. Individual effect size for MAC- and SAU group, pre-test/post-test (%).

				Negative change				Positive change		
Measure	Interval	n	Group	Substantial	Moderate	Mild	Unchanged	Mild	Moderate	Substantial
Psychological distress[a]	Pre-post	46	MAC	2	2	11	24	22	26	13
		45	SAU	9	7	18	27	22	11	7
	Pre-	39	MAC	5	8	11	13	24	34	5
	Follow-up	37	SAU	8	5	24	14	19	14	16
Self-efficacy[b]	Pre-post	46	MAC	2	15	4	22	24	15	17
		45	SAU	4	4	16	20	22	16	18
	Pre-	38	MAC	3	5	8	13	24	24	24
	Follow-up	37	SAU	0	11	3	24	35	16	11

[a]Hopkins Symptom Checklist-25 (HSCL-25).
[b]Parental Locus of Control Questionnaire – perceived parental control subscale (PLOC-PPC).

Table 3. Pre- and post-change scores on parental psychological distress, self-efficacy, and child disruptive behaviour problems (DBP).

	All			MM at home			No MM at home			Difference MM at home – no MM at home	
	N	M	SD	N	M	SD	N	M	SD	*d*	(95% CI)
Psychological distress[a]	46	.145	.260	11	.224	.266	32	.111	.266	.43	(−.27–1.16)
Self-efficacy[b]	46	.056	.153	11	.054	.122	32	.061	.163	−.04	(−.73–.64)
Parent ratings of frequency of DBP[c]	45	.477	.536	11	.816	.779	31	.431	1.06	.39	(−.31–1.08)
Parent ratings of problematic DBP[d]	43	.550	.256	11	.526	1.117	30	.641	1.307	−.09	(−.78–.60)
Teacher ratings of frequency of DBP[e]	46	.975	1.559	11	1.563	1.993	32	.702	1.344	.56	(−.14–1.26)
Techer ratings of problematic DBP[f]	45	.635	1.509	11	1.342	1.761	31	.350	1.414	.66	(−.05–1.36)

[a]Hopkins Symptom Checklist-25 (HSCL-25).
[b]Parental Locus of Control Questionnaire - perceived parental control subscale (PLOC-PPC).
[c]Eyberg Child Behavior Inventory (ECBI-IS).
[d]Eyberg Child Behavior Inventory (ECBI-PS).
[e]Sutter-Eyberg Student Behavior Inventory – Revised (SESBI-IS).
[f]Sutter-Eyberg Student Behavior Inventory – Revised (SESBI-PS).

range from .056 to .975. One exception was found in parents' self-ratings of psychological distress (.117 compared to .145). In this respect, there was also a substantial difference (effect size .43) between parents who received a Marte Meo intervention at home and those who did not. Furthermore, there were more substantial effect sizes regarding the receipt of a Marte Meo intervention at home in terms of parents' perceptions of their child's behaviour as problematic (effect size .39), teachers report of the frequency of behaviour problems (effect size .56), and teachers' perceptions of these behaviours as problematic (effect size .66) between pre- and post-ratings. In the follow-up ratings, there was only a substantial difference in effect size concerning teachers' ratings of the behaviour as problematic (effect size .68).

When we examined the correlations between Parental Psychological Distress, Self-Efficacy, and parents' and teachers' ratings of child DBP, several substantial associations were found. These were in addition to the expected associations between pre-, post-, and follow-up ratings of the same measures (see Table 5).

There was a substantial and significant correlation between pre–post change scores on parents' ratings of psychological distress (HSCL-25) and their ratings of child DBP on ECBI-IS (r = .387, p = .009) and ECBI-PS (r = .364, p = .016). These correlations were also reflected in the teachers' ratings on SESBI-IS (r = .329, p = .026) and SESBI-PS (r = .290, p = .054), indicating that a larger decrease in ratings of child DBP was associated with a larger decrease in parents' reports of psychological distress. An association was

Table 4. Pre- and follow-up change scores on parental psychological distress, self-efficacy, and child disruptive behaviour problems (DBP).

	All			MM at home			No MM at home			Difference MM at home – no MM at home	
	N	M	SD	N	M	SD	N	M	SD	*d*	(95% CI)
Psychological distress[a]	39	.117	.241	10	.143	.230	26	.100	.260	.17	(–.57–.90)
Self-efficacy[b]	38	126	.187	9	.123	.146	26	.119	.194	.02	(–.74–.78)
Parent ratings of frequency of DBP[c]	38	.536	.473	10	.753	1.011	25	.532	1.66	.15	(–.59–.88)
Parent ratings of problematic DBP[d]	36	.584	1.420	10	.739	1.279	24	.606	1.27	.09	(–.65–.83)
Teacher ratings of frequency of DBP[e]	44	1.773	3.127	10	1.835	2.340	30	1.420	2.618	.16	(–.55–.88)
Techer ratings of problematic DBP[f]	41	1.162	2.467	10	2.215	2.270	27	.565	2.08	.70	(–.05–1.43)

[a]Hopkins Symptom Checklist-25 (HSCL-25).
[b]Parental Locus of Control Questionnaire – perceived parental control subscale (PLOC-PPC).
[c]Eyberg Child Behavior Inventory (ECBI-IS).
[d]Eyberg Child Behavior Inventory (ECBI-PS).
[e]Sutter-Eyberg Student Behavior Inventory – Revised (SESBI-IS).
[f]Sutter-Eyberg Student Behavior Inventory – Revised (SESBI-PS).

found in parents' ratings of pre–post differences in self-efficacy and DBP scores, indicating that a larger decrease in ECBI-IS was associated with an increase in parents' reports on PLOC-PPC ($r = –.599$, $p < .001$) as well as ECBI-PS ($r = –.475$, $p = .001$). However, no statistically significant correlation was found between teachers' ratings of child DBP and parental self-efficacy.

This pattern appears to be valid for most differences between pre- and follow-up ratings, with substantial correlations between parents' ratings of psychological distress (HSCL-25) and their ratings of child DBP on ECBI-IS ($r = .423$, $p = .008$) and ECBI-PS ($r = .427$, $p = .009$). There are also correlations with teachers' ratings on SESBI-IS ($r = .302$, $p = .061$), but not SESBI-PS ($r = .054$, $p = .755$). Furthermore, similar to the post-test ratings, no substantial correlations were found between pre- and follow-up ratings of teachers' ratings of child DBP and parental self-efficacy.

Discussion

In the present study, we aimed to examine potential associations between changes in parents' self-reported psychological distress, parental self-efficacy, and reports of child DBP. We used a hypothesis-testing design while also exploring associations. Our

Table 5. Correlation between parental psychological distress, self-efficacy, and child disruptive behavior problems (DBP).

		HSCL[a]		PPC[b]		ECBI IS[c]		ECBI PS[d]		SESBI IS[e]		SESBI PS[f]
		T1-T2	T1-T3	T1-T2	T1_T3	T1_T2	T1_T3	T1_T2	T1_T3	T1_T2	T1_T3	T1_T2
HSCL[a] T1-T3	r	.637										
	p	<.001										
	N	39										
PPC[b] T1-T2	r	−.296	−.485									
	p	.045	.002									
	N	46	39									
PPC[b] T1_T3	r	−.026	−.388	.421								
	p	.878	.016	.009								
	N	38	38	38								
ECBI IS[c] T1_T2	r	.387	.383	−.599	−.300							
	p	.009	.018	<.001	.071							
	N	45	38	45	37							
ECBI IS[c] T1_T3	r	.039	.423	−.142	−.603	.533						
	p	.815	.008	.394	<.001	<.001						
	N	38	38	38	37	38						
ECBI PS[d] T1_T2	r	.364	.315	−.475	−.087	0.59	.235					
	p	.016	.062	.001	.619	<.001	.167					
	N	43	36	43	35	43	36					
ECBI PS[d] T1_T3	r	.174	.427	−.28	−.397	.408	.711	.567				
	p	.311	.009	.099	.018	.014	<.001	<.001				
	N	36	36	36	35	36	36	36				
SESBI IS[e] T1_T2	r	.329	.284	−.241	−.266	.222	.137	.345	.052			
	p	.026	.080	.106	.107	.142	.414	.023	.762			
	N	46	39	46	38	45	38	43	36			

(continued)

Table 5. (continued)

		HSCL[a]		PPC[b]		ECBI IS[c]		ECBI PS[d]		SESBI IS[e]		SESBI PS[f]
		T1-T2	T1-T3	T1-T2	T1_T3	T1_T2	T1_T3	T1_T2	T1_T3	T1_T2	T1_T3	T1_T2
SESBI IS[e] T1_T3	r	.210	.302	−.333	−.229	.085	.128	.256	.146	.386		
	p	.176	.061	.029	.168	.591	.442	.111	.396	.011		
	N	43	39	43	38	42	38	40	36	43		
SESBI PS[f] T1_T2	r	.290	.019	−.109	−.21	.208	.132	.227	.137	.608	.307	
	p	.054	.911	.477	.212	.175	.436	.148	.434	<.001	.048	
	N	45	38	45	37	44	37	42	35	45	42	
SESBI PS[f] T1_T3	r	.179	.054	.058	−.048	−.052	.071	−.069	.074	.331	.673	.447
	p	.270	.755	.722	.786	.754	.686	.685	.684	.037	<.001	.004
	N	40	36	40	35	39	35	37	33	40	41	40

[a]Hopkins Symptom Checklist-25 (HSCL-25).
[b]Parental Locus of Control Questionnaire – perceived parental control subscale (PLOC-PPC).
[c]Eyberg Child Behavior Inventory (ECBI-IS).
[d]Eyberg Child Behavior Inventory (ECBI-PS).
[e]Sutter-Eyberg Student Behavior Inventory-Revised (SESBI-IS).
[f]Sutter-Eyberg Student Behavior Inventory-Revised (SESBI-PS).

hypothesis – that we would observe a difference in effect sizes between pre- and post-intervention ratings and pre- and follow-up ratings, and that this difference would be larger, but not statistically significant, for parents who received MAC compared to those who received SAU – was confirmed. Neither the group-level nor the individual-level analyses revealed statistically significant differences. Nevertheless, we argue that there are indications suggesting MAC may be preferable to SAU.

In our case, the findings indicate that, at the group level, MAC was associated with small effect sizes at three of the assessed time points, as defined by Cohen's (1992) conventional benchmarks. These included reductions in parental psychological distress from pre-assessment to post-assessment and from pre-to follow-up, as well as improvements in parental self-efficacy from pre-to post-assessment. A medium-sized effect was observed for parental self-efficacy from pre-to follow-up. In comparison, SAU showed one small and one medium effect over time, both related to parental self-efficacy. Of the four groupwise comparisons, three favoured MAC, while the fourth fell below the empirically derived thresholds proposed by Tanner-Smith et al. (2018). Among the three favourable effects, one fell within the expected range, whereas two exceeded it. At the individual level, more than half of the parents who received MAC reported a positive change, compared to fewer than half in the SAU group. Regarding negative changes, approximately one-third of the parents in the SAU group and one-quarter in the MAC group reported such outcomes. Taken together, although none of the differences reached statistical significance, these results suggest that MAC may offer advantages over SAU, particularly in promoting positive changes in parental self-efficacy and reducing psychological distress.

We observed a medium effect over time in terms of parental psychological distress, but not parental self-efficacy. One reason for this might be that most parents rated themselves as having high levels of self-efficacy, leaving little room for improvement. Additionally, the correlations between parents' and teachers' ratings of child DBP were low to medium. In a previous study by Balldin et al. (2019), about 27% of parents rated the frequency of child behaviour at a level warranting clinical concern, compared to 67% of teachers. This aligns with research indicating that moderate agreement is typically found between different informants. This reflects that a child's behaviour cannot be seen in isolation from its context; it varies in different contexts, and the person assessing the behaviour assigns different meanings to it based on context, perspectives, and expectations (De Los Reyes et al., 2015). Thus, for parents, self-efficacy might not be the primary issue, but rather their perception of the child's behaviour in addition to the teachers' perceptions.

The association found in the present study between parents' ratings of changes in psychological distress and their perceptions of child disruptive behaviour aligns with numerous studies linking parental (mostly maternal) mental health to child externalising and internalising problems (Campbell et al., 2021; Goodman et al., 2011; Hosman et al., 2009; Wirehag Nordh et al., 2024). Additionally, studies have shown that interventions to reduce child disruptive behaviour problems can also alleviate parental psychological distress (Barlow et al., 2012). However, finding an association should not be interpreted as establishing a causal relationship, as the influence between children and parents is reciprocal, and several other contextual factors may significantly impact this association (Leijten et al., 2019; Pelham et al., 2021).

From this perspective, it is noteworthy that substantial associations were also found between teachers' ratings of child behaviour problems in school and parents' reports of psychological distress. Teachers' ratings indicated that a larger reduction in child DBP correlated with a larger reduction in parents' reports of psychological distress. Having a child who displays disruptive behaviour problems can burden parents, leading to feelings of blame for the child's problems and a sense of helplessness (Ljungström et al., 2020; Meltzer et al., 2011; Moses, 2010; O'Reilly and Kiyimba, 2021; Weaver et al., 2008). In a qualitative study, parents of children displaying DBP described difficulties communicating with the school and not feeling heard when seeking support (Ljungström et al., 2020). Many parents also reported a general lack of support from their surroundings and feelings of isolation and loneliness, all of which may contribute to higher levels of psychological distress.

MAC targets the child's behaviour problems by identifying responses from teachers that might be helpful in meeting the child's needs in difficult situations, promoting positive psychosocial development. Additionally, coordination meetings aim to build a supportive environment for teachers and parents, forming a team with the common goal of supporting the child's development while also addressing and strengthening communication and interconnectedness among the members of the school–family system. This approach may counteract feelings of blame, loneliness, helplessness, and lack of support in both parents and teachers.

Limitations and suggestions for future research

One obvious limitation of the present study is the small sample size, which results in low statistical power and an increased risk of Type II error. This means we might incorrectly conclude that there are no differences between the groups based on tests of statistical significance (Banerjee et al., 2009). This risk becomes even larger in the analyses between the parents in the MAC group who received an intervention at home and those who did not. However, when we argue that there are indications suggesting that MAC may be preferable to SAU based on differences of effect sizes, we risk committing a Type I error, which means coming to an incorrect conclusion that there is a difference. This highlights the need for replication of the present study with a larger and slightly different population, as well as the inclusion of additional outcome measures. Advantages may be observed for either intervention depending on the outcome measures used. Based on the confirmation of our hypothesis and the above reasoning, we argue that MAC should be included in future intervention studies to further examine whether similar results can be replicated. However, it is challenging to conduct large-scale studies in naturalistic settings, but even small-scale studies might be feasible, since the results from such studies can be aggregated through meta-analyses to determine whether consistent patterns emerge across studies. Furthermore, replication studies would allow aggregation across a larger population and allow us to explore the generalisability of the findings to different contexts.

Two considerations are pertinent for future replication efforts. First, as the intervention is preventive in nature, baseline symptom levels are expected to be low. Combined with the distal nature of the outcome measures, this typically results in smaller pre–post effect sizes. (Glasgow et al., 2006; Matthay et al., 2021; Tanner-Smith et al., 2018). Second, a

classic methodological limitation in evaluating psychosocial interventions, as is the case here, is the exclusive reliance on subjective outcome measures (Kazdin, 2021). While it is often recommended to include objective outcome measures, there is no universal definition of what constitutes a subjective versus an objective measure (Moustgaard et al., 2014). However, building on the above reasoning, one interesting objective outcome measure could be the number of referrals to CAMHS following the intervention. A reduction in referrals among those who received MAC compared to SAU, both immediately post-intervention and in the longer term, would provide compelling support for its effectiveness. The focus of this study was on parents' well-being in relation to their involvement in MAC intervention. Another interesting topic for further research concerns the children's own experiences.

Conclusion

The results of the current study should be interpreted with caution, as it is a small study and there are several limitations. At the same time, there are several promising results pointing in the same direction, so there may be reason to explore whether they hold in other studies and contexts as well. The effect sizes from pre-to post-intervention and pre-intervention to follow-up ratings on the decrease in parental psychological distress and the increase in parental self-efficacy were generally larger for the parents who received MAC compared to the parents whose children received services as usual. The differences were statistically significant across all measures for the MAC group, but only for parental self-efficacy in the SAU group. In addition, the effect sizes were larger for the parents in the MAC group who also received Marte Meo at home compared to those who did not. There were substantial and statistically significant associations between parents' ratings of changes in psychological distress and changes in ratings of children's DBP at home, as well as teachers' ratings of changes in children's DBP at school. This underscores the importance of strengthening collaboration between home and school. In addition to directly addressing children's behavioural problems in various contexts, it is crucial to enhance communication and interconnectedness between the different systems and promote epistemic trust among the key individuals surrounding the child.

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