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**RESEARCH ARTICLE**

# Is symptom outcome the whole story?—A multilevel meta-analysis of systemic therapy for adults including family system functioning

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**Abstract**
**Objective:** Systemic Therapy conceives mental health symptoms in the context of social systems. Previous meta-analyses on Systemic Therapy focused on symptoms. This meta-analysis aims to focus on family system functioning while including all types of outcomes.
**Method:** We conducted a systematic literature research in multiple databases (PsycInfo, PubMed, Embase, Cochrane Central). We included RCT-studies on adults with psychiatric diagnoses, which compared Systemic Therapy with active psychosocial control. The literature research resulted in 171 coded effect sizes of 32 RCTs. We conducted a random-effects three-level meta-analysis. We categorized outcomes into symptoms of patients, family system functioning, further secondary outcomes of patients, and psychopathology of family members.
**Results:** The results show a small significant overall effect size of $g = .30$ (*CI:* .15–.45, $p < .001$, $k = 171$, $s = 32$) for all outcomes. Systemic Therapy revealed small effect sizes with regard to family system functioning ($g = .34$, $z = 3.51$, $p = .0004$, $k = 26$, $s = 12$), symptoms ($g = .30$, $z = 3.74$, $p = .0002$, $k = 73$, $s = 29$), and further secondary outcomes ($g = .32$, $z = 3.83$, $p = .0001$, $k = 63$, $s = 19$). The effect sizes for psychopathology of family system members were reported rarely ($k = 9$, $s = 6$).
**Conclusion:** This meta-analysis shows the potential relevance of investigating family system functioning as a primary outcome for Systemic Therapy.

**Keywords:** systemic therapy; meta-analysis; family system functioning; couple and family therapy; outcome research

**Clinical or methodological significance of this article:** This is the first multilevel meta-analysis on Systemic Therapy focusing on family system functioning while including all types of outcomes in the analysis. This enables the conclusion that Systemic Therapy is not only effective in reducing symptoms of the patients but also enhances family system functioning. Therefore, Systemic Therapy could be indicated for patients with clinically relevant degrees of family system functioning. More RCT-studies are needed which include outcomes of family system functioning as a primary outcome.

## Introduction

Systemic Therapy is a widespread psychotherapeutic approach (Friedlander et al., 2021; Heatherington et al., 2015). Systemic Therapy conceives mental disorders within the context of social systems as well as the relations, interactions, and communication patterns of those who compose these social systems (Friedlander et al., 2021; Heatherington et al., 2015; von Sydow et al., 2010). System members (i.e., partners, friends, and team members) are included physically and/or virtually (e.g., by systems-oriented questions and genogram work) in the therapeutic process (Becvar & Becvar, 2009). Systemic Therapy encompasses a variety of

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treatment approaches (Sexton & Lebow, 2016) including modern, evidence-based family systems therapies (e.g., Solution-focused Therapy, Brief Strategic Family Therapy or Multidimensional Family Therapy, for more treatment approaches see Sexton & Lebow, 2016).

Several systematic reviews and meta-analyses have confirmed the efficacy of Systemic Therapy for adults focusing only on symptoms (Pinquart et al., 2016; von Sydow et al., 2010). von Sydow et al. (2010) established the definition and a search strategy for Systemic Therapy for various following reviews and meta-analyses. It is a meta-content analysis, in which studies were systematically analyzed based on study methods and outcomes. This meta-content analysis showed the efficacy of Systemic Therapy including 38 RCT-studies with regard to multiple outcomes. von Sydow et al. (2010) used broad inclusion criteria including outcomes that would not be suitable for meta-analytic procedures, including all types of control conditions as well as physical disorders. Thus, they excluded studies that only reported family system functioning. Von Sydow et al. (2010) concluded that there is solid evidence for the efficacy of Systemic Therapy for adults. Thirty-four of the 38 RCTs confirmed the efficacy of Systemic Therapy for multiple disorders. The authors did not conduct a meta-analysis due to the heterogeneity of study methods. Pinquart et al. (2016) showed that it was statistically feasible to conduct a meta-analysis based on similar inclusion and exclusion criteria compared to von Sydow et al. (2010). This meta-analysis exclusively included studies that reported symptom outcomes. It included 37 and 24 RCT-studies comparing Systemic Therapy to an active control treatment. Systemic Therapy for all types of disorders had small effects compared to alternative active treatments ($g = .25$). Vossler et al. (2024) recently published an update on this meta-analysis including 30 RCTs focusing on adult depression. Compared to Pinquart et al. (2016), Vossler et al. (2024) used similar inclusion and exclusion criteria with respect to depression. In addition to depressive symptoms, the meta-analysis also used dropout as outcome. It discovered small effects compared to active control treatments ($g = .25$). Another current meta-analysis (Huang et al., 2023) on Systemic Therapy focused on depression in children and adolescents. Huang et al. (2023) used similar methods to Vossler et al. (2024) and discovered comparable results. Vossler et al. (2024) and Huang et al. (2023) continued to focus on symptom outcome and conducted a (traditional) single-level meta-analysis, which uses one effect per study. This effect is either a pooled effect of all outcomes reported in a study or researchers choose one outcome out of all outcomes reported (Assink & Wibbelink, 2016). Single-level meta-analyses tend to focus mainly on symptom outcomes due to only including one effect per study. From a general scientific perspective, the focus on symptom outcomes can be associated with selective outcome reporting (Kirkham et al., 2012; Munder & Barth, 2018).

Our study takes a different approach: it uses a three-level meta-analysis focusing on family system functioning while including all types of outcomes. Three-level meta-analyses can integrate various outcomes and effect sizes per study in a multi-level design. This enables a distinction between outcome-specific and between-study effects and allows for the analysis of both effects simultaneously (Assink & Wibbelink, 2016).

This is of importance since both latest meta-analyses (Huang et al., 2023; Vossler et al., 2024) as well as the meta-content analysis of von Sydow et al. (2010) suggest that future meta-analyses should consider not only symptom outcomes but the family system level as well. From a systemic point of view, the limited focus on symptoms leads to a neglect of relevant relational and interactional changes in the family system. A variety of models on mechanisms of change (e.g., Integrative Systemic Therapy Model: Breunlin et al., 2011; MacMaster Model: Epstein et al., 1983; Circumplex Model: Olson, 2000) and treatment models (e.g., Brief Strategic Family Therapy, Multidimensional Family Therapy or Functional Family Therapy) highlight the relevance of family system functioning as an additional outcome. We follow the definition of family system functioning by Hamilton and Carr (2016) as "the way in which families function to solve tasks associated with progression through the family life cycle." (Hamilton & Carr, 2016, p. 16). Therefore, family system functioning encompasses a variety of instruments such as relationship distress of couples (e.g. Dyadic Adjustment Scale: Spanier, 1976), family cohesion and adaptability (FACES: Olson et al., 1982) or family system treatment change (SCORE-15: Stratton et al., 2014). Various systematic reviews conclude that studies on couple and family therapy lack outcomes on family system functioning: Sanderson et al. (2009) discovered six RCT-studies with family system functioning. In a review on Couple and Family Therapy research, 25% of the studies included family system functioning and approximately 60% of the studies included outcomes on family members (Stratton et al., 2015). Apart from the lack of using family system functioning as outcome, several reviews also report that there is a great heterogeneity of outcome instruments on family system functioning (Sanderson et al., 2009; Stratton et al., 2015; von Sydow et al., 2010). Both of these aspects question the feasibility of a meta-analysis on family system functioning.

To our knowledge, no meta-analytic evidence has been published on the efficacy of Systemic Therapy with regard to family system functioning. Several meta-analyses on Couple and Family Therapy include family system functioning: A meta-analysis on couple therapy for depression (Barbato et al., 2018) confirmed that couple therapy had stronger effects on relationship satisfaction ($g = .50$) compared to individual symptomatology ($g = .17$). Similar results are found for Behavioral Couple Therapy for alcohol and drug use (Powers et al., 2008). A review on family therapy for depression (Henken et al., 2007) showed evidence that family therapy is more effective compared to active treatments on family system functioning.

Regarding outcomes referring to the psychopathology of family members, we have little meta-analytic knowledge on the efficacy of Systemic Therapy. Hartmann et al. (2010) discovered that integrating family members in the medical treatment of adult patients with chronic physical diseases improves the physical ($d = 0.32$) and mental health of patients ($d = 0.28$) as well as the health of family members ($d = 0.35$).

### Current Systematic Review and Meta-Analysis

The major aim of this meta-analysis is to investigate the efficacy of Systemic Therapy for adults including all types of outcomes, especially family system functioning. We conduct a three-level meta-analysis including all types of outcomes, which enable us to analyze outcome-specific effects as well as between-study effects in one analysis. More specifically, we aim to investigate this efficacy of Systemic Therapy across outcomes in comparison to other psychosocial treatments. We exclude medication from active control treatments, since this effect is hard to interpret given the evidence on expectancy in psychotherapy research (Munder & Barth, 2018). We hypothesize that Systemic Therapy will have small effect sizes on all types of outcomes. We also assume that the effect sizes on family system functioning are comparable to other outcomes (i.e., symptoms, further secondary outcomes of patients and psychopathology of family members). Besides, we explore differences in the outcome measures selected.

## Method

### Meta-Analytic Search Strategy, Study Selection, and Data Collection

We conducted a systematic search in April 2024 using the databases APA PsycInfo, Embase, Pubmed and Cochrane CENTRAL. As the search terms of previous meta-analysis and reviews (Pinquart et al., 2016; Retzlaff et al., 2013; Riedinger et al., 2017; von Sydow et al., 2010) lacked both precision and sensitivity, we optimized the search terms in regard to both precision and sensitivity. In line with the recommendations by the Cochrane handbooks (Higgins et al., 2021), we used studies found in previous reviews as well as new studies in an iterative process to validate and optimize the search terms. For the search terms see Supplemental Material 1. The language of the articles did not limit the search, articles that were not written in English were included. We included studies published as journal articles. We used the following inclusion criteria: (1) included a sample of adult patients with psychiatric ICD- or DSM- diagnoses or that applied established screening tests for these diagnoses; (2) included at least one study arm with a central intervention that can be recognized as Systemic Therapy based on their theoretical background and intervention performance (von Sydow et al., 2010); (3) used an active psychosocial treatment as comparator (medication or waitlist control groups were excluded); and (5) adopted an RCT-design. Note that integrative interventions of Systemic Therapy (e.g. combining Systemic Therapy with CBT) were not excluded (if the central theoretical background was Systemic Therapy). The flowchart in Figure 1 gives an overview of the search strategy. Two of the authors (NB, JW: doctoral students in Clinical Psychology) independently reviewed study titles and abstracts (agreement with Cohen's Kappa: $\kappa = .68$). Full-texts were checked independently by two authors (doctoral students with training in Systemic Therapy) for eligibility (agreement $\kappa = .77$). They were supervised and received additional training by a senior research with considerable experience in psychotherapy research on Systemic Therapy (conducting and publishing multiple RCTs on Systemic Therapy, licensed psychotherapist, trainer and supervisor in Systemic Therapy, CHS). Two independent researchers (doctoral students) extracted effect sizes and moderating variables (agreement 74%). Disagreements in all stages of the processes were addressed by consensus. A senior researcher (CF) with considerable experience in conducting meta-analyses supervised the assessors and gave additional training.

The type of control group (e.g., TAU, bona fide psychotherapy) and therapeutic modality of the Systemic Therapy intervention (family, couple or primarily individual therapy) and the adapted version of Risk of Bias for psychotherapy research (Munder & Barth, 2018) were coded as between-study moderators. Effect sizes were corrected for

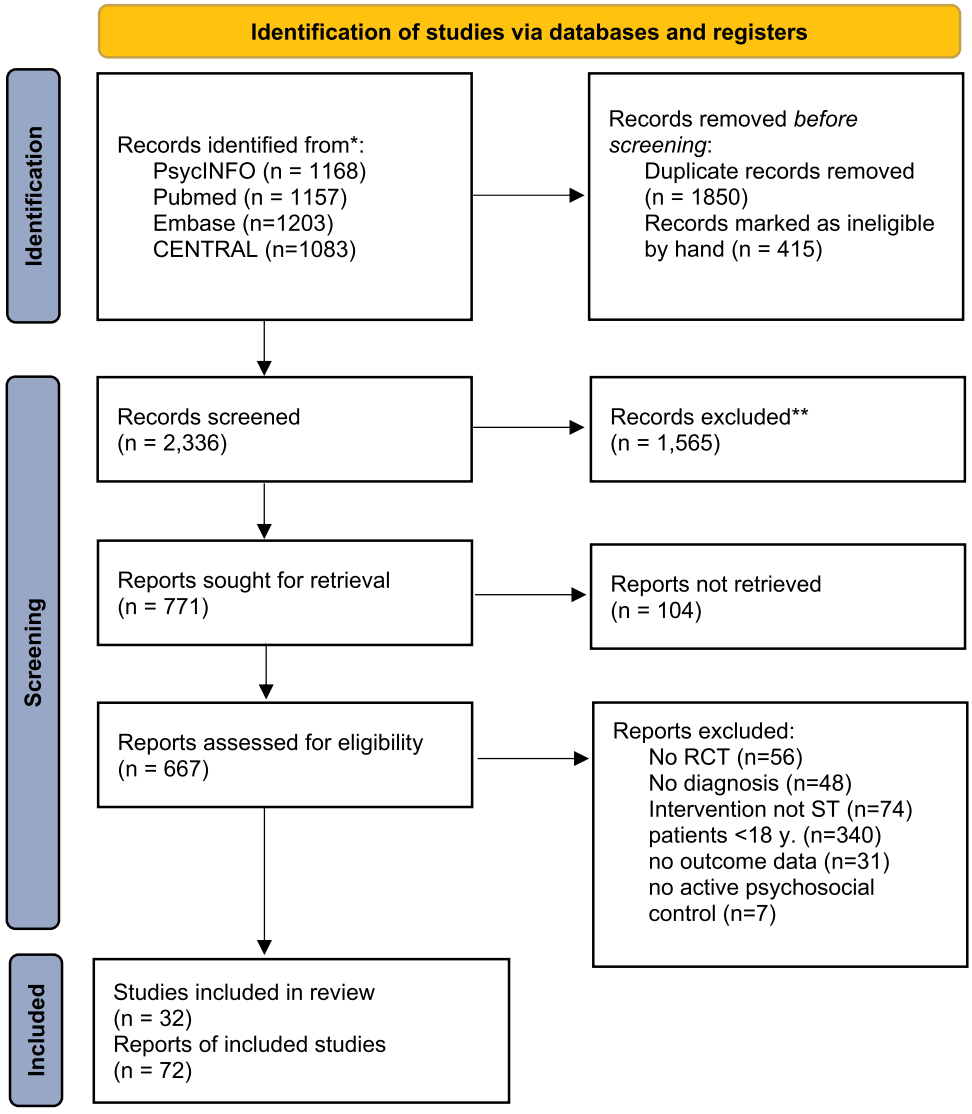


Figure 1. Prisma Flowchart. Notes: derived from Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.

pre-differences using the formula by Carlson and Schmidt (1999) as suggested for meta-analyses on psychotherapy (Hoyt & Del Re, 2018). Hedge's g was calculated with the R package "MAd" (Del Re & Hoyt, 2014) based on mean differences. Hedge's g is interpreted similarly to Cohen's d (Cohen, 1988) with $|g| = .20$ representing a small effect, $|g| = .50$ representing a medium effect and $|g| = .80$ a large effect. If only odds ratios were available, they were transformed with the standard formula (Borenstein et al., 2009).

To investigate differences in the selected outcome measures, outcome measures were categorized into symptoms of patients, family system functioning, further secondary outcomes of patients and general psychopathology of family members. Further secondary outcomes of patients were all reported outcomes that could not be assigned to symptoms of patients or family system functioning (e.g., Quality of Life). Positive effect sizes showed that Systemic Therapy led to more positive outcomes (e.g., lower symptoms) compared to the control treatment. All effect sizes mentioned in a single study (in some cases in multiple reports) were integrated into a three-level meta-analysis.

## Statistical Analysis

We conducted a three-level meta-analytic model using the open-source software R with the R-package "metafor" (Viechtbauer, 2010). The model parameters were estimated based on the restricted maximum likelihood method (Assink & Wibbelink, 2016).

The sampling variance (Level 1) was nested within the effect sizes (Level 2; $k = 171$). The effect sizes were nested within the studies (Level 3; $s = 32$). This model allowed the estimation of sampling variance (Level 1), within-study (Level 2) as well as between-study variance (Level 3) at the same time (Assink & Wibbelink, 2016). We conducted a within-study moderation analysis comparing each type of outcome (e.g., family system functioning) against zero.

Multilevel forest plots illustrate the effect sizes disaggregating within-study and between-study variance as well as sampling errors (Fernández-Castilla et al., 2020). Overall heterogeneity was assessed with the Q- and $I^2$- method. To evaluate at what level the heterogeneity appears, e.g., due to the variation between measures at Level 2 or between studies at Level 3, we estimated the heterogeneity $I^2$ for each of the three level (Assink & Wibbelink, 2016). To identify publication bias, we graphically analyzed a funnel plot and conducted Egger's test as well as the Trim and Fill-method adapted for multiple outcomes (Fernández-Castilla et al., 2021). For the Trim and Fill-method, the cutoffs ($R_0 > 3$, $L_0 > 3$) were based on a recent simulation study (Fernández-Castilla et al., 2021). This meta-analysis was registered on Prospero (no.: CRD42021244696).[1]

## Results

Overall, we identified 32 studies. A flowchart of the search procedure can be found in Figure 1. Ten studies refer to addiction disorders, eight studies refer to depression and anxiety, four studies to schizophrenia and one study to bipolar disorders. Seven studies refer to eating disorders and one study used mixed disorders (mainly affective and anxiety disorders). Thirteen of 32 the studies used a TAU control treatment, only one study met the standards of bona fide psychotherapy control groups (trained therapists, based on psychological principals, equal dose; Wampold et al., 1997). Twelve of 32 studies used other psychotherapies as control treatments. Five studies used psychoeducation as control treatment. For more details on the individual studies see Table 1. From the 32 studies, 171 effect sizes were reported. Twenty-nine of 32 studies and 73 of 171 effect sizes referred to symptom outcomes. Only, two studies did not report a symptom measure. Twelve of 32 studies and 26 of 171 effect sizes reported family system functioning. Sixty-three effect sizes assessed further secondary outcomes from the patient's perspectives ($s = 19$). Six of the 32 studies and nine of the 171 effect sizes reported general psychopathology of the family members.

The studies encompassed a great variety of treatment approaches and modalities: Four studies focused on solution-focused brief therapy (Jackson et al., 2018; Kim et al., 2018, Knekt et al., 2008; Smock et al., 2008). Five studies used Systemic Couple Therapy approaches based on heterogeneous theoretical backgrounds (Lee et al., 2023; Lee & Awosoga, 2015; Lemmens et al., 2009; Seikkula et al., 2013; Wittenborn et al., 2019; Zweben et al., 1988). Four of these couple therapy studies used integrative treatment models. Seventeen studies used treatment models of Systemic Family Therapy (Bennun, 1988; Beutler et al., 1993; Byrne et al., 2017; Cai et al., 2015; Crisp et al., 1991; Dare et al., 2001; Espina et al., 2000; Espina & González, 2003; Feaster et al., 2010; Hou et al., 2014; Jackson et al., 2018; Lee et al., 2018; Miller et al., 2008; Nyman-Carlsson et al., 2020; Piyavhatkul et al., 2017; Schmidt et al., 2013; Weisman de Mamani et al., 2014). Ten of these studies were based on traditional approaches of Systemic Family Therapy (Bennun, 1988; Beutler et al., 1993; Crisp et al., 1991; Dare et al., 2001; Espina et al., 2000; Espina & González, 2003; Feaster et al., 2010; Hou et al., 2014; Jackson et al., 2018; Piyavhatkul et al., 2017). Six were based on modern evidence-based integrative Systemic Family Therapy (Byrne et al., 2017; Cai et al., 2015; Lee et al., 2018; Miller et al., 2008; Nyman-Carlsson et al., 2020; Schmidt et al., 2013; Weisman de Mamani et al., 2014). Six studies were primarily individual therapies while being based on theories of Systemic Family Therapy (Hunger et al., 2020; Kim et al., 2018; Knekt et al., 2008; Rakowska, 2011; Rodríguez Vega et al., 2011; Shestopal & Bramness, 2019).

### Overall Effects

Over all outcomes, the three-level model showed a significant effect in favor of Systemic Therapy ($g = .30$, $t(170) = 3.88$, $p < .001$, 95%- $CI = [.15;.45]$, $k = 171$, $s = 32$). There was substantial heterogeneity ($I^2 = 68.34\%$, $Q(170) = 613{,}53$, $p < .001$). There was a substantial amount of between-effect sizes variance ($I^2_{\text{level }2} = 23.60\%$) and a greater amount of between-study variance ($I^2_{\text{level }3} = 68.62\%$). For the forest plot see Figure 2.

### Differences of Selected Outcomes

To examine differences in selected outcomes, we ran a moderator model with different outcome measures (see Table 2). Systemic Therapy revealed a small

Table 1. Study characteristics of included studies.

| Study | *N* (total) | *N* (EG) | *N* (CG) | Age (Mn) | Type of ST | Type of CG | Disorder | RoB | Modality | J Sym | J Sys | J Sec.Pat. | J.S.M. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Beutler et al. (1993) | 37 | 28 | 19 | 38.8 | Systemic FT (Manual) | PT | SUD | unclear | FT | 1 | / | / | / |
| Bennun (1988) | 12 | 6 | 6 | 43 | Systemic FT (Milan approach) | PT | SUD | high | FT | 1 | 3 | / | / |
| Byrne et al. (2017) | 80 | 41 | 39 | 26.16 | Systemic FT (Maudsley) | PT | ED | low | FT | 2 | / | 4 | / |
| Cai et al. (2015) | 234 | 126 | 108 | 34 | Systemic FT | PT | Schizophrenia | unclear | FT | 2 | / | / | / |
| Crisp et al. (1991) | 50 | 30 | 20 | 22 | Systemic FT | PT | ED | high | FT | 3 | / | 4 | / |
| Dare et al. (2001) | 44 | 22 | 22 | 26.3 | Systemic FT (Maudsley) | TAU | ED | unclear | FT | 1 | / | / | / |
| Espina et al. (2000) | 62 | 42 | 20 | 26.04 | Systemic FT (Maudsley) | PT | ED | unclear | FT | 8 | / | / | / |
| Espina and González (2003) | 23 | 13 | 10 | 20.55 | Systemic FT (Maudsley) | PT | Schizophrenia | high | FT | 3 | / | / | / |
| Elkjaer et al. (2014) | 106 | 54 | 52 | 33.24 | Systemic Group Therapy | PT | MIX | high | GP | 3 | / | 3 | / |
| Feaster et al. (2010) | 126 | 59 | 67 | 43.15 | Structural Ecosystems Therapy | EDU | SUD | unclear | FT | 1 | 4 | 1 | 4 |
| Hou et al. (2014) | 213 | 104 | 109 | 28 | Systemic FT | TAU | Depression | unclear | FT | 1 | / | 1 | / |
| Hunger et al. (2020) | 38 | 18 | 20 | 35.65 | Integrative ST for SAD | bf PT | SAD | low | Mix | 3 | 2 | 4 | 1 |
| Jackson et al. (2018) | 60 | 30 | 30 | 46.05 | BFST | PT | ED | unclear | FT | 2 | / | 1 | / |
| Kim et al. (2018) | 180 | 90 | 90 | 30.8 | SFBT | TAU | SUD | unclear | Mix | 2 | 1 | 4 | / |
| Knekt et al. (2008) | 198 | 97 | 101 | 32.1 | SFBT | PT | Depression & Anxiety | unclear | Mix | 4 | 1 | 14 | / |
| Lee and Awosoga (2015) | 30 | 16 | 14 | 49.1 | Congruence CT | TAU | Gambling Disorder | high | CT | 1 | 3 | 1 | |
| Lee et al. (2018) | 36 | 16 | 20 | / | Brief Family-centred Care | TAU | Bipolar Disorder | high | FT | / | 2 | / | 1 |
| Lee et al. (2023) | 46 | 23 | 23 | 45 | Congruence CT | TAU | Gambling Disorder | unclear | CT | 2 | 1 | 6 | / |
| Lemmens et al. (2009) | 48 | 25 | 23 | 42.49 | Systemic CT | TAU | Depression | high | CT | 1 | / | 1 | 1 |
| Miller et al. (2008) | 74 | 40 | 34 | 37.6 | Systemic FT (integrative) | PT | Depression | unclear | FT | 3 | / | / | / |
| Nyman-Carlsson et al. (2020) | 74 | 37 | 37 | 18.9 | Systemic FT (integrative) | EDU | ED | high | FT | 3 | / | 2 | / |
| Piyavhatkul et al. (2017) | 24 | 13 | 11 | 25 | Satir Model of FT | EDU | Schizophrenia | unclear | FT | 2 | 1 | 1 | 1 |
| Rakowska (2011) | 60 | 30 | 30 | 24.89 | BST | SUP | Anxiety | unclear | Mix | 4 | / | / | / |
| Rodriguez Vega et al. (2011) | 68 | 36 | 32 | 54.6 | Narrative Therapy | TAU | Depression (+cancer) | unclear | Mix | 1 | / | 12 | / |
| Seikkula et al. (2013) | 51 | 29 | 22 | 42.33 | Systemic CT | TAU | Depression | high | CT | 2 | 2 | 1 | 1 |
| Schmidt et al. (2013) | 119 | 64 | 55 | 26.7 | Systemic FT (Maudsley) | PT | ED | unclear | FT | 3 | / | 3 | / |
| Shakeri et al. (2020) | 26 | 13 | 13 | / | Narrative GT | TAU | SUD | unclear | GT | / | / | 3 | / |
| Shestopal & Bramness (2019) | 31 | 16 | 15 | 53.14 | Systemic Hypnotherapy | TAU | SUD | unclear | Mix | 2 | / | 1 | / |
| Smock et al. (2008) | 38 | 19 | 19 | 31 | SFBT (GT) | EDU | SUD | unclear | GT | / | / | 2 | / |
| Weisman de Mamani et al., (2014) | 46 | 25 | 21 | 42.59 | FFT (cultural-informed) | EDU | Schizophrenia | high | FT | 1 | / | / | / |
| Wittenborn et al. (2019) | 16 | 10 | 6 | 38 | Emotion-focused CT | TAU | Depression | unclear | CT | 2 | 2 | / | / |
| Zweben et al. (1988) | 109 | 139 | 79 | 42.35 | Systemic CT | TAU | SUD | high | CT | 4 | 5 | / | / |

*Note.* RoB = Risk of Bias; EG = experimental Group; CG = control group; PT = Psychotherapy; ST = Systemic Therapy. bf PT = bona fide psychotherapy. CT = Couple Therapy. FT = Family Therapy. GT = Group Therapy. BST = Brief Strategic Therapy. Mix = Mixed Modality (primarily individual therapy). TAU = treatment as usual; edu = Psychoeductation, sup = supportive; SUD = substance use disorder. SAD = Social Anxiety Disorder. Mn = Mean. J Sym = number of effect sizes for symptom outcome. J Sys = number of effect sizes for family functioning. J Sec.Pat. = number of effect sizes for further secondary outcomes of patients. J S.M. = number of effect sizes for psychopathology of non-clinical system members.

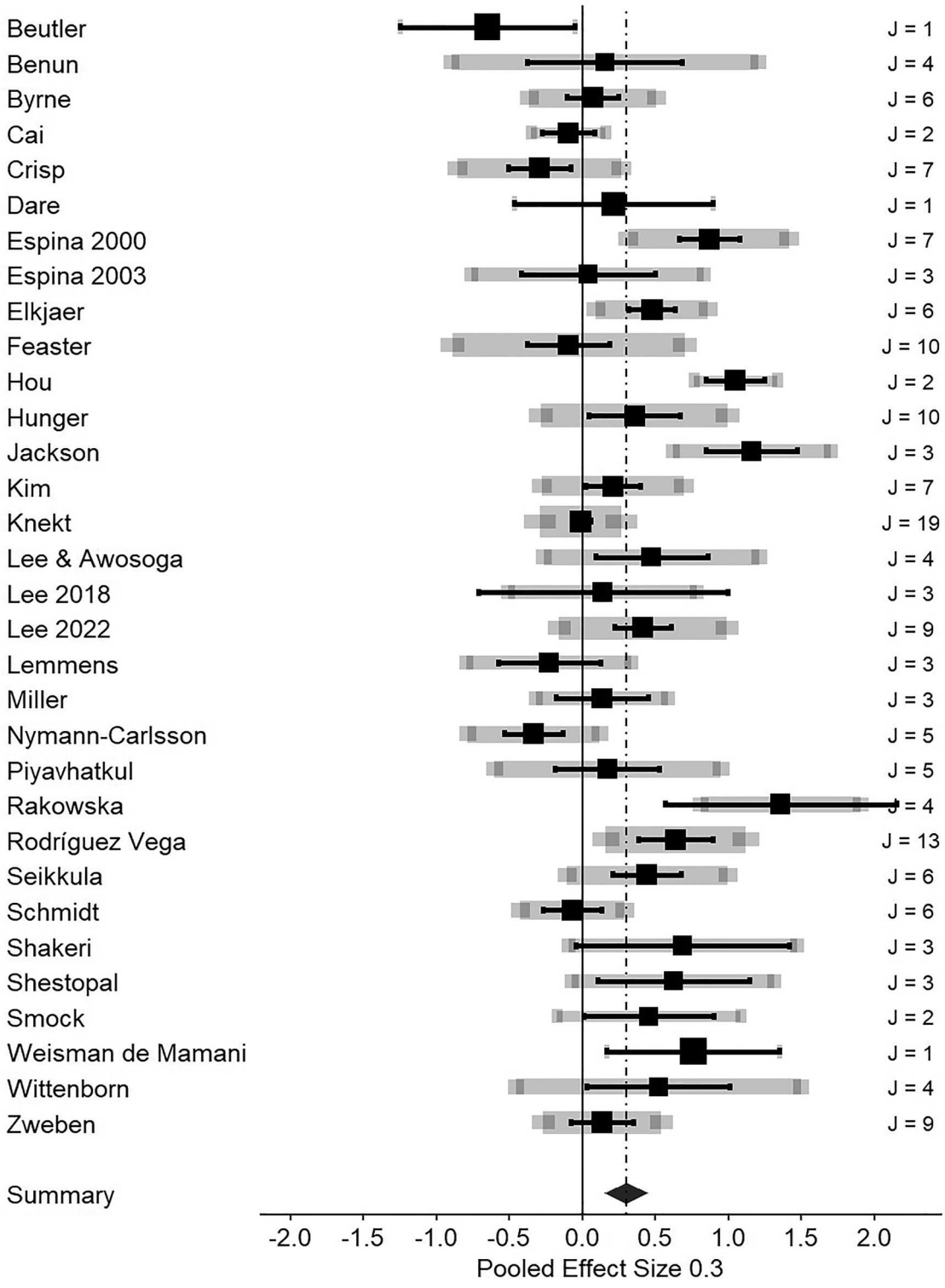


Figure 2. Forest Plot of the overall efficacy of systemic therapy for adults on all outcomes. Note: This figure represents a forest plot for random-effect three-level meta-analysis based on Pre-Post comparisons. J = number of effect size per study.

effect on symptoms, $g = .30$, $z = 3.74$, $p = .0002$, $k = 73$, $s = 29$. There is a small but slightly greater effect on family system functioning, $g = .34$, $z = 3.51$, $p = .0004$, $k = 26$, $s = 12$. The effect for further secondary outcomes of patients is comparable, $g = .32$, $z = 3.83$, $p = .0001$, $k = 63$, $s = 19$. Systemic Therapy was equally effective for general psychopathology of non-clinical family members compared to active psychosocial treatments, $g = .07$, $z = 0.46$, $p = .65$, $k = 9$, $s = 6$.

Table 2. Multilevel meta-analysis results for all patient outcomes.

| Outcome | g | CI | k | s | z | *p* | | F(df) | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Symptoms of patients | 0.30 | [0.14,0.45] | 73 | 29 | 3.74 | 0.0002 | *** | 19.13 (4) | .0007*** |
| Family System functioning of patients and F.M. | 0.34 | [0.15,0.54] | 26 | 12 | 3.51 | 0.0004 | *** | | |
| Further Secondary Outcomes of Patient | 0.32 | [0.16,0.48] | 63 | 19 | 3.83 | 0.0001 | *** | | |

*Note.* CI = confidence interval. * = $p < .05$. ** = $p < .05$. s = number of studies referring to the outcome. k = number of effect sizes referring to this outcome. F.M. = family members.

## Publication Bias

There was no substantial indication of publication bias graphically (see Figure 3). Egger's Test for publication bias adapted for multiple outcomes was significant, $QM$ ($df = 1$) = 5.53, $p = .0187$. The Trim and Fill-method showed no indication of publication bias ($R_0 = 2.00$, $L_0 = 0.00$; below cutoff).

## Moderators

There was no moderation effect regarding the type of control group, $F$ (3,167) = .50, $p = .69$. With respect to therapeutic modalities, there is a significant moderating effect in favor of group therapy ($g = .52$) and primarily individual therapy ($g = .62$) versus couple ($g = .29$) and family therapy ($g = .13$), $F$ (3) = 8.23, $p = .0414$. Treatment modalities were unevenly distributed between the studies (Family Therapy (FT) 17; Individual (IT): $s = 6$; Group (GT): $s = 3$; Couple Therapy (CT): $s = 6$).[2] Risk of Bias had no moderation effect, $F$ (2, 87) = 0.96, $p = .39$. For more information on Risk of Bias see Supplemental Material Figure 3. There is no effect of patient report versus other reports on all outcomes, $F$ (1, 169) = 2.27, $p = .134$. For family system functioning, there was a marginal significant effect of patient report versus family members report, $F$ (1, 24) = 3.62, $p = .0069$. Family members ($g = .31$) tended to rate more positive effects on family system functioning compared to patients ($g = .10$).

## Discussion

The present meta-analysis aims to add to the literature of previous meta-analyses (Pinquart et al., 2016; Vossler et al., 2024) on Systemic Therapy which

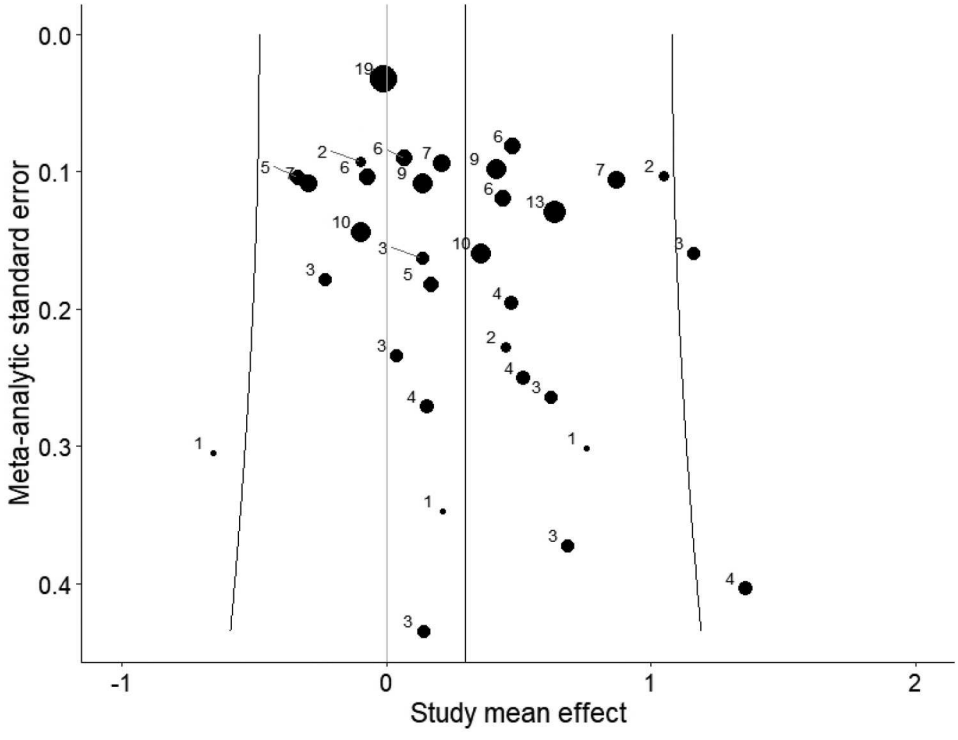


Figure 3. Funnel Plot for study mean effect sizes and standard error. Note: The numbers near and ratio of the dots represent the number of effect sizes. The curved lines on the left and right represent a graphical test for publication bias.

concentrated only on symptom outcome. The present study is the first meta-analysis including family system functioning as outcome while considering all types of outcomes in a single three-level meta-analysis. We found a small but significant effect size in favor of Systemic Therapy compared to active psychosocial treatments ($g = .30$, across 171 effect sizes and 32 studies). There was a substantial heterogeneity across the effect sizes (24%) and considerable heterogeneity between studies (69%). There was no substantial indication of graphical publication bias (see Figure 3). While Egger's test indicated some publication bias, the Fill-and Trim method showed no indication of publication bias. With regard to differences in the outcomes selected, there was a comparable small but significant effect size for family system functioning ($g = .34$) and symptoms ($g = .30$). The effect size for psychopathology of family system members was not interpretable, since it was rarely reported ($k = 9$, $s = 6$).

This is the first meta-analysis showing that Systemic Therapy is equally effective with regard to family system functioning as well as symptoms. In terms of the indication of Systemic Therapy in routine psychotherapy care, this finding suggests that Systemic Therapy is indicated for adult patients or family systems with a clinical degree of family system functioning. This idea draws some parallels to the concept of relational disorders proposed for the DSM-V (Wamboldt et al., 2015).

One can consider the hypothesis-driven inclusion and exclusion criteria as a major strength of this meta-analysis. These inclusion and exclusion criteria followed the recommendations for meta-analyses in psychotherapy research (Swift & Wampold, 2018). The central hypothesis focuses on psychosocial control groups and all types of outcomes, especially family system functioning. The review by von Sydow et al. (2010) discovered 38 studies. von Sydow et al. (2010) included all types of control conditions, outcomes and disorders (including physical disorders). In a previous meta-analysis by Pinquart et al. (2016) which used broad inclusion criteria as well (e.g., including medication as active treatment), 24 RCTs were included. Vossler et al. (2024) used similar inclusion criteria (focusing on depression) and included 30 RCTs. The approach of the current meta-analysis complements previous meta-analyses by using a multilevel meta-analysis design including all types of outcomes. The current meta-analysis includes 32 RCTs and 171 effect sizes. Twenty-nine of 32 studies reported symptom outcomes and 73 of the 171 effect sizes were symptom outcomes. Regarding these effect sizes referring to symptoms, we replicate the small but significant effect size by Pinquart et al. (2016) and Vossler et al. (2024).

Only 12 of the 32 RCTs reported family system functioning and only 26 of the 171 effect sizes referred to the outcome of family system functioning. Therefore, one simple conclusion of this meta-analysis is that future RCT-studies need to include family system functioning as outcome. Given the differences in the number of studies and effect sizes between symptoms and family system functioning, future meta-analyses including more effect sizes of family system functioning could find greater effects. Future research on Systemic Therapy as part of the health insurance-financed care needs more acknowledgement of family system functioning as a core (or primary) outcome. This becomes difficult if health insurance companies only use symptom reduction as the core outcome for clinical improvement and further neglect the concern of family health. Future RCT-studies could include clinical levels of family system functioning as an additional inclusion criterion. The rare usage of family system functioning as outcome in RCT studies on Systemic Therapy replicates several reviews for Couple and Family Therapy (Hamilton & Carr, 2016; Stratton et al., 2015; von Sydow et al., 2010). This meta-analysis was statistically feasible especially in terms of the comparisons between outcomes integrating 171 effect sizes. The large number of effect sizes highlights the advantages of the multilevel meta-analysis approach especially given the doubts about the feasibility of a meta-analysis on family system functioning (Sanderson et al., 2009; Stratton et al., 2015).

In this meta-analysis, there is a great heterogeneity of outcome instruments especially in terms of family system functioning replicating previous reviews (Sanderson et al., 2009; Stratton et al., 2015; von Sydow et al., 2010). Nevertheless, our findings show that these heterogeneous outcome instruments do not lead to a great heterogeneity on the effect size level. Twelve of 26 effect sizes and four of the 12 studies referred to family level and 10 of 26 effect sizes as well as six of 12 studies included family system functioning on couple level. Only one study (Hunger et al., 2020) included a family system functioning outcome that refers to broader social systems exceeding biological or legal norms of family or couples. There was no gold standard common instrument such as the SCORE-15-Scale as suggested in several reviews (Hamilton & Carr, 2016; Sanderson et al., 2009; Stratton et al., 2014). In the majority of studies (nine of 12 RCTs), family system functioning was rated by both family system members and patients. There was a difference in the effects on family system functioning rated by family members versus patients. Family members tend to benefit more in terms of family system functioning compared to patients. This finding draws

some parallels to the work of Foran et al. (2013). They concluded that partners' or family members' perspectives on relationship distress (Foran et al., 2013) or family problems (Foran et al., 2015) are relevant to the treatment success of individuals with mental health problems.

Various models of mechanisms of change and treatment models for Systemic Therapy (e.g. Breunlin et al., 2011; Epstein et al., 1983; Olson, 2000) suggest an interplay between family system functioning and symptoms during the process of therapy. Future meta-analysis could use individual patients or qualitative data to receive more insights into this interplay. A recent qualitative meta-analysis discovered the association and processes between relationship satisfaction and symptom outcomes for couple therapy (O'Malley et al., 2023). A few recent RCTs reported a cross-lagged prediction of relationship satisfaction on symptoms (Tilden et al., 2021; Wittenborn et al., 2019).

Due to the limited number of effect sizes and primary studies reporting family members' psychopathology, we were not able to validly quantify the efficacy of Systemic Therapy on psychopathology of family members. Only nine of the 171 effect sizes refer to the psychopathology of family members and only six studies refer to the psychopathology of family system members (Feaster et al., 2010; Hunger et al., 2020; Lee et al., 2018; Lemmens et al., 2009; Piyavhatkul et al., 2017; Seikkula et al., 2013). The findings on psychopathology outcomes for family members must be interpreted with great caution. Family members tend to show no clinical significant psychopathology at pretreatment phase, while patients scored above clinical thresholds as predetermined by inclusion criteria. Therefore, a floor or ceiling effect needs to be taken into account (Twisk & Proper, 2004). The great lack of studies reporting psychopathology of family members as outcome reveals a great gap in the literature.

There was no moderation of control groups. However, this insignificant finding could be associated with the great range of control groups included. Future meta-analysis could determine the effect of Systemic Therapy on adults compared to bona fide psychotherapy control groups, as already conducted for other psychotherapeutic orientations (Flückiger et al., 2022). There was only one study meeting the standards of a bona fide psychotherapy control group with regard to the criteria of equal dose or number of sessions (Hunger et al., 2020).

The effect in favor of treatment modality contradicts various findings in couple and family therapy that found higher effects for couples (Barbato et al., 2018; Powers et al., 2008) and family therapy (Henken et al., 2007) in terms of symptoms as well as family system functioning. This effect found in this meta-analysis needs to be interpreted with high caution due to the uneven distribution of treatment modalities between studies. Subgroups with few studies tend to result in more extreme results. In addition to this statistical consideration, between-study moderation analyses are no substitute to direct comparisons within RCT-studies. We could not find a single primary study comparing couple or family therapy versus individual therapy within the theoretical framework of Systemic Therapy. Therefore, these moderation analyses are indirect indications of couple and family therapy versus individual therapy but could be confounded by several aspects (control group, type of disorder, etc.). In the current meta-analysis, there could also be a confounding effect between disorders and treatment modalities. Family therapy was applied in studies on more complex psychiatric disorders (e.g., schizophrenia, eating disorders, and bipolar disorder). Previous meta-analyses have discovered smaller effects for these disorders (Monteleone et al., 2022; Pharoah et al., 2010; Pinquart et al., 2016). Given the importance of the indication of treatment modalities for the implementation of Systemic Therapy in routine care, future research needs to consider these direct comparisons between treatment modalities. On a descriptive level, the superiority of individual and group therapy seems to refer to symptoms. A superiority of couple and family therapy was found for family system functioning. Thus, this interaction effect shows no significant differences and needs to be interpreted with high caution. The majority of studies did not explicitly report the integration of system members into the treatment. Only Seikkula et al. (2013) reported the amount of individual, couple, or family therapy sessions and revealed discrepancies between the labeled treatment modality (e.g., couple therapy) versus the actual treatment modality. In a couple therapy group, a substantial number of sessions was conducted as individual therapy sessions. The lack of reporting on the actual treatment modalities limits the interpretation of therapeutic modality effects and the effects of outcomes on family members.

Several previous meta-analysis considered the between-study comparison of pure versus integrative Systemic Therapy (e.g., Pinquart et al., 2016). This comparison was underpowered in the present study. The comparison between pure versus integrative Systemic Therapy represents a potential future direction.

Besides these limitations, our study represents the first meta-analysis that aggregates the efficacy of Systemic Therapy for adults on all outcomes. It gives insights into the robust nature of the efficacy of

Systemic Therapy across all outcomes on patients, suggesting a comparable efficacy of symptoms and family system functioning. The results highlight the essential relevance of assessing outcomes including family system functioning and family system members' psychopathology as core outcomes in Systemic Therapy.

## Notes

[1] We were grateful for two suggestions by the reviewers that were not included in the preregistration: First, we changed a single inclusion criterion including primary studies that did not report Family System Functioning. Secondly, we conducted a subgroup analysis on the outcome of family system functioning rated by patients versus family members.

[2] We exploratively analyzed the interaction between treatment modality and outcome (see Supplemental Material Table 3). Couple and Family Therapy tend to result in greater effect sizes on Family System Functioning (CT: g = .34; FT: g = .20; IT: g = .10). Individual and group therapy tend to result in greater effect sizes for symptoms (IT: g = .66; GT: CT: g = .49; CT: g = .32; FT: g = .15).

## Declarations

This review project was preregistered on Prospero (no. CRD42021244696).


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## Disclosure Statement

No potential conflict of interest was reported by the author(s).

## Supplemental Data

Supplemental data for this article can be accessed at https://doi.org/10.1080/10503307.2024.2394192.

## Author Contributions

Christina Hunger-Schoppe and Niels Braus contributed to the concept of this review project. Christoph Flückiger contributed greatly to the statistical analysis and core ideas of the concept of this manuscript. Niels Braus, Christina Hunger-Schoppe, and Christoph Flückiger played a lead role in the writing process. Niels Braus managed the review project, and was responsible for the first draft of this manuscript. Johanna Wichmann and Christian Frankman contributed greatly to the study selection and data extraction of this review project. Johanna Wichmann assisted in the writing of the first draft of this manuscript. Antonia Lang contributed greatly to the proofreading and data preparation as well as assisted in the process of revision.

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