The differential efficacy of systemic therapy: a protocol for a systematic review and meta-analysis

Niels Braus

University of Witten/Herdecke: Universitat Witten/Herdecke

Rebecca von Oepen

University of Witten/Herdecke: Universitat Witten/Herdecke

Nina Immel

University of Witten/Herdecke: Universitat Witten/Herdecke

Johanna Wichmann

University of Witten/Herdecke: Universitat Witten/Herdecke

Christian Frankman

University of Witten/Herdecke: Universitat Witten/Herdecke

Eva-Maria Messner

Ulm University: Universitat Ulm

Martina Zemp (✉ martina.zemp@univie.ac.at)

Universität Wien: Universitat Wien <https://orcid.org/0000-0003-0065-5966>

Christina Hunger-Schoppe

Universität Witten/Herdecke: Universitat Witten/Herdecke

Protocol

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Abstract

Background: Systemic therapy is a widespread evidence-based psychotherapy approach. Its main goal revolves around the concept of viewing mental symptoms within the context of social systems (e.g., families, couples). Systematic reviews and meta-analyses have confirmed that systemic therapy significantly reduces symptom severity of DSM- or ICD-diagnosed patients. This meta-analysis aims to investigate the differential efficacy of systemic therapy, taking into account moderators (e.g., allegiance, adherence) and outcomes (system functioning) not considered in previous meta-analytical investigations.

Methods: To conduct a comprehensive literature search, we will optimize search strategies from previous systematic reviews on systemic therapy. The search strategy presented in this protocol has improved the precision and sensitivity by using an iterative validation and optimization process. We will conduct the literature search in multiple electronic databases (PsycInfo, Pubmed, Embase, and Cochrane Central Register of Controlled Trials (CENTRAL)). We will include all randomized controlled trials that report quantitative outcomes for symptom change and/or system functioning. For the calculations, we will conduct a Bayesian meta-analysis for the outcomes based on a random-effects model, a Bayesian meta-regression for the moderators, and Bayesian subgroup analysis for disorder-specific differences.

Discussion: Understanding the differential efficacy of systemic therapy is essential for the conceptualization, performance, and analysis of future research and therapeutic practice. This meta-analysis faces potential limitations associated with the definition of systemic therapy, as well as methodological problems in systemic therapy research.

1. Background

Systemic therapy is a widespread psychotherapeutic approach. There are numerous definitions of systemic therapy, proposing multiple theoretical approaches and settings. Consequently, reviews on systemic therapy differ substantially in their scope. We adopt the definition by von Sydow and colleagues (1), whose definition has served as a base for several systematic reviews and meta-analyses on systemic therapy (2–4). According to their definition of systemic therapy, mental disorders are understood within the context of social systems (e.g., families, couples, peers), as well as the relations and interactions of those who compose these social systems. Systemic therapy assumes a recursive causality between symptoms, (social) interactions and social construction of realities. Important others are included directly or virtually in the therapy (e.g., by systems-oriented questions and genogram work) (5). According to this definition, not all kinds of family and couple therapies are part of systemic therapy. Both settings can be found in other theoretical orientations as well (e.g., cognitive behavioral therapy (CBT)) (1, 6–8). Based on von Sydow and colleagues' (2010) definition, several systematic reviews and meta-analyses confirmed the efficacy of systemic therapy for adults (1–3) and adolescents as well as children with regard to symptom change (1, 4, 9). However, the search strategy of the aforementioned reviews was often insufficiently efficient with regard to the modern standards of psychotherapy research. For the

purpose of this systematic review and meta-analysis, we will review, integrate and thus optimize the search strategies applied in previous reviews. Given the growing recognition of systemic therapy, we believe that the development of an efficient search strategy will be a helpful contribution to the field.

Previous meta-analyses mainly concentrated on symptom change as the most prominent outcome variable in psychotherapy treatment research. Primary studies that reported only system functioning were usually excluded. Since systemic therapy views symptoms within the context of social systems, the focus on symptom change contradicts the central idea of systemic therapy. System functioning measures how relevant members of a social system communicate and interact with one another (10). It can measure relationship quality and collective efficacy (11) as well as climate of a social system or burden of family members (12). Social systems themselves are defined as intimate social structures including all members (e.g., families, couples) significant for the development, maintenance, and change of e.g., an individual's symptomatology (12, 13).

As systemic therapy draws its focus on social systems, one would assume that it is more effective referring to system functioning as compared to therapy schools who primarily focus on changing the symptoms of individuals. This was illustrated by a Cochrane review and meta-analysis focusing on couple therapy for depression. The authors confirmed that couple therapy had stronger effects on system functioning compared to individual symptomatology (14). To our knowledge, no meta-analytic evidence has been provided on the effects of systemic therapy on symptom as well as system outcomes.

The previous meta-analyses showed that systemic therapy had medium effects on symptom change compared to no treatment (for adults: $g = .51$; for adolescent/children: $g = .59$) or pharmacotherapy (for adults: $g = .57$), and small effects compared to alternative active treatments (for adults: $g = .25$; for adolescents/children: $g = .32$). Systemic therapy had equal effects compared to bona fide psychotherapies for adults ($g = .12$) as well as compared to CBT for adolescents and children ($g = .15$) (2, 9). Although disorder-specific differences were discovered, they need to be interpreted with caution due to the high heterogeneity of effects based on a limited number of included studies (2, 9). We will take a closer look at these factors contributing to this heterogeneity by taking into account additional moderators (e.g., setting) and outcomes (e.g., system functioning) that have not been considered in previous reviews.

Several experts in the field (e.g. 2, 15, 16) propose a more distinguished analysis of different treatment approaches for systemic therapy. Previous meta-analyses compared the efficacy of therapy approaches that were exclusively related to systemic theory to those which integrate systemic therapy with other approaches (e.g., CBT): 'Pure' systemic therapy had equal effects compared to integrative systemic therapy for both adults (2) as well as adolescents and children (9). However, there was an integrative wave in systemic therapy research in recent decades (17–19), increasing the number of studies on integrative systemic therapy (15, 16). There was a comparable integrative wave in CBT where a variety of treatment approaches were developed and scientifically evaluated. Therefore, we aim to replicate the comparison between "pure" vs. "integrative" systemic therapy. Apart from integrative treatments,

combined treatments add different treatments such as medication or social skills training to systemic therapy in order to create a comprehensive treatment program. We also aim to compare studies where systemic therapy was the central intervention within a combined treatment program to studies, which only offered systemic therapy.

In order to evaluate heterogeneous treatment approaches, modern evidence-based psychotherapy research suggests manualization and measuring adherence. Adherence refers to the extent to which a therapist adheres to a manual (20). While the number of manualized systemic treatments has considerably increased in recent decades (15), it has been questioned if manualization can fully reflect the theoretical foundations of systemic therapy. Several studies have cast doubt on if and how adherence can be measured in systemic therapy (21, 22). These questions are addressed in other psychotherapeutic approaches as well, when there are mixed effects for adherence on symptom outcome (23, 24). However, there are some promising results of measuring manualization and adherence for systemic family therapy (25, 26). These findings indicate that manualization and adherence is positively associated with outcomes. In addition to this, assessing researcher allegiance was also suggested (27). Consistent with a large body of meta-analytic findings, there is strong evidence confirming the substantial effects of allegiance on treatment outcomes for other psychotherapeutic approaches (28–30). Thus, in the present meta-analysis we will consider manualization, adherence and allegiance as moderators that have not been incorporated sufficiently in previous reviews.

2. Objectives And Hypotheses

The focus of this systematic review and meta-analysis is to answer the question of the differential efficacy of systemic therapy. It considers moderators (manualization, allegiance, adherence) and outcomes (system functioning) previously not considered. For that purpose, we set the following aims:

1. To develop a suitable and specific search strategy for efficacy studies on systemic therapy.
2. To replicate the findings on symptom change by previous reviews.
3. To investigate disorder-specific differences and differences between integrative systemic versus 'pure' systemic therapy.
4. To identify the following potential moderators: setting, manualization, adherence, and allegiance.
5. To consider system functioning as an additional outcome.

3. Methods

3.1. Protocol and Registration

This protocol was developed according to the latest version of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) (31) (see Additional file 1) and the latest version of the Cochrane Handbook for Systematic Reviews of Intervention (32). It has been registered in

Prospero (no.: CRD42021244696). We will report any amendments to the protocol explicitly in the final publication.

3.2. Eligibility Criteria

In the following paragraphs, we will describe the eligibility criteria for primary studies included in this review based on the PICO scheme (populations, intervention, comparators, and outcome). This structure is added by criteria for report characteristics and study type.

3.2.1. Population

We will include studies on clinical population with DSM- and/or ICD-diagnoses, irrelevant of type of diagnosis. The diagnostic procedure can include standardized clinical interviews or screening tools for DSM or ICD. Studies on population with high couple distress or family conflicts but no DSM- and/or ICD-diagnosis will be excluded.

3.2.2. Intervention

We exclusively include studies that investigated systemic therapy as the central treatment option. Systemic interventions will be identified based on their theoretical background and intervention performance (1). In line with the search strategy by von Sydow and colleagues (1), interventions will also be identified as systemic if they refers to popular systems-oriented authors (e.g., Anderson, Bateson, de Shazer, Haley, Minuchin, Satir, Selvini-Palazzoli, Stierlin, Watzlawick, Epston or White) or refer to classical systemic approaches (e.g., attachment-based, solution focused, structural, strategic, Milan, functional, solution focused, narrative, McMaster model, multisystemic). We will also include combined treatments, whose core components include systemic therapy. Combined and integrative-systemic interventions will be included as long as they are predominantly based on systemic theory and practice. Treatments that simply include some aspects of systemic theory and practice, in addition to another theoretical framework and therapeutic practice (e.g., psychodynamic or behavioral therapy) will not be included. Couple and family therapy based on other theoretical backgrounds (e.g., psychodynamic or behavioral couple therapy) will be excluded.

3.2.3. Comparator

For the scope of this review, we will exclusively include studies with a non-systemic comparator. We will include a number of active comparators (e.g., non-systemic bona fide psychotherapy, such as CBT or psychodynamic therapy).

3.2.4. Outcomes

Studies will be included if they report symptom change and/or system functioning as outcome measures. Studies that report both symptom change and system functioning will serve as a base for the analysis of differential effects on these outcomes.

3.2.5. Report Characteristics

We will include reports that are published as scientific journal articles. Conference papers, trial registrations, dissertation/ qualification theses or book chapters will not be included. We include English, German and Spanish publications.

3.2.6. Study Type

We will include RCTs only. Feasibility or pilot trials will be included as long as they adopt a RCT design. The authors of the original trial need to state that group allocation was at random. Quasi-RCTs, controlled or crossover trials will be excluded.

3.3. Search Strategy

Since previous search strategies were neither optimal in terms of sensitivity nor precision (33), we optimized the search strategy for our meta-analysis according to the Cochrane Handbook (33). We reviewed previous systematic reviews and meta-analyses on systemic therapy (1–4, 9, 34). We used more than 50 original studies from these publications, in addition to the original studies from more recent reviews on couple and family therapy (e.g. 16, 35), to develop and validate our search strategy. We used an iterative process to validate and optimize our search strategy. In the validation step, we checked whether the search strategy was able to discover the original studies found in published reviews. In the optimization step, we specify the search strategy in order to reduce the total number of publications found. We also integrated MeSH-Terms from PubMed in this step. We iteratively applied the two steps to optimize search strategies of previous reviews on systemic therapy with regard to sensitivity and precision.

The final search strategy will be applied in the databases of Cochrane Clinical Trials CENTRAL, PsycInfo + Psyn dex, PubMed, and Embase. In the online supplemental material, we show the complete search strategies for all databases. In contrast to the suggestions in the Cochrane Handbook for Systematic Reviews of Intervention (32), we decided not to include Ovid Medline(R) since adding this database did not help to identify additional original studies.

Apart from this optimized search strategy, we will contact experts (e.g., Peter Stratton, Jay Lebow) in the field of systemic theory and practice to identify missing and grey literature (e.g., editors of systemic and/or family and/or couple journals, systemic therapy associations).

3.4. Study Selection

Bibliographic data of the original studies identified by our search strategy will be imported into the reference software Endnote. We will use the Endnote tool and additional manual screenings to identify duplicates. The remaining articles will be imported into the Software Rayyan (36) for abstract screening. The principle investigator (NB) will screen all relevant abstracts and titles. A member of the project team (JW) will independently screen a sample of more than 50% of the abstracts and titles, to check for interrater reliability. Discrepancies will be identified and a consensus will be formed by discussion with the head of the project team (CHS). The remaining reports will be retrieved. Overlapping samples and multiple reports of the same study will be identified by comparing central characteristics (e.g., trial

registration IDs, author names, sample size). Eligibility criteria of each study will be assessed independently by two team members. The principle investigator (NB) will assess all full-texts. Two members of the project team (JW and CF) will independently assess an equal-sized group of randomly selected and allocated reports, to check for interrater reliability. The results of the full-text assessment will be documented in a Cochrane data collection form (tailored for the needs of this review). Should major unclarities arise, study authors will be contacted of clarification. Discrepancies will be resolved by discussion and through the inclusion of CHS as third party.

3.5. Data Extraction

A data collection form and tool will be developed and piloted in consideration of the recommendations of the Cochrane Handbook (33). Two review team members will extract 100% of the data independently and discrepancies will be resolved by discussion, including CHS as third party. We will contact authors of the original publications for missing information or data. Extracted data will include:

- *characteristics of the study*: year, country.
- *characteristics of the central report(s)*: author(s), year of publication.
- *characteristics of the sample*: sample size randomized per study-arm and total sample size, primary and secondary diagnosis, single diagnosis only, multiple diagnoses, gender, age.
- *characteristics of the intervention*:
- *treatment approach*: categories: combined vs. integrative systemic vs. pure systemic; systemic therapy plus medication; specified categories: multisystemic therapy, structural-strategic therapy, solution-focused therapy etc.;
- *treatment integrity*: dichotomous categories (non- manualized vs. manualized treatments; adherence measured vs. no adherence measured); (supervision offered versus no supervision), competence (student, trained professional, experienced professional);
- *allegiance* allegiance rating-scale by Steinert et al. (28);
- *setting*: dichotomous categories (multipersons setting vs. individual setting); specified categories: (multi-)family therapy, couple therapy, parent-based therapy, involving significant others, individual therapy;
- *doses*: number of sessions;
- *characteristics of the comparator*: dichotomous categories: (non-active vs. active); specified active treatments: minimal, pharmacotherapy, bona fide psychotherapy, others);
- *duration*: time of treatment (e.g., months).
- *characteristics of the outcomes*: effect sizes of symptom change and system functioning, assessment instrument, mode of measurement (questionnaire/ interview/ observational/ physiological/ other), number of measurement points, missing data (intention-to-treat vs. per protocol analysis).

3.6. Risk of Bias Assessment

Internal validity will be measured using the latest Risk of Bias (RoB 2.0, 37), adapted by Munder and Barth (29). The aspect of “bias due to deviations from intended interventions” (37) will be adapted for the needs of this study, taking different forms of adherence and competence into account. Two trained review team members will independently rate risk of bias by focusing on four aspects using the adapted rating scale (29):

- 1) bias due to randomization,
- 2) bias due to missing data,
- 3) bias in outcome measurement process,
- 4) bias due to selective reporting,

The ratings for each study will also be integrating into an overall risk of bias assessment as proposed by (RoB 2.0, 37).

Allegiance will be assessed using the latest form of the allegiance rating-scale by Steinert et al. (28).

3.7. Data Synthesis

For continuous outcomes, standardized mean differences (Hedges' g) will be calculated using Bayesian meta-analytics (38). We will use Bayesian random effect models for calculating aggregated estimates. Bayesian analyses allows for the integration of theoretical knowledge or preliminary findings by using informative priors. In contrast to this, Bayesian analyses with non-informative priors try to avoid considering previous knowledge. We will analyze our results by using both informative and non-informative priors. We will use informative priors for the analyses on symptom change (based on previous empirical evidence) and system change (based on theoretical considerations). Bayesian meta-regressions will be conducted for moderator effects and Bayesian sub-group analysis for disorder-specific differences. We will use classical frequentist analyses to explore consistency (Q-statistics and I^2) and Bayesian parallel methods (38). Publication bias will be assessed using funnel plots and quantitatively analyzed using Egger's regression test (39).

4. Discussion

The proposed meta-analysis and -regression aims to discover the differential efficacy of systemic therapy. Exceeding the knowledge of previous reviews (1, 2, 4, 9, 34), it is the first analysis that incorporates system functioning as the most suitable outcome measure for systemic therapy, in addition to including symptom change as the most frequently reported outcome in conventional psychotherapy research. It also investigates moderators such as setting, adherence, and allegiance for the first time in the field of systemic therapy.

Understanding the differential efficacy of systemic therapy is essential for the conceptualization, performance, and analysis of future research and therapeutic practice. Expanding our knowledge within this field is crucial for the indication, as well as contra-indication of systemic therapy within health care systems.

This protocol also includes an optimized search strategy for systemic therapy developed in a comprehensive validation process based on the review of more than 50 RCTs. The most updated search strategy is available via open access and could support future studies by expanding the database on differential effects of systemic therapy.

4.1. Limitations

The current meta-analysis faces a few limitations: First, it is possible that the number of studies on systemic therapy is limited compared to the number of original studies included in systematic reviews and meta-analyses of alternative evidence-based psychotherapy approaches (e.g., CBT). Therefore, the Bayesian analysis will be relatively sensitive to the priors. Second, our understanding and definition of systemic therapy relies on its theoretical background and is thus more specific as compared to a more general anglo-saxonian definition based on setting characteristics. However, the theoretical background is not often clearly stated in RCTs, causing central inclusion criteria to be restricted. Third, although the allegiance rating scale by Steinert et al (28) has revealed promising findings for psychodynamic therapy it is not clear whether this scale can be transferred to systemic therapy. Fourth, while we invested many resources in optimizing our search strategy, it is our understanding that our search strategy has to be updated in future studies due to the dynamic developments of systemic therapy approaches, especially considering integrative approaches.

5. Systematic Review Registration

The review has been registered on the website Prospero (PROSPERO-no.: CRD42021244696).

Abbreviations

RCT: randomized controlled trial

CBT: Cognitive Behavioral Therapy

RQ: research question

PRISMA-P: Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols

RoB 2.0: Risk of Bias Assessment Tool Version 2.0

ICD: International Classification of Diseases

Declarations

Ethics Approval and Consent to Participate

Not applicable. As this is a secondary analysis of primary studies, there is no direct involvement of human participants.

Consent for Publication

Not applicable.

Availability of Data and Materials

The final datasets and syntax of this meta-analysis will be made openly available. A reference to the open access resource will be given in the publication of results.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

All authors contributed significantly to the planning process of the project. EMM and CHS for the project idea and funding of the project. NB was project coordinator and provided the first draft for the publication. CHS was involved in the first writing process. MZ, EMM, NI and RvO gave practical advice how to conduct systematic reviews and were majorly involved in the writing process. CF and JW were involved in specifying eligibility criteria and in revision of the article. MZ contributed to the final concept of the protocol and submission process.

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