Does technique matter? A multilevel meta-analysis on the association between psychotherapeutic techniques and outcome

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ABSTRACT

The extent to which psychotherapeutic techniques have an impact on outcome has been studied on a regular basis. To date, there are no meta-analytic attempts to clarify the association between techniques and outcome in multi-therapeutic approach measures. This study aims to conduct a meta-analysis of the described association. A three-level meta-analysis and moderator-analysis were used. The meta-analysis revealed 13 studies with a total of 177 effect sizes. There was a significant effect r=.193 (t[176]=4.77, p<.01) with higher use of psychotherapeutic techniques being associated with better outcome. Significant moderator was therapeutic approach-specific subscales. The mean effect of cognitive-behavioral techniques was r=.088 (t[147]=1.50, p=.14, d=0.18; s=11, k=79), and the mean effect of psychodynamic techniques was r=.286 (t[147]=5.06, p<.01, d=0.60; s=11, k=70). The measurements for psychotherapeutic technique (Comparative Psychotherapy Process Scale and Psychotherapy-Process Q-Sort) showed no significant difference related to the association between technique and outcome (F[1, 175]=0.38, p=.54). This meta-analysis showed a positive relation between psychotherapeutic techniques and outcome. This leads to the assumption that specific psychotherapeutic techniques have positive effects on post-treatment outcome.

Key words: techniques, psychotherapy outcome, meta-analysis, technique-outcome relation.

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Introduction

Psychotherapeutic techniques, which describes the exact procedure in the frame of therapeutic approaches, are central components in psychotherapies (*e.g.,* Bergin & Strupp, 2009). Nonetheless, the potential relevance of psychotherapeutic techniques for the success of treatment is still controversial (*e.g.*, Power *et al*., 2022; Wampold & Imel, 2015; Webb *et al*., 2010). The role of psychotherapeutic techniques for treatment progress is a rather complex endeavor. The outcome of a psychotherapy may not exclusively be determined by the therapist's very specific techniques. Multiple factors on the outcome could be impacted by a particular patient and its collaborative qualities with his therapist (Wampold & Flückiger, 2023; Wampold & Imel, 2015). For example, the interpersonal qualities from therapists, which may root in their personal lives and attachment history, revealed critical factors on the outcome (*e.g*., Schöttke *et al*., 2017). Moreover, relationship characteristics such as the alliance may robustly predict treatment outcomes (Flückiger *et al*., 2018).

Traditionally, particular orientations developed particular measures to investigate the therapist adherence and competence to these particular treatments. For example, the meta-analytic review from Webb *et al*. (2010) investigated the relation between adherence and competence to outcomes. Adherence describes the extent to which therapists apply the techniques and methods theoretically driven by the treatment model. Meanwhile, competence describes the skill with which therapists uses techniques and meth-

ods theoretically driven by the treatment model (Barber *et al*., 2006). A total of 49 effect sizes within 32 studies were found with no significant relation (Webb *et al*. 2010), suggesting that adherence and competence from therapists have only little relevance in determining symptom change. One recent systematic review and meta-analysis from Power *et al*. (2022) investigating the relation between psychological treatment adherence, competence or integrity and clinical outcomes, analyzed 91 effect sizes within 62 studies. Integrity describes a broader concept with therapeutic adherence and competence as components and includes the extent to which a treatment is implemented as intended (Perepletchikova & Kazdin, 2005). In line with Webb *et al*. (2010) there was no significant relation between adherence and outcomes. In contrast, competence and integrity were significantly associated with clinical outcomes, showing that skilled implementation of therapeutic approach specific strategies is associated with better clinical outcomes. These studies focused on particular therapeutic approach (*e.g*., cognitive behavior therapy, cognitive therapy, emotion focused therapy, emotion-focused trauma therapy, interpersonal psychotherapy, motivational interviewing/motivational enhancement therapy and psychodynamic, Power *et al*., 2022; Webb *et al*., 2010) but did not investigate any techniques across the different orientations.

Instruments for recording psychotherapeutic techniques

In recent years, different instruments have been developed to measure psychotherapeutic techniques across particular therapeutic approaches, *i.e*., Comparative Psychotherapy Process Scale (CPPS, Hilsenroth *et al*., 2005); Psychotherapy-Process Q-Sort (PQS, Jones, 1985) and Multitheoretical List of Therapeutic Interventions (MULTI, McCarthy & Barber, 2009). These measures assess a broad range of techniques that can be assessed across particular therapeutic approaches.

First the Comparative Psychotherapy Process Scale (CPPS) consisting of 20 items and focusing on characteristic psychodynamic-interpersonal and cognitive-behavioral techniques. The 20 randomly ordered items are completed by either therapist, patients, or an external observer on a 7-point Likert scale ranging from 0 (not at all characteristics for this session) over 2 (somewhat characteristic), 4 (characteristic) to 6 (extremely characteristic). The instrument shows excellent interrater reliability and internal consistency (Hilsenroth *et al*., 2005). Reliability and clinical validity have been well established in various contexts and samples (*e.g*., Gentile *et al*., 2020). For the CPPS, the prototypes from Hilsenroth *et al*., (2005) be used as baseline and were compared by the rater to how strongly the therapists adhered to the typical interventions and techniques (*e.g*., Sell *et al*., 2017).

Second the Psychotherapy-Process Q-Sort (PQS) with 100 items describing the patient's attitude, behavior, or experience; the actions and attitudes of the therapist; and the interaction of the dyad or the atmosphere of the exchange. Items are classified into one of nine categories from *extremely characteristic* to *extremely uncharacteristic*. Prototypes of specific therapeutic approaches are created on basis of these items. The rating profile of a real therapy session is then compared with these prototypes to determine the indices of agreement with the therapeutic approach-specific prototypes. Reliability and validity have been confirmed in several studies across different treatment samples (*e.g*., Ablon & Jones, 2002; Jones & Pulos, 1993).

Third the Multitheoretical List of Therapeutic Interventions (MULTI) consisting of 60 items about interventions from eight different therapeutic approaches (behavioral, cognitive, dialectical-behavioral, interpersonal, person-centered, psychodynamic, process-experimental, and common factors). Each of the items represents the use of a particular technique and is rated on a 5-point Likert scale from 1 (not at all) to 5 (very much), according to quality and intensity. Three perspectives are considered: a therapist self-report, a patient self-report, and an observer rating scale (McCarthy & Barber, 2009).

Empirical literature on psychotherapeutic techniques and outcomes

When investigating techniques across different therapeutic approaches, Jones and Pulos (1993) for example found that typically psychodynamic techniques were positively related to treatment outcome, whereas Ablon and Jones (2002) found a positive correlation of the use of typically cognitive-behavioral techniques with outcome. More recently, the single-case-study from Roussos *et al*. (2018) found a positive association between cognitive-behavioral techniques and the reduction of a broad range of symptoms, whereas the single-case study from Laskoski *et al*. (2021) illustrated that the use of psychodynamic techniques was the best predictor for the therapeutic process. Most studies especially concentrate on specific patient groups (*e.g*., trauma survivors, Taylor, 2010) or specific diagnoses (*e.g*., borderline personality disorder and substance use disorder, Philips *et al*., 2018). Taken together, already thirty years ago studies investigated the effectiveness of techniques on outcomes, but results are mixed. Cross-therapeutic approach instruments have not yet been systematically studied enough to answer the question about the relevance of psychotherapeutic techniques for the success of treatments.

To summarize the literature, there are two main arguments of how to contextualize technique-outcome relations (TOR). First: The value of a particular technique. A particular technique like Socratic questions or validation showed an impact on outcomes at the end of a therapy across all orientations (Hill & Norcross, 2023). Second: The use of particular techniques associated with outcomes is or is not quite independent of the underlying orientation. On one hand there are studies (*e.g*., Power *et al*., 2022) which highlight the differences in techniques according to outcomes, whereas on the other hand some studies (*e.g*., Hill & Norcross, 2023) highlight the equivalent potential of all orientations; but what these studies have in common is that they did not use multi-therapeutic approach measures to investigate techniques. There is a lack of meta-analytic attempt to investigate multi-approach measures that assess techniques from different therapeutic approaches (*e.g*., Laskoski *et al*., 2021; Mullin *et al*., 2018). Some studies showed the same effectiveness for both, psychodynamic and cognitive-behavioral techniques (*e.g*., Glock *et al*., 2018), and some studies showed significant differences between them (*e.g*., Goodman *et al*., 2015; Solomonov *et al*., 2020). Taken together it is not clear whether the therapeutic approach-specific subscales differ or not in their relation to treatment outcome.

Present study

Like described above, the previous studies focused on the relationship of psychotherapeutic technique to outcome within a single therapeutic approach. We did not find any previous meta-analytic attempt to synthesize the effect sizes of the relation between psychotherapeutic techniques and outcomes within the multi-therapeutic approach measures CPPS, PQS or MULTI,

since this meta-analytic synthesis is the first one focusing on multi-therapeutic approach measures.

Regarding the definition of outcomes and under consideration of the complexity of functioning, the authors decided to define outcomes with a wider range. An outcome can be any result of psychotherapy as reported in the respective studies, like the improvement of specific symptoms (*e.g.*, anxiety disorders) as well as non-specific symptoms (*e.g.*, reduction of guilt feelings) or that interpersonal and social areas have improved (*e.g.*, psychosocial functioning). The major aim of our investigation was to examine this possible relation by using meta-analytic methods. In contrast to Power *et al*. (2022) we focused on multi-therapeutic approach measures for psychotherapeutic techniques. We are interested in the question of how the use of psychotherapeutic techniques and outcomes are related. Additionally, we are interested in whether the TOR differs in relation to therapeutic approach-specific subscales and whether the TOR differs in relation to the measures (CPPS, MULTI and PQS).

Methods

Meta-analytic search strategy, study selection and data collection

To identify studies that report the association of psychotherapeutic techniques assessed by CPPS, PQS or MULTI, and post-treatment outcomes we conducted a systematic search via EBSCO on 15th April 2023. The databases APA PsycArticles, APA PsycInfo, PSYNDEX Literature with PSYNDEX Tests, and Medline were used. The search was limited to papers published in English and German. We used the following search terms: (“comparative psychotherapy process scale” OR “vergleichende Psychotherapie Prozess Skalen” OR “CPPS” OR “psychotherapy process q-set” OR “Psychotherapie Prozess Q-sort” OR “PQS” OR “the multitheoretical list of therapeutic interventions” OR “multitheoretische Liste der therapeutischen Interventionen”) AND (“psychotherapy” OR “Psychotherapie”). "MULTI" is an unspecific term and therefore was not included as a search term. In total, the search yielded 741 results, of which 398 were for the PQS instrument, 292 for CPPS, and 51 for MULTI. 350 duplicates were excluded.

We used the following inclusion criteria: (a) instruments to measure CPPS, PQS or MULTI, (b) focus of an adult population, (c) measuring post-treatment outcomes, and (d) relationship between a and c. Exclusion criteria were: (a) not all scales of CPPS, PQS or MULTI are measured, (b) children or adolescents, (c) outcomes missing, (d), no correlational association between technique and outcome, (e) no psychotherapy, (f) subclinical population, (g) session outcomes, (h) no full-text available, (i) same sample, (j) only significant items reported, (k) sample size < 5, (l) no association between technique and outcome reported and (m) post-treatment outcomes with self-developed, not validated measures by researchers. The study selection followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA, Moher *et al*., 2009) guideline. The PRISMA flow chart is displayed in Figure 1 and provides the included and excluded studies. From the total of 741 studies, 118 studies fulfilled the inclusion criteria after abstract screening and were integrated for full-text screening. From these studies, 45 studies were checked for inclusion criteria, whereas from these 45 studies, 32 studies had to be excluded based on detailed full-text reviewing. Overall, a total of 13 studies was included, whereas 8 studies for PQS and 5 studies for CPPS. MULTI was eliminated as instrument, because every available study meets at least one exclusion criteria.

Screenings of abstracts and full text were conducted by CG and LT split in half, whereas an assessment of a subsample of 100 studies indicated considerable consensus for the abstract screening (percent agreement >94%; Cohen’s Kappa >.85; Landis & Koch, 1977). Full-text screening was coded by both raters and again indicated considerable consensus (Cohen’s Kappa =.87). Six cases with disagreement were discussed and decided based on consensus of all authors.

Statistical analyses

We used a multilevel meta-analytic model with a three-level structure with restricted maximum likelihood estimates (Assink & Wibbelink, 2016). The analyses were conducted via the R-package *metafor* (Viechtbauer, 2010). In the three-level model, the sampling variance (Level 1) was nested within effect sizes (k=177; Level 2), which were nested within studies (s=13; Level 3; van den Noortgate *et al*., 2013; Viechtbauer, 2010). Overall heterogeneity was assessed with the Q-statistics. Additionally, we tested whether within-study and between-study heterogeneity had a significant proportion of the overall heterogeneity. Following Assink and Wibbelink (2016), we compared the full model with a reduced model, where the variance (within- or between study) was fixed as zero. For the analysis, correlation coefficients were transformed into Fisher’s z. To enhance interpretability the z was transformed back into correlation coefficients. Additionally, Cohen’s d and pseudo R^2 were reported. To identify publication bias, a funnel plot with trim and fill method was created and the Begg and Mazumdar's rank correlations test was examined.

The following moderators for the technique-outcome relation were determined. *Therapeutic approach-specific subscales.* Cognitive Behavioral Therapy (CBT) and Psychodynamic Therapy (PDT). *Instruments.* (0) CPPS and (1) PQS.[1]

Results

Descriptive sample characteristics

For the meta-analysis we considered 13 studies (N=1073 patients), including a total of 177 effect sizes. Eleven (84.62%) English-language studies and two (15.38%) German-language studies were included. Ten (76.92%) studies were published as journal articles and three (23.08%) were dissertations. There is considerable variation in the investigated treatments and treatment outcomes (up to eight different instruments to measure treatment outcome, *e.g.*, Jones and Pulos 1993). Additionally, there is a broad range of diagnoses, ranging from studies which focused only on one diagnosis (*e.g.*, panic disorder, Ablon *et al*., 2006) and studies with up to seven diagnoses (somatic symptom disorder, mood disorder, anxiety disorder, eating disorder, probable alcohol abuse, cluster A, B and C personality disorder, chronic somatic illness, Sell *et al*., 2018). The majority of ratings for the psychotherapeutic techniques using the CPPS and PQS were conducted by therapists and master/doctoral students (n=3), followed by external independent raters and patients (n=2). In one study each, the authors themselves or employees

[1] Only CPPS and PQS are left since studies with MULTI had to be eliminated.

from the department conducted the ratings. Descriptive data are documented in Tables 1 and 2.

Association between technique and outcome

Overall effect

For CPPS and PQS, there were a total of k=177 effect sizes within s=13 studies. Overall association between use of psychotherapeutic technique and outcome was r=.193 (95% CI [.12; .27], pseudo R^2=3.7, d=0.39). This effect was significantly different from zero (t[176]=4.77, p<.01).

Heterogeneity

There was considerable heterogeneity (Q[176]=3319.85, p<.01) whereas 75.22% of the heterogeneity could be attributed to within-study variability (at Level 2, F[2, 3]=1587.14, p<.01) and 20.34% between-study variability (at Level 3, F[2, 3]=25.09, p<.01).

Publication bias

The visual funnel plot showed no indication of publication bias (Figure 2), whereas the Begg and Mazumdar's rank correlations test was significant (p<.01), which indicates a publication bias.

Moderator analyses

To explore the high level of heterogeneity, we investigated two moderators namely the instruments which measure technique (CPPS and PQS), and the therapeutic approach-specific subscales of CPPS and PQS.

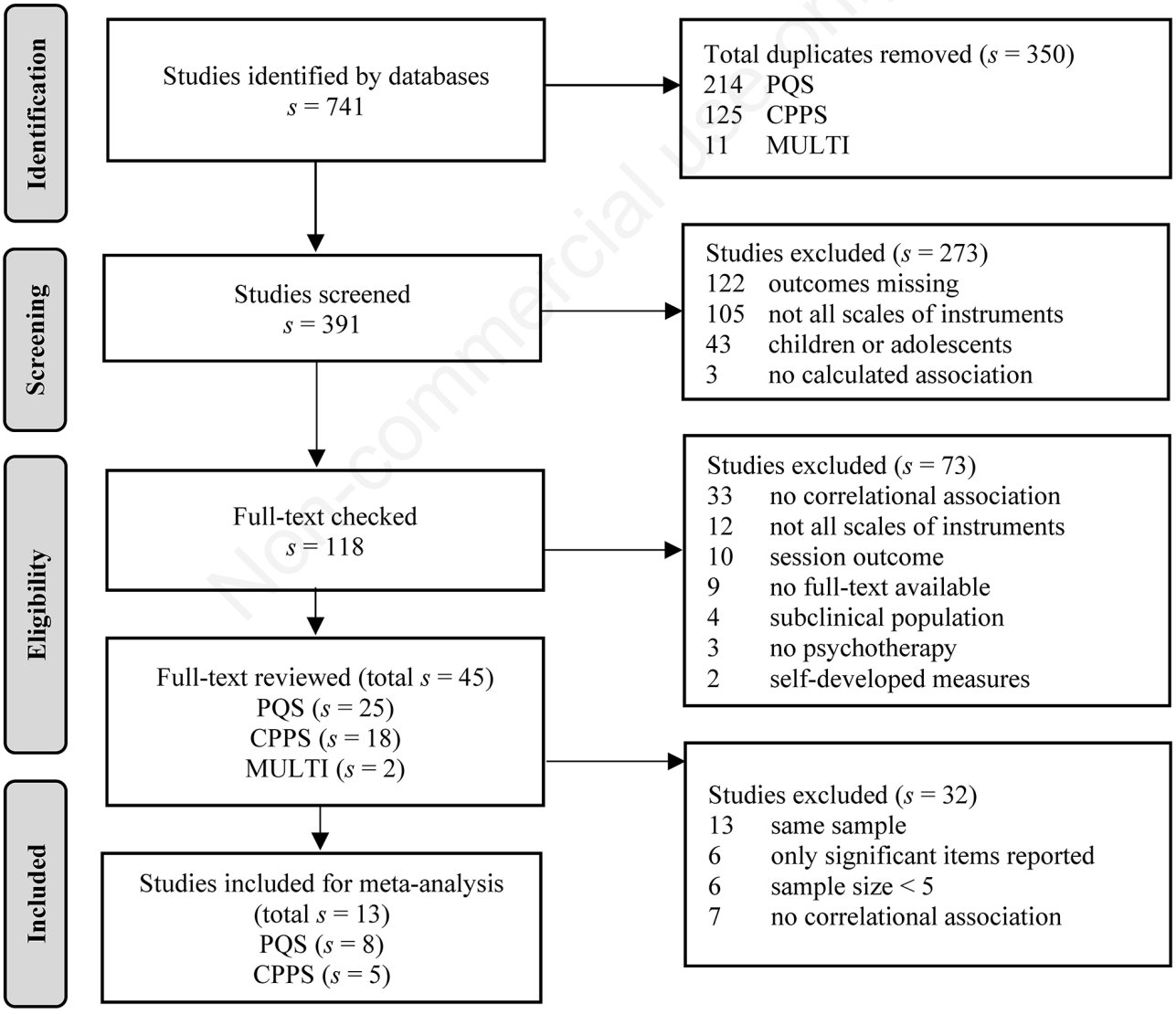

Figure 1. Flow diagram of the studies included in the meta-analysis based on preferred reporting items for systematic reviews and meta-analyses criteria (Page *et al.*, 2021).

Table 1. Descriptive sample data about patients and therapists.

Authors	N. patients	Mean age patients	Female, %	Patients' population	Main diagnoses	N. therapists
Ablon & Jones (1998)	100	51	67	PD-office, PD- treatments for PTSD, CBT	PTSD, mood, anxiety, obsessive-compulsive, conversion, dissociative psychogenic pain disorder, hypochondriasis, psychosexual dysfunctions	15
Ablon & Jones (2002)	239	35	70	IPT, CBT	Major depressive disorder	18
Ablon *et al.* (2006)	17	35	88.2	Outpatient psychiatry service	Panic disorder	7
DeFife *et al.* (2008)	55	29.55	73	PD training clinic	Adjustment disorder, anxiety disorder, eating disorder, mood disorder, substance-related disorder, V code relational problems	19
Goodman *et al.* (2015)	5	32.4	100	Psychiatric inpatient PDT	Borderline personality disorder	4
Haugen *et al.* (2016)	29	48.55	17	Exposure of 9/11	Partial or full PTSD	6
Hofmann (2008)	42	44.4	79	PDT, CBT	Generalized anxiety disorder	9
Jones & Pulos (1993)	62	41.64	73	PD-office, CBT	Neurotic disorder, major depressive disorder	19
Mullin *et al.* (2018)	75	29.8	73	PD training clinic	Adjustment disorder, anxiety disorder, eating disorder, mood disorder, substance-related disorder, V code relational problems	26
Owen & Hilsenroth (2014)	70	29.8	74	PD training clinic	Mood disorders	28
Schweyer (2008)	52	43.58	48	CBT, EST	Bipolar-I, personality disorders	n.a.
Sell *et al.* (2018)	300	37.24	70	Integrative PDT	Somatic symptom disorder, mood disorder, anxiety disorder, eating disorder, probable alcohol abuse, cluster A, B and C personality disorder, chronic somatic illness	72
Taylor (2010)	27	38.08	100	Women withviolence	Dissociative Identity Disorder; PTSD	22

PD, psychodynamic; PTSD, posttraumatic stress disorder; CBT, cognitive behavioral therapy; IPT, interpersonal therapy; EST, emotional supportive therapy; n.a., not available; PDT, psychodynamic therapy.

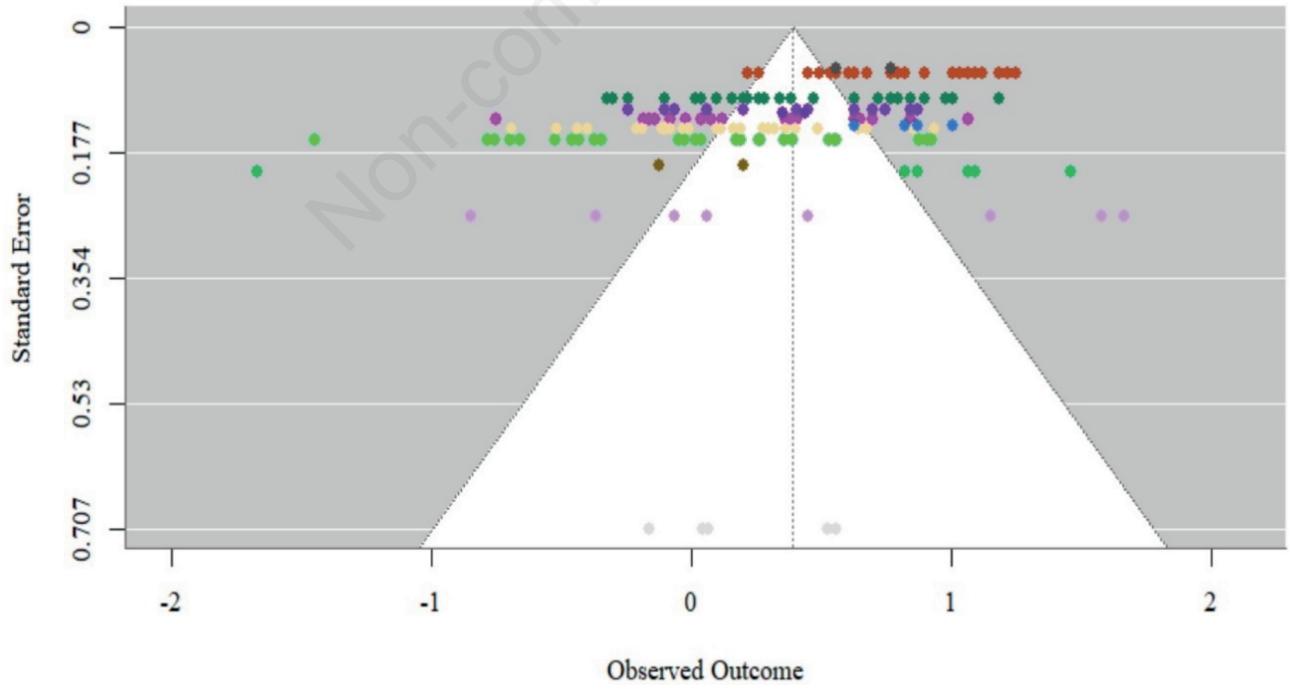

Figure 2. Funnel plot of all included effect sizes (k=177). Observed outcomes were reported in fisher's z transformed correlation coefficients.

Therapeutic approach-specific subscales

In this moderator analysis, we analyzed CPPS and PQS together, for those subscales that were available for both instruments, CBT- and PDT-techniques (Table 3). The subscale CBT-techniques showed a TOR of r=.088 (95% CI [-.03; .20], t[147]=1.50, p=.14, pseudo R^2=0.8%, d=0.18), and the subscale PDT-techniques showed a TOR of r=.286 (95% CI [.18; .38], t[147]=5.06, p<.01, pseudo R^2=8.2%, d=0.60) The difference between these two correlational effect sizes was significant (F[1, 147]=31.69, p<.01). This suggests a difference between CBT- and PDT-techniques in the relation of outcome. For CPPS the subscale

Table 2. Descriptive data about treatment, technique and outcome.

Authors	SUD	Treatment type	Treatment frequency	*M* Sessions	Design	Technique instrument	Rater	Time point measurement	Outcome instruments
Ablon & Jones (1998)	Excl.	CBT; PDT	n.a.	15	Natura.	PQS	Advanced doctoral students	Selected sessions	ATQ, BPRS, BDI, HRSD-17, MMPI-D, RDS, SDC-R, TCS
Ablon & Jones (2002)	N. excl.	CBT; IPT	n.a.	16.2	RCT	PQS	Expert therapists	4th and 12th session	BDI, DAS, GAS, HRSD, HSCL-90, MSAS
Ablon *et al.* (2006)	Excl.	PDT	1	21	Natura.	PQS	Master's graduate students	12th session	ASI, PDSS, SCL-90-R
DeFife *et al.* (2008)	N. excl.	PDT	1-2	26.55	Natura.	CPPS	Undergraduate participants + patients	3rd session, when 90% is over	BSI, SAS, SOS-10
Goodman *et al.* (2015)	N. excl.	PDT	3	n.a.	Natura.	PQS	n.a.	n.a.	SCL-90-R
Haugen *et al.* (2016)	Excl.	Integrative	1	18.56	Natura.	CPPS	Patients	Every session	OQ-45.2
Hofmann (2008)	Excl.	CBT; PDT	n.a.	n.a.	Natura.	PQS	Employees from the department	10th and 18th session	BAI, BDI, HAMA, HAMD, IIP, PSWQ, STAI
Jones & Pulos (1993)	Excl.	CBT; PDT	1-2	15.1	Natura.	PQS	Clinicians and graduate students	1st, 5th and 14th session	ATQ, BDI, BPRS, HRSD-17, MMPI-D, OCR, RDS, SCL-90-R
Mullin *et al.* (2018)	N. excl.	STPP	1-2	29	Natura.	CPPS	Trained external raters	3rd and 9th session	SCORS-G
Owen & Hilsenroth (2014)	N. excl.	PDT	1-2	27.5	Natura.	CPPS	Independent raters	3rd, 9th, when 90% is over	BSI, PEI
Schweyer (2008)	Excl.	CBT; EST	n.a.	19	RCT	PQS	Author	2nd, 8th. 14th and 17th session	ADS-L, ADMS, YMRS, GAF, F-SOZU
Sell *et al.* (2018)	N. excl.	GIP; HY	n.a.	n.a.	Natura.	CPPS	Therapist	6, 12, 18, 24, 30 months	CGI-S. GAF
Taylor (2010)	N. excl.	CBT; ET, PDT; IPT	1	12	Natura.	PQS	Therapist	Before 12th session	BSI, DES, PCL

SUD, substance use disorder; CBT, Cognitive Behavioral Therapy; PDT, Psychodynamic Therapy; ADMS, Erweiterung zur Erfassung manischer Symptome; ADS-L, Allgemeine Depressionsskala; ASI, Anxiety Sensitivity Index; ATQ, Automatic Thoughts Questionnaire; BAI, Becks Angst Inventar; BDI, Becks Depression Inventory; BSI, Brief Symptom Inventory; BPRS, Brief Psychiatric Rating Scale; CGI-S, Clinical Global Impression-Severity; DAS, Dysfunctional Attitudes Scale; DBT, Dialectical Behavior Therapy; DES, Dissociative Experiences Scale; EST, Emotional Supportive Therapy; ET, Electical Therapy; Excl., Excluded; F-SOZU, Fragebogen zur Sozialen Unterstützung; GAS, Global Assessment Scale; GIP, Guided Imagery Psychotherapy; HAMA, Hamilton Angst Skala; HAMD, Hamilton Depression Skala; HRSD, Hamilton Rating Scale for Depression; HSRD-17, Hamilton Rating Scale for Depression; HSCL-90, Hopkins Symptom Checklist; HY, Hypnopsychotherapy; IIP, Inventar Interpersonaler Probleme; IPT, Interpersonal Therapy; MSAS, Modified Social Adjustment Scale; MMPI-D, Minnesota Multiphasic Personality Inventory – Depression scale; N. Excl., Not excluded; n.a., not available; Natura., naturalistic; OCR, Overall Change Rating; OQ-45.2, Outcome Questionnaire-45.2; PCL, Posttraumatic Stress Disorder Checklist; PDSS, Panic Disorder Severity Scale; PEI, Patient Estimate of Improvement; PSWQ, Penn State Worry Questionnair; RCT, randomized controlled trial; RDS, Raskin Depression Scale; SAS, Social Adjustment Scale; SCL-90-R, Symptom Checklist-90-Revised; SCORS-G, Social Cognition and Object Relations Scale – Global; SDC-R, Symptom Distress Checklist-Revised; SOS-10, Schwarz Outcome Scale; STAI, State Trait Angst Inventory; STPP, Short Term Psychodynamic Psychotherapy; TCS, Target Complain Scale; TFP, Tranfserence-Focused Therapy; YMRS, Young Mania Rating Scale.

Table 3. Summary of the moderator therapeutic approach-specific subscale.

Moderators	s	k	r	95% CI	p
CBT *vs.* PDT	13	149			
CBT	11	79	.088	-.03; .20	ns
PDT	11	70	.286	.18; .38	<.01

s, number of studies; k, number of effect sizes, r, Pearson's correlation coefficient; CI, confidence interval; CBT, cognitive behavioral therapy, PDT, psychodynamic therapy; ns, not significant.

CBT-technique indicated a TOR of r=.054 (95% CI [-.15; .26], d=0.11) and the subscale PDT-technique showed a TOR of r=.337 (95% CI [.15; .49], pseudo R^2=11.4%, d=0.72). The difference between these two correlational effect sizes was significant (F[1, 24]=44.42, p<.01). For PQS there were more therapeutic approach-specific subscales: CBT, Dialectical Behavior Therapy (DBT), Interpersonal Therapy (IPT), PDT and Transference-Focused Therapy (TFP). The subscale CBT-techniques showed a TOR of r=.095 (95% CI [-.03; .21], d=0.19); the subscale DBT-techniques showed a TOR or r=.061 (95% CI [-.63; .68], d=0.12), the subscale IPT-technique showed a TOR of r=.185 (95% CI [.04; .32], pseudo R^2=3.4%, d=0.38); the subscale PDT-technique a TOR of r=.262 (95% CI [.15; .37], pseudo R^2=6.9%, d=0.54) and the subscale TFP-techniques showed a TOR of r=.280 (95% CI [-.50; .76], d=0.58), whereas the difference between effect sizes was significant (F[4, 146]=4.08, p<.01). This suggests a difference between CBT-, DBT, IPD, PDT and TFP-techniques in the relation of outcome.

Instruments

At least we checked whether there is a difference in the association between psychotherapeutic technique and outcome related to the technique instrument (CPPS or PQS). This moderator-analysis showed no significant difference related to the association between technique and outcome (F[1, 175]=0.38, p=.54).

Discussion

The potential outcome-relevance of particular psychotherapeutic methods, techniques and skills has a lasting tradition in psychotherapy research (Hill & Norcross, 2023). This study aimed to estimate the relation between psychotherapeutic techniques and post-treatment outcomes by analyzing three-level meta-analytic models. We found a small positive relation between techniques and outcome (r=.193 across 177 reported effect sizes within 13 studies); that is the higher use of psychotherapeutic techniques being associated with better outcomes. Results showed significant heterogeneity across the three levels, with mostly within-study variability across particular techniques and outcomes (75.22%). Funnel plots showed no indication of publication bias, but the Begg and Mazumdar's rank correlations test does, so that the results must be interpreted with caution due to the possible publication bias.

This meta-analysis extends previous efforts in the process-outcome research by analyzing assessments that focus on multidimensional techniques independent of therapeutic approach. Previous meta-analytic attempts, for example Power *et al*. (2022), analyzed within-therapeutic approach associations and found small significant positive associations between competence and outcome (non-hierarchical studies: r=.17), and small to moderate significant associations between integrity and outcome (non-hierarchical studies: r=.15; hierarchical studies[2]: r=.23). Compared to our study (r=.193) the effect sizes are in a similar range. These findings contrast with the meta-analysis from Webb *et al*. (2010), where no significant association between adherence-outcome as well as competence-outcome could be observed.

Psychotherapeutic techniques may play a central role in treatment. Nevertheless, the relation between technique and outcome across therapeutic approaches and the possible impact of a particular technique on the outcome independent of therapeutic approach has been little studied. In our meta-analysis, taken all psychotherapeutic techniques together it can be stated that the relation between psychotherapeutic techniques and outcomes are observable across therapeutic approaches, *i.e*., even within each other's therapeutic approach-specific treatment, the techniques showed significant relations to outcome. Four studies (Ablon & Jones, 1998; DeFife *et al*., 2008; Goodman *et al*., 2015; Jones & Pulos, 1993) within this meta-analysis could find a positive TOR for CBT-techniques within PDT-treatments; additionally in two studies (Ablon & Jones, 1998; Jones & Pulos, 1993) there was a positive TOR for PDT-techniques within CBT-treatments. This suggests that transtheoretical therapeutic approaches might have benefits compared to rigid boundaries of traditional manualized treatments. This assumption is in line with studies from Hilsenroth and Slavin-Mulford (2008), Hilsenroth *et al*. (2007) and Richards *et al*. (2016). These studies showed that the use of transtheoretical therapeutic approaches was beneficial for patients with depression, borderline, or bulimia nervosa. A major value of transtheoretical psychotherapy is the flexibility to adapt the technique to the potential needs and preferences of the patient (Norcross & Goldfried, 2005).

Our results showed a positive relationship between technique and outcome. The use of particular techniques could be a therapist factor, where orientation-specific competence is corresponded with the therapists' approach. To examine this, we used a moderator-analysis for the moderator therapeutic approach-specific subscale, consisting of different therapeutic approach-specific techniques. Results showed significant differences between these techniques. For CPPS and PQS together the CBT-techniques showed a non-significant mean effect (r=.088, p=.14), whereas the PDT-techniques showed a significant positive mean effect (r=.286, p<.01). This suggest that the higher use of PDT-techniques being associated with better outcomes, whereas this association could not be found for CBT-techniques. Results are not in line with Power *et al*. (2022), where CBT showed the strongest associations. The differences in these findings are not trivial as Power *et al*. (2022; k = 91) mostly investigated measures within one therapeutic approach, whereas the present meta-analysis was focused on measures that assess techniques across particular therapeutic approaches. Moreover, specific techniques within a therapeutic approach such as homework assignment may be particularly effective (Ryum *et al*., 2023), whereas for other techniques the evidence base might be less consistent (*e.g*., Metaphors; McMullen & Tay, 2023). Additionally, our study has quite more naturalistic studies than randomized-controlled-trials (RCT). According to this it can be assumed that our results are not in line with Power *et al*. (2022) because of differences in the design (naturalistic or RCT) and for a more nuanced understanding of specific techniques, future research should use multidimensional assessments within naturalistic designs. For this more studies with MULTI should be aimed, because of a more detailed analysis of techniques from eight distinct therapeutic approaches, along with transtheoretical factors. Overall, for future research there is need for future studies investigating association between technique and outcome by the MULTI. Furthermore, more detailed analysis of techniques from eight distinct therapeutic approaches, along with transtheoretical (*common*) factors and patient factors are needed (*e.g*., de Felice *et al*., 2019; McAleavy & Castonguay, 2015).

[2] Hierarchical studies are controlled for between-therapist variability in treatment outcomes, *i.e*., patients nested within therapist (Power *et al*., 2022).

Limitations and future directions

The present study has several limitations that may be important to consider in future research. First, the number of studies with 13 studies that analyzed multidimensional scales across therapeutic approaches is limited, indicating the potential relevance for future research of these assessments and its direct comparisons with mono-theoretical assessments. Second, primary studies investigated a broad range of outcome instruments. Whereas this diversity of investigated outcome instruments may represent research interests to investigate a broad range of facets across particular outcomes, it also limits our knowledge for particular outcomes and outcome measures. Third, most of the primary studies included a broad range of diagnosis, which also limits our knowledge in relation to particular diagnosis. For example, when individuals that suffer from a personality disorder are included, disruptions in the treatment adherence are to expect and therefore may impact psychotherapy outcomes (Clarkin & Levy, 2004). The broad range of outcome instruments and diagnoses acts also as a strength of this meta-analysis, since there could be observed an effect even within such diversity. Fourth, most studies with CPPS involved data collection in the context of a psychodynamic training clinic. It would be needed to collect data likewise in other contexts. Fifth, the instruments measuring psychotherapeutic techniques focused the presence of a certain technique. But besides what technique a therapist use it is also important how competent a therapist uses it (Sharpless & Barber, 2009). Future research is needed better understand the potential interplay between adherence and competence issues across particular techniques. Sixth, the primary studies in this meta-analysis focused on between-therapists correlations. Besides the between-therapists correlations, the within-therapists correlations are considered as a critical factor to better understand therapist specific effects (*e.g.*, Baldwin & Imel, 2013). Additionally, we just consider the therapists as a factor for the use of technique. But the use of technique can although be a patient factor, which technique is used may depend on the individual patient and their needs. To disentangle therapist and patient contributions, future primary studies would need report more the variability of effects at patient and therapist levels (Baldwin *et al*., 2007; Del Re *et al*., 2021; Wampold & Owen, 2021). Last, allegiance effects may or may not impact the TOR as *e.g.,* indicated in the alliance-outcome association (*e.g*., Flückiger *et al.* 2018). However, it might be a particular strength of the investigated multidimensional assessments to investigate potential allegiances effects across therapeutic approaches simultaneously.

Conclusions

Besides these potential limitations, our study presented the first meta-analytic attempt synthesizing instruments that assess therapeutic techniques across different therapeutic approaches. The results suggest a small but meaningful relation between psychotherapeutic techniques and outcomes, where a higher use of techniques is associated with better outcomes at the end of therapy. Overall, the present meta-analysis supports the underlying research attempt that developing and investigating measures that assesses a diversity of techniques may indicate a promising research strategy to enhance our knowledge across particular therapeutic approaches and provide the potential to advance our transtheoretical knowledge. Future research is needed to have a closer look at the relation between technique and outcome within naturalistic studies using multi-therapeutic approach measures.

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