

An Overview of the Evidence for Psychological Interventions for Psychosis: Results From Meta-Analyses

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Abstract

Background: There are numerous psychological approaches to psychosis that differ in focus, specificity and formats. These include psychodynamic, humanistic, cognitive-behavioural and third-wave-approaches, psychoeducation, various types of training-based approaches and family interventions.

Method: We briefly describe the main aims and focus of each of these approaches, followed by a review of their evidence-base in regard to improvement in symptoms, relapse and functioning. We conducted a systematic search for meta-analyses dating to 2017 for each of the approaches reviewed. Where numerous meta-analyses for an approach were available, we selected the most recent, comprehensive and methodologically sound ones.

Results: We found convincing short- and long-term evidence for cognitive behavioural approaches if the main aim is to reduce symptom distress. Evidence is also strong for psychoeducative family interventions that include skills training if the main aim is to reduce relapse and rehospitalisation. Acceptance and commitment therapy, mindfulness-based approaches, meta-cognitive and social skills training, as well as systemic family interventions, were also found to be efficacious, depending on the outcome of interest, but meta-analyses for these approaches were based on a comparatively lower number of outcome studies and a narrower selection of outcome measures. We found no convincing evidence for psychodynamic approaches, humanistic approaches or patient-directed psychoeducation (without including the family).

Conclusions: An array of evidence-based psychological therapies is available for psychotic disorders from which clinicians and patients can choose, guided by the strength of the evidence and depending on the outcome area focused on. Increased effort is needed in terms of dissemination and implementation of these therapies into clinical practice.



Keywords

psychosis, schizophrenia, psychological therapy, intervention, evidence

Highlights

- Meta-analyses show convincing evidence for CBT if the main target is psychotic symptoms.
- Meta-analyses show convincing evidence for family interventions if the main target is relapse.
- Effects are promising for ACT, mindfulness-based and systemic approaches, but more research is needed.
- The array of effective approaches allows clinicians and patients to select the most appropriate one.

Patients with psychotic disorders often face a diverse and complex set of problems. One part of these problems are the symptoms as such. These include persecutory delusions, hearing voices and feeling driven, or negative symptoms, such as the loss of drive. Not only do these symptoms tend to cause severe distress (Lincoln, 2007; Woodward et al., 2014), they can also be accompanied by an array of interpersonal problems or social withdrawal (Depp et al., 2016; Mondrup & Rosenbaum, 2009). Accordingly, relatives and other people involved also often report difficulties in communication or feeling helpless (Treanor, Lobban, & Barrowclough, 2013). Moreover, an acute episode that might have involved voluntary or involuntary hospitalisation can be traumatizing (Paksarian et al., 2014) and many patients and relatives report continuous worry about possible relapse (Gumley et al., 2015; Lal et al., 2019). Unsurprisingly, therefore, many patients and their relatives seek professional help.

Since the discovery of antipsychotic drugs in the early 1950s, this help has been primarily pharmacological in nature. Although medication is valuable in the acute phase, the effect sizes in randomised trials for medication alone are only small to moderate (Leucht et al., 2012) and may come at the cost of disadvantageous long-term side effects (Murray et al., 2016). Also, medication is not well accepted by many patients (Wade, Tai, Awenat, & Haddock, 2017). Based on the requirement to inform evidence-based additions and alternatives to antipsychotic medication (Morrison, Hutton, Shiers, & Turkington, 2012), and an increasingly better understanding of the psychological mechanisms that cause and maintain psychotic symptoms (for a comprehensive and service-user oriented overview of this research see Cooke, 2014) different psychological approaches have been developed over the past decades. These differ in their focus and formats, but ultimately all aim to help patients to either overcome or to cope better with symptoms and to improve functioning and well-being.

Methods of the Review

The scope of the present review covers the efficacy of different psychological approaches for psychosis offered in combination with pharmacotherapy as reflected in meta-analyses.

A systematic search for methodologically sound meta-analyses via Web of Science, PsycINFO, PSYINDEX, and Medline was conducted to establish a German guideline for the psychological treatment of schizophrenia and psychotic disorders (Lincoln, Pedersen, Hahlweg, Wiedl, & Frantz, 2019). This guideline was initiated by the German Society for Clinical Psychology and Psychotherapy as an adjunct to the S-3 German guideline, which has a broader focus. Considering recommendations by the Association of the Scientific Medical Societies in Germany (AWMF), evidence derived for the different psychological approaches is based on recent meta-analyses including well-conducted randomised controlled trials (RCTs). Starting out from the comprehensive meta-analysis on the treatment and management of psychosis and schizophrenia in adults (National Collaborating Centre for Mental Health [NCCMH], 2014 [Update]) conducted for the NICE-guidelines (National Institute for Health and Care Excellence) in 2009 we searched the literature from 2010 to 2017 for additional meta-analyses (Note. The guideline covered research until 2016. For the present overview we updated this search to cover meta-analyses published up to the end of 2017). When a psychological approach was not covered in the NICE-guidelines (NCCMH, 2014), we additionally searched for meta-analyses published before 2010. The identified meta-analyses were critically appraised for methodological quality as well as overlap and we selected the most recent, comprehensive and methodologically sound analyses (e.g. conducted by the Cochrane Collaboration or other independent researchers). A complete list of the reviewed and selected meta-analyses is added in the Appendix. Meta-analyses were included if they focused on schizophrenia, delusional disorders, schizoaffective disorders and acute and transient psychotic disorders following DSM-III-R, DSM-IV or DSM-5 criteria.

The outcome measures covered include improvement in symptoms (overall symptoms, positive symptoms and negative symptoms), relapse rates and rehospitalisations as well as psychosocial functioning.

Psychological approaches reviewed covered individual and group interventions conducted within in- and out-patient settings. We report the effectiveness of each approach on the basis of randomised-controlled trials that compared the approach either to the usual treatment (TAU; e.g. pharmacotherapy and consultation) condition alone or to a TAU plus an active control condition (e.g. supportive therapy or psychoeducation) at post-treatment and/or at follow-up (ranging from weeks to years). In order to be able to compare the effectiveness of these approaches we focus on comparisons to “any control”, because meta-analyses on approaches which have not been comprehensively investigated often do not differentiate between comparisons to TAU versus active controls. Only effect sizes based on at least two independent original studies were considered.

Description of the Reviewed Approaches and Their Respective Evidence Basis

Cognitive Behavioural Therapy for Psychosis

Description

Cognitive behavioural interventions for psychosis (CBTp) build on the assumption that psychotic symptoms lie on a continuum with normal experiences. They are also informed by research suggesting that psychotic experiences result from normal, though exaggerated, mechanisms of perception and reasoning. This understanding has formed the basis for cognitive models of psychosis. As one of the most influential of these models, [Garety, Kuipers, Fowler, Freeman, & Bebbington \(2001\)](#) postulate that psychotic symptoms develop when stressors overload a person, causing them to have unusual experiences. According to this model, not the unusual experience itself is crucial but its appraisal. A variety of approaches within the CBTp-framework have been described ([Fowler, Garety, & Kuipers, 1995](#); [Morrison, Renton, Dunn, Williams, & Bentall, 2004](#)). Most descriptions converge in stressing the importance of building a stable therapeutic relationship through the process of listening and validating, of taking a collaborative approach and of working with an individual case formulation. The use of cognitive and behavioural interventions for working with psychotic symptoms as well as for changing dysfunctional beliefs and interventions to prevent relapse are also essential elements.

Evidence Base

Beyond the NICE-Meta-Analysis conducted in 2009 our review is based on seven further meta-analyses ([Burns, Erickson, & Brenner, 2014](#); [Jauhar et al., 2014](#); [Jones, Hacker, Cormac, Meaden, & Irving, 2012](#); [Lutgens, Garipey, & Malla, 2017](#); [Turner, van der Gaag, Karyotaki, & Cuijpers, 2014](#); [van der Gaag, Valmaggia, & Smit, 2014](#); [Velthorst et al., 2015](#)) selected from a larger pool of 13 meta-analyses.

As can be seen in [Table 1](#), with the exception of the Cochrane-analysis by [Jones et al., \(2012\)](#), the meta-analyses consistently detected small effects on *overall symptoms* at post-treatment and at various follow-up periods favouring CBTp over TAU. The findings were less consistent, however, when CBTp was compared to active control. The picture is similar for *positive symptoms*, with [Jones et al. \(2012\)](#) reporting mixed findings, while the other meta-analyses consistently revealed effects in favour of CBTp compared to TAU, both at post-treatment and at follow-ups. Again, the comparisons to active control groups were less consistent. For *negative symptoms* there were small post-therapy effects ([Jauhar et al., 2014](#); [Lutgens et al., 2017](#)) and small follow-up effects ([NCCMH, 2014](#)), overall, however, the non-significant findings outweighed the significant ones. *Relapse rates, re-hospitalisations* and *functioning* were only investigated in two meta-analyses ([Jones et al., 2012](#); [NCCMH, 2014](#)), and are based on a smaller number of studies. Neither meta-analy-

sis showed an effect on relapse and the effects for rehospitalisations and functioning were mixed.

Third-Wave-Approaches to Psychosis

Description

Third-wave-approaches are new developments in CBT which emphasise the relevance of acceptance, mindfulness and emotions, the relationship, values, goals, and meta-cognition (Hayes & Hofmann, 2017). In psychosis, adaptations of mindfulness-based therapy, acceptance and commitment therapy (ACT) and compassion focused therapy (CFT) have been studied most. In order to ease distress and achieve acceptance as well as to support the regaining of control, mindfulness-based interventions for psychosis guide patients to notice sensations and their own emotional and cognitive reactions to them with awareness (Chadwick, 2014). In meditation-based practices, patients learn to observe their thoughts, feelings and symptoms in an accepting and non-judgmental way. Mindfulness interventions for psychosis have been implemented as single treatments (e.g. Chadwick, 2014) or combined with CBT (e.g. Wright et al., 2014).

In ACT (Hayes, Strosahl, & Wilson, 1999) experiential avoidance and cognitive fusion are suggested to be the core processes of suffering. In order to increase psychological flexibility and reduce distress associated with psychotic symptoms, patients are guided to develop a balance between committed value-guided action when solving actual problems and acceptance when control of thoughts and feelings is limited (e.g. in the case of hallucinations). ACT has been adapted for the treatment of psychosis (O'Donoghue, Morris, Oliver, Johns, & Hayes, 2018; combined with CBT, Wright et al., 2014).

Compassion-focused therapy (CFT, Gilbert & Procter, 2006) encourages patients to be more compassionate towards themselves and others while reducing shame and self-criticism. Compassionate mind training includes appreciation and imagery exercises as well as aspects of mindfulness and aids the patient to experience different aspects of compassion in order to promote mental wellbeing. CFT has been adapted for the treatment of psychosis (Brähler, Harper, & Gilbert, 2013).

Evidence Base

We selected two (Cramer, Lauche, Haller, Langhorst, & Dobos, 2016; Louise, Fitzpatrick, Strauss, Rossell, & Thomas, 2018) from an identified pool of four meta-analyses. No meta-analysis reported effects-sizes for CFT based on more than one original study, hence, only mindfulness-based interventions and ACT are reviewed.

Both meta-analyses revealed no significant effect of ACT, but a significant small effect of mindfulness-based interventions on *overall symptoms* at post-treatment (Cramer et al., 2016; Louise et al., 2018). One meta-analysis analysed the effect at follow-up and reported an even increased effect (Cramer et al., 2016).

ACT showed a significant moderate effect on *positive symptoms*, but not on *negative symptoms* at post-treatment (Cramer et al., 2016).

The number of *rehospitalisations* was only investigated for ACT, revealing a significant small effect (based on two studies; Cramer et al., 2016). *Relapse* and *functioning* were not analysed.

Psychodynamic Therapy for Psychosis

Description

Early psychoanalytic conceptions of psychosis understand psychotic symptoms as a manifestation of the mind being invaded by the unconscious and by dreams (Federn, 1928/1952). More contemporary approaches underline the importance of early relationship patterns (e.g. Bion, 1962; Winnicott, 1991). Internal representations of experiences with significant others and current relationships are assumed to result in tension and psychotic symptoms are considered as a “constructive” way of dealing with this tension (von Haebler & Freyberger, 2013). Psychodynamic therapy focuses on these processes and helps the patient to gain self-awareness and understanding of the influence of the past on present behaviour and it fosters new positive relationship experiences. An empathic, respectful and supportive attitude allows re-enactment of internalised relational patterns in the therapist-patient interaction (Lempa, Montag, & von Haebler, 2013).

Evidence Base

We identified two meta-analyses. However, both the meta-analysis conducted for the NICE-guidelines (NCCMH, 2014) and the one of the Cochrane Collaboration (Malmberg, Fenton, & Rathbone, 2001) were based on four original studies only. The aggregated data of the two analyses did not indicate significant improvement in overall symptoms, functioning (NCCMH, 2014) or rehospitalisations (Malmberg et al., 2001) in patients treated with psychodynamic therapy compared to any control. The inclusion criteria for the present review were not fulfilled as none of the relevant outcome measures were covered by more than one original study; hence, psychodynamic therapies are not included in Table 1.

Humanistic or Client-Centred Approaches

Description

In client-centred or humanistic therapy, unconditional positive regard, accurate empathy and genuineness are assumed to help a patient to increase the congruence between the real self and the ideal self (Rogers, Gendlin, Kiesler, & Truax, 1967). Rogers and colleagues’ concept of “actualizing tendency” points to an inherent tendency to achieve personal growth and reach one’s full potential. In this framework psychotic symptoms are understood as a distortion of this actualising tendency. Client-centred therapy focuses on

personal experiences, whereas relieving specific symptoms is secondary. Thus, no specific therapeutic strategies have been established for psychosis. However, therapists are recommended to pay particular attention to understanding the client's perspective, ensuring that the patient is being heard and emphasising the personal relationship (Gendlin, 1962).

Evidence Base

Client-centred or humanistic therapy for psychosis has not been covered in a meta-analysis and the only known RCT dates back to 1967 (Rogers) and did not reveal convincing effects.

Psychoeducation for Patients

Description

To enhance knowledge and understanding of psychosis and to improve coping skills psycho-educational interventions are routinely offered in the treatment of psychosis. Mainly in group format, patients receive systematic and structured information on psychosis and its consequences, early warning signs, triggering and maintaining factors, relapse prevention, and modalities of treatment. Psychoeducation aims to help patients to increasingly take personal responsibility and improve coping skills.

Evidence Base

Two comprehensive meta-analyses (NCCMH, 2014; Turner et al., 2014) that provided sub-analyses on the effect of psychoeducation for patients without involving family members did not show any significant effect of psychoeducation on overall symptoms, positive or negative symptoms (Turner et al., 2014), relapse rates or rehospitalisations (NCCMH, 2014).

Training-Based Approaches

Description

From the range of different training-based approaches that cannot be fully covered within the scope of this review, we exemplarily focus on two widely used training-based interventions – one targeting positive symptoms (Metacognitive training) and one primarily addressing negative symptoms (Social skills training).

Metacognitive training (MCT; Moritz & Woodward, 2007) was designed to address positive symptoms in patients with schizophrenia. As cognitive biases have been related to positive symptoms (e.g. jumping to conclusions or externalizing attributional bias, see Garety & Freeman, 1999), MCT aims to extend patient's knowledge of cognitive biases and to provide corrective experiences. Implementing a wide range of examples and exercises, patients participating in a MCT group training are encouraged to identify and gain

insight into these cognitive biases and reduce conviction in delusional ideas. MCT is mainly administered in group format.

Social skills trainings (SST) build on the observation that patients with psychotic disorders tend to show impaired social skills. SST involve therapist modelling and instructing socially confident behaviour in specific situations combined with role-plays. Patients receive supportive feedback from the therapist and video feedback can also be used. During the end of the training that usually takes place in group-format patients are encouraged to practice the newly learnt skills in daily life. A frequently used treatment manual was published by [Bellack, Mueser, Gingerich, and Agresta \(2013\)](#).

Evidence Base for MCT

A significant small effect on *positive symptoms* was reported in two of three identified meta-analyses on the effect of MCT in psychosis ([Eichner & Berna, 2016](#); [Jiang, Zhang, Zhu, Li, & Li, 2015](#)), whereas one did not reveal a significant effect at post-treatment ([van Oosterhout et al., 2016](#)). Regarding overall and negative symptoms, relapse / rehospitalisations and functioning no aggregated effect sizes were reported.

Evidence Base for Social Skill Trainings

We identified and included three meta-analyses: the NICE meta-analysis ([NCCMH, 2014](#)), the Cochrane meta-analysis ([Almerie et al., 2015](#)) and the meta-analysis by [Turner et al. \(2014\)](#). There was no effect of SST on overall symptoms compared to control conditions at post-therapy in any of the meta-analyses, follow-up effects were not reported. There was also no effect in favour of SST for positive symptoms ([Turner et al., 2014](#)). For negative symptoms there were significant post-therapy effects ([NCCMH, 2014](#); [Turner et al., 2014](#)). A significant follow-up effect for SST versus TAU was found in one meta-analysis ([Almerie et al., 2015](#)). For relapse and rehospitalisation, the findings were mixed. There was no significant effect for functioning, neither at post-assessment nor at follow-up.

Family Interventions

Description

Interventions that include the family are subsumed under the term “family intervention”. The patient may be included in all, some, or – in some programmes – no sessions. Depending on the approach, a family intervention will involve 12 to 25 treatment sessions during the course of a year or longer and accompany the family through the remission phase. The diverse approaches can be broadly subdivided into psycho-educative family interventions, comprehensive interventions that combine information with problem-solving, social and communication skills, and systemic family interventions.

The *psychoeducational approach* builds on the observation that patients with psychosis often rely on relatives for support ([Dixon, Adams, & Lucksted, 2000](#)) and the assump-

tion that involved family members thus require information and assistance to cope with the challenges posed to the family system. It thus conveys basic knowledge about psychosis, building on the vulnerability-stress models. It sees psychosis as mental illness and enlists family members as therapeutic agents, taking care not to make the relatives feel blamed (Lucksted, McFarlane, Downing, & Dixon, 2012). It aims to convey the relevance of medical and psychosocial treatment, reduce misconceptions and provide a basis on which to promote the self-management skills, improve family coping and reduce relapse.

The *skill-training approach* builds on findings showing higher rates of relapse if a patient's family displays a communication style characterised by high levels of criticism, hostility, or emotional over-involvement ("high expressed emotion", Butzlaff & Hooley, 1998). It builds on the assumption that problems that arise from caring for a mentally ill family member can be solved if the family develops good problem solving strategies and a supportive way of communicating. The therapist models the verbal and non-verbal communication rules and assists the family to use the communication skills in a series of role-plays. The improved skills are then used to solve practical problems within the family context, using a problem solving approach. A well-established program of this type is described by Falloon, Boyd, and McGill, (1984).

Systemic approaches assume that relationships within the family (or other relevant social systems) influence the feelings, beliefs and behaviour of the "index patient" and vice versa and therefore, that psychotic symptoms may have arisen from specific interaction patterns within the family. The therapy aims to identify and change these patterns in order to reduce symptoms. If, for example, family members have stopped communicating about relevant issues with the patient, the therapist would attempt to re-include the patient in the communication processes. Changes in interactions are promoted by specific systemic questioning and reframing (e.g. Retzer, 2004).

Evidence Base for Family Interventions in General

We selected three meta-analyses (Claxton, Onwumere, & Fornells-Ambrojo, 2017; NCCMH, 2014; Pharoah, Mari, Rathbone, & Wong, 2010) from a pool of four available ones. These did not differentiate between different types of family interventions and thus report omnibus effects, with the bulk of the interventions covered in these analyses being psychoeducational in nature, with or without additional skill training.

As can be seen in Table 1, short-term benefits were mixed, but family interventions demonstrated significant long-term benefits over any control conditions on *overall symptoms in any of the three meta-analyses*. The effects on positive and negative symptoms were short-term in nature (NCCMH, 2014). For *relapse and rehospitalisation* the majority of the effects were significant and in the moderate to large range, both at post therapy and at follow-ups, although the long-term effects were non-consistent. Small to moderate effects were also found for short- (Claxton et al., 2017; NCCMH, 2014) and long-term *functioning* (NCCMH, 2014; Pharoah et al., 2010).

In order to provide a picture on differential effectiveness, we reviewed three additional meta-analyses each focusing on one of the three specific subtypes, psychoeducative family interventions (Lincoln, Wilhelm, & Nestoriuc, 2007), comprehensive programs including skilltraining (Pfammatter, Junghan, & Brenner, 2006) and systemic approaches (Pinquart, Oslejsek, & Teubert, 2016). Moreover, the NICE meta-analysis (NCCMH, 2014) provided a sub-analysis for psychoeducative interventions that included the family.

As can be seen in Table 1, psychoeducative family interventions demonstrated no significant effect on any of the symptom measures (Lincoln et al., 2007; NCCMH, 2014), but a significant small follow-up effect on relapse and rehospitalisation (combined) in one meta-analysis ($ES = 0.48$; Lincoln et al., 2007) but not in the other (NCCMH, 2014).

For comprehensive programmes including skill-trainings, one meta-analysis (Pfammatter et al., 2006) demonstrated a small follow-up effect on general psychopathology, relapse and rehospitalisation and a short-term benefit on functioning.

For systemic family approaches there was an overall significant effect on all outcome measures combined, without differentiating between the different outcomes (Pinquart et al., 2016).

Table 1
Results From Meta-Analyses on the Efficacy of Psychological Approaches to Psychosis

	General psycho-pathology (ES)		Positive symptoms (ES)		Negative symptoms (ES)		Relapse (RR)		Rehospitalisation (RR)		Functioning (ES)	
	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups
Meta-analysis												
Cognitive-behavioural therapy (CBTp)												
NCCMH, 2014 (NICE, k = 19)	0.27*	0.23*	0.17*	0.15*	n.s.	0.16*	n.s.	n.s.	n.s.	0.76*	n.s.	0.20*
Comparison: TAU		0.40*	0.51*			0.38*				*	n.s.	n.s.
		0.19*								n.s.		
NCCMH, 2014 (NICE, k = 14)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	0.50*	n.s.
Comparison: active treatments		n.s.		n.s.		n.s.		n.s.		n.s.		
Jones et al., 2012 (Cochrane, k = 20)	n.s.	*	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	*	n.s.
Comparison: any control	n.s.	n.s.	*	*	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
	*											
Burns et al., 2014 (k = 12)	0.52*	0.40*	0.47*	0.41*								
Comparison: any control												
Jauhar et al., 2014 (k = 50)	0.33*		0.25*			0.13*						
Comparison: any control												
van der Gaag et al., 2014 (k = 18)			0.44*									
Comparison: any control			0.36*									
Velthorst et al., 2015 (k = 30)					n.s.	n.s.						
Comparison: any control												
Turner et al., 2014 (k = 22)	0.16*		0.16*			n.s.						
Comparison: active treatments												
Lutgens et al. (2017)						0.34*						
Comparison: TAU												

Meta-analysis	General psycho-pathology (ES)		Positive symptoms (ES)		Negative symptoms (ES)		Relapse (RR)		Rehospitalisation (RR)		Functioning (ES)	
	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups
Mindfulness-based interventions												
Cramer et al., 2016 (k = 4)	0.62*	1.27*										1.40*
Comparison: TAU												
Louise et al., 2017 (k = 4)	0.46*											
Comparison: any control												
Acceptance and commitment therapy (ACT)												
Cramer et al., 2016 (k = 4)	n.s.	0.63*				n.s.				0.41*		
Comparison: TAU												
Louise et al., 2017 (k = 4)	n.s.											
Comparison: any control												
Psychodynamic therapy												
-												
Humanistic approaches												
-												
Psychoeducation not involving family members												
NCCMH, 2014 (NICE, sub-analyses, k = 12)	n.s.							n.s.				n.s.
Comparison: any control												
Turner et al., 2014 (k = 8)	n.s.					n.s.						n.s.
Comparison: active treatments												

Meta-analysis	General psycho-pathology (ES)		Positive symptoms (ES)		Negative symptoms (ES)		Relapse (RR)		Rehospitalisation (RR)		Functioning (ES)	
	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups
Metacognitive training												
Jiang et al., 2015 (k = 4)												
Comparison: any control												
Eichner & Berna, 2016 (k = 15)			0.34*									
Comparison: any control												
van Oosterhout et al., 2016 (k = 11)			n.s.									
Comparison: any control												
Social skills training												
NCCMH, 2014 (NICE, k = 20)	n.s.			0.37	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.		
Comparison: any control												
Almerie et al., 2015 (Cochrane, k = 10)							post n.s.;	follow-up n.s.				
Comparison: TAU								0.52*				
Almerie et al., 2015 (Cochrane, k = 3)	n.s.				n.s.							
Comparison: active treatments												
Turner et al., 2014 (k = 16)	n.s.		n.s.		0.27*							
Comparison: active treatments												
Family interventions OVERALL												
NCCMH, 2014 (NICE, k = 32)	0.36*	0.30*	0.46*	n.s.	0.26*	n.s.	0.55*	0.62*	0.53*	n.s.	n.s.	0.38*
Comparison: any controls							0.66*	0.80*	0.57*	n.s.	0.22*	0.58*
Pharoah et al., 2010 (Cochrane, k = 53)									*	n.s.	n.s.	n.s.
Comparison: any controls							n.s.	n.s.	n.s.	0.78*	0.46*	*
							0.55*	0.64*	0.64*	n.s.	n.s.	*
							0.64*	0.64*	0.64*	n.s.	n.s.	*

Meta-analysis	General psycho-pathology (ES)		Positive symptoms (ES)		Negative symptoms (ES)		Relapse (RR)		Rehospitalisation (RR)		Functioning (ES)	
	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups	Post	Follow-ups
Claxton et al., 2017 (k = 14) Comparison: any controls	n.s.	0.85					Combined analysis of relapse and rehospitalisation: post: *, follow-up: n.s.					0.74
Family psychoeducation												
Lincoln et al., 2007 (k = 6) Comparison: any controls NCCMH, 2014 (NICE, k = 2) Comparison: any controls	n.s.						Combined analysis of relapse and rehospitalisation at follow-up: 0.48*			n.s.		
Family comprehensive programs												
Pfammatter et al., 2006 (k = 31) Comparison: any controls		0.40*					0.42*			0.22*		0.38*
Systemic family interventions												
Pinquart et al., 2016 (k = 7) Comparison: TAU												

Note. Effect sizes based on at least two independent original studies are reported. Comparable effect sizes (Cohen's d, Hedge's g, and standardised mean differences) are denoted as ES (effect size) without reporting confidence intervals. If only odds ratio, risk ratios, partial eta squared and not-standardised mean differences were reported in a meta-analysis we only indicated if the effect was statistically significant at $p < 0.05$ (*) vs non-significant (n.s.). If available, effects compared to "any controls" are reported, if these data were not available effects compared to treatment as usual ("TAU") or "active treatments" (for instance other psychological approaches for psychosis or unspecified treatments) are reported. post = post-treatment; follow-up = all follow-up time-points combined; k = number of studies reviewed in the meta-analysis or sub-analysis.

^a"any control" was superior to the treatment. ^beffect sizes based on studies reporting combined analysis of relapse and rehospitalisation only.

Discussion

As has become apparent from this review, there are now a variety of different psychological interventions available, of which the majority have a good evidence base for the outcomes that they focus on primarily. If the aim is to reduce general psychopathology or positive symptoms, CBT has the strongest evidence-base both in terms of the number of studies conducted and in regard to the robustness of effects over follow-up periods. Other approaches, such as acceptance and commitment therapy, mindfulness-based approaches, and meta-cognitive training are also promising for these outcomes. Negative symptoms, however, appear to respond better to social skills trainings.

Family interventions are also well-researched and appear to be effective for a broader array of outcomes, including relapse and rehospitalisation as well as functioning. Within family interventions, the strongest effects are found for a combination of psychoeducative and skill-training with families, although it needs noting that this specific combination was only the focus in one meta-analysis. Systemic approaches are also promising, but more high-quality randomised controlled trials are necessary to ascertain their effectiveness for different types of outcomes. There was no convincing evidence for patient-directed psychoeducation (without family involvement) despite the fact that this approach is widespread. However, it may be more difficult to construct a fair evaluation of this approach in RCTs because any control condition is likely to involve psychoeducation to a certain extent. Psychodynamic therapies and humanistic approaches were also not found to be effective, but more RCTs are required in order to draw definite conclusions in this regard.

No approach has a consistently good evidence-base for the entire range of outcomes investigated. This may be partly due to the fact that different types of interventions have focused on different types of outcomes. For example, family interventions have a traditional focus on relapse, whereas CBT focusses on the positive symptoms. Thus, studies investigating these approaches did not consistently include a wider spectrum of outcome measures. More RCTs focusing on the full spectrum of outcome areas are required in order to understand whether different approaches are truly differentially effective. Also, with the exception of a few large effect sizes for family interventions, the effect sizes were largely in the small to marginally moderate range – and thus no higher than those found for pharmacotherapy. However, all original studies in the meta-analyses included here are based on designs that compare psychological interventions combined with medication to medication alone or to medication combined with an additional control condition. Thus, the effects need to be interpreted as “add-on” effects to medication and cannot be directly compared with the effect sizes for medication. So far, it is unclear whether psychological therapy would fare better or worse without the combination with medication as this question has not been investigated.

Limitations of This Analysis

The wide scope of interventions reviewed comes at the price of detail. For reasons of space, we did not include the specific search-terms or provide a full account of each of the meta-analyses excluded along with the reasons for in- or exclusion. Also, we did not report the evidence available for questions regarding specific subgroups, formats (e.g. group versus individual, short versus long) or settings (e.g. is family intervention more effective when delivered to individual families versus in groups of families). In [Table 1](#), we focused on the comparison to all control conditions for reasons of brevity and in order to be able to compare different approaches for which such distinctions were not always available. Naturally, differentiating between comparisons to TAU versus active controls is more conclusive and therefore these distinctions were made in the section on CBT for which they are consistently available. Moreover, we abstained from detail in the reporting of effect-sizes (e.g., we did not report standard-deviations, the type of effects, or the number of studies for each comparison). Finally, we disregarded any reported effect-size based on one original study only. Readers seeking more detailed evidence reports are referred to the British or German guidelines ([Lincoln et al., 2019](#); [NCCMH, 2014](#)), and to the original meta-analyses cited.

The method as such, a summary of meta-analyses, also has its limitations due to the overlap between meta-analyses. Moreover, the differences in methodological rigour, the inclusion criteria, and the classification of therapy approaches (e.g. inconsistency in what is counted as CBT) result in high levels of heterogeneity in the findings and make it difficult to directly compare different meta-analyses. We attempted to control this bias to a certain extent by disregarding meta-analyses with strong overlap or questionable quality. Another limitation is that the focus on meta-analyses does not provide information on psychological approaches, that are not represented well in the meta-analytic literature. Finally, the continuous accumulation of further evidence renders meta-analyses and reviews outdated at an increasing speed and several new ones have been published since finalizing the selection for this overview.

In this context, it is also worth mentioning a recent meta-analysis that also approached the question of the effectiveness of different psychological approaches to psychosis ([Bighelli et al., 2018](#)). This network meta-analysis aggregated data on the level of individual trials on CBT, metacognitive training, mindfulness and acceptance and commitment therapy among other approaches. Similar to our findings, CBT was the most represented among the included treatments and was found to have significant efficacy in comparison with treatment as usual for positive, overall and negative symptoms and functioning. It also showed higher efficacy in comparison with inactive control conditions for positive symptoms whereas there was no convincing proof of efficacy of other treatments. Thus, CBT fared slightly better, even, than in our approach, while third-wave approaches and meta-cognitive therapy were less well supported. Family interventions were not included.

Final Conclusions

The variety of efficacious interventions available for psychotic disorders is reassuring. Unfortunately, however, efficacy studies and clinical guidelines alone do not guarantee the implementation of evidence-based interventions, in routine clinical practice (Pilling & Price, 2006). For example, despite the NICE guideline recommendation to offer CBT to all patients with psychosis, only a minority of eligible patients with psychosis are being offered CBT in the UK (Prytys, Garety, Jolley, Onwumere, & Craig, 2011). In Germany, studies indicate that only a minority of psychosis patients have access to evidence-based psychotherapy (Schlier & Lincoln, 2016). To our knowledge, this serious implementation problem of evidence-based interventions is not restricted to Germany and the UK. Thus, although further high quality RCTs focusing on the full spectrum of outcomes are needed, the most relevant challenge to date is that of implementation.

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Appendix: Not Included Meta-Analyses

Cognitive-Behavioral Therapy (CBTp)

- Bird, V., Premkumar, P., Kendall, T., Whittington, C., Mitchell, J., & Kuipers, E. (2010). Early intervention services, cognitive-behavioural therapy and family intervention in early psychosis: Systematic review. *The British Journal of Psychiatry*, 197(5), 350–356. <https://doi.org/10.1192/bjp.bp.109.074526>
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Mindfulness-Based Interventions

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Psychodynamic Therapy

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Psychoeducation Without Family

Xia, J., Merinder, L. B., & Belgamwar, M. R. (2011). Psychoeducation for schizophrenia. *Cochrane Database of Systematic Reviews*, *6*. <https://doi.org/10.1002/14651858.CD002831.pub2>

Zou, H., Li, Z., Nolan, M. T., Arthur, D., Wang, H., & Hu, L. (2013). Self-management education interventions for persons with schizophrenia: A meta-analysis. *International Journal of Mental Health Nursing*, *22*(3), 256–271. <https://doi.org/10.1111/j.1447-0349.2012.00863.x>

Family Interventions OVERALL

Bird, V., Premkumar, P., Kendall, T., Whittington, C., Mitchell, J., & Kuipers, E. (2010). Early intervention services, cognitive-behavioural therapy and family intervention in early psychosis: Systematic review. *The British Journal of Psychiatry*, *197*(5), 350–356.

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