

# Acceptance and Commitment Therapy Compared to Treatment as Usual in Psychosis: A Systematic Review and Meta-Analysis

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## Abstract

**Introduction:** Schizophrenia and psychotic disorders are chronic conditions. Although antipsychotic medications are the first line of treatment, many patients continued to have symptoms. Acceptance and Commitment Therapy (ACT) is a therapy that applies mindfulness to teach patients accepting the existence of symptoms rather than avoid them. A meta-analysis was conducted to measure the efficacy of ACT in treatment of psychosis.

**Methods:** A systematic review search was conducted using the following keywords: "acceptance and commitment therapy", "randomized", "clinical trials", "psychosis", "schizophrenia", and "major depressive disorder AND psychosis". All studies were read by two authors and checked for eligibility. Studies were included if randomly allocate to ACT or usual treatment (TAU), and psychosis as diagnosis. Mantel and Haenszel approach was used to determine the heterogeneity in the study. For quantitative outcomes, standardized mean difference between ACT and TAU was used to summarize effect size, while relative risk was used for categorical outcomes along with 95% confidence interval.

**Results:** 217 studies were identified. 92 studies were selected for review after removing the duplications. A total of 4 studies were included in quantitative-synthesis. The mean age for the participants was 38 years of age. Regarding treatment outcomes, there was a significant difference between the two arms in the degree of change of negative symptoms ( $p=0.008$ ), but the difference was not significant for positive symptoms. There was a reduction of re-hospitalization rate at 4 months in ACT compared to TAU in participants with psychosis.

**Conclusions:** ACT is a promising adjunctive therapy for patient with psychosis.

**Keywords:** Schizophrenia; Mindfulness; Psychotherapy; Acceptance and commitment therapy; Psychosis

## Introduction

Schizophrenia and other psychotic disorders are chronic and debilitating conditions [1]. Antipsychotic medications are the first line of treatment for psychosis; and traditionally they have focused on reducing the frequency and intensity of psychotic symptoms, without being fully effective in functional improvement [2,3]. Many patients continued to have positive symptoms (auditory hallucinations and delusions) and negative symptoms (apathy, emotional and social withdrawal) due to lack of treatment adherence, relapse, or cognitive problems, increasing the possibility of re-hospitalization [4,5]. Cognitive-behavioral and family therapies [6-8] have been shown to produce benefits beyond medications alone. The Schizophrenia Patient Outcomes Research Team (PORT) project, and several clinical practice guidelines, recommends Cognitive-behavioral therapy (CBT) and family-based services as interventions for patients diagnosed with schizophrenia [9,10]. CBT is a promising adjunctive treatment that produces a significant reduction in positive symptoms [6,11,12]. Mindfulness interventions based on meditation and acceptances are fast growing and have been implemented in psychosis patients [13]. Acceptance and Commitment Therapy (ACT) is a psychological intervention that applies mindfulness and acceptance processes with commitment and behavior change processes [14]. ACT is a contextual form of CBT based on the view that many maladaptive behaviors are produced by "unhealthy attempts to avoid or suppress thoughts, feelings, or bodily sensations" [15,16]. The general goal of ACT is to concentrate in the present moment, and to change and maintain actions based on ones standards in order to live better. This is called psychological flexibility, and is established through six core ACT processes: acceptance

(contacting private experiences without changing those experiences), cognitive defusion (creating distance from thoughts and noticing thoughts), being present (experiencing the present moment without evaluation), self as context (observing experiences of one's self in their current circumstances and environment), values (defining meaningful life directions), and committed action (making behavior changes based on values) [14]. A growing number of studies over the past two decades support the use of ACT for several disorders [14]. Randomized controlled trials have shown that ACT is beneficial for anxiety and depression [17-21], depression alone [22], physical health problems [23,24], substance use disorder, and other mental disorders [25,26]. In addition, the U.S. Department of Veterans Affairs disseminated ACT for depression as part of their national evidence based psychotherapy rollouts [27]. The Society of Clinical Psychology has modest research support based on Chambless criteria [28] of ACT for treatment of depression [17,22], obsessive compulsive disorder [29,30], and mixed anxiety disorders [31]. The American Psychological Association Division 12 supports the use of ACT in depression and pain treatments

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and lists ACT as an “evidence-based” practice on SAMHSA’s National Registry of Evidence-based Programs and Practices [32]. Recently, ACT has been applied to individuals with psychosis with promising results [33-37]. Ost defines the use of ACT for psychotic symptoms as possibly efficacious based on the systematic review and meta-analysis done in 2014 [38]. Khoury et al. support the feasibility and effectiveness of mindfulness for individuals with psychosis, specifically in treating the negative symptoms [13]. Bach et al. analyzed two datasets and found that ACT reduced hospitalization and symptom legitimacy [39]. ACT addresses other aspects of psychosis that cannot be solved with medications. Patients with psychosis have maladaptive behaviors, and ACT is attempted to reduce distress and disruption of life associated with hallucinations and delusions resulting in a global improvement of the patient with psychosis.

The aim of the current study was to conduct an up-to-date systematic review and meta-analysis of randomized clinical trials to assess the overall efficacy of ACT as compared to treatment as usual (TAU) for psychosis. We expected that ACT would outperform control conditions when all studies were combined [35].

## Methods

The PRISMA guidelines were followed to assure that all relevant items were reported in the systematic review and meta-analysis [40]. A protocol was created with specific inclusion and exclusion criteria to be followed by the authors who did the search. The protocol of the systematic review and meta-analysis was not included in any registry due to it is not a common practice up to now. This review was required due to lack of data about this specific topic. A search was done using the Database of Abstracts of Reviews of effects (DARE) and the Cochrane Database of Systematic Review following the recommendation of CRD’s guidance [41]. Experts in the field (Steven Hayes, PhD, co-founder of ACT, and Akihiko Masuda, PhD) were included in the advisory group. The objective of this review is to assess the overall efficacy of ACT as compared to treatment as usual for psychosis.

## Data sources

A systematic review of English articles using PsycINFO, Medline, Ovid, SCOPUS, the Cochrane Central Register of Controlled Trials, Web of Science, Clinical Trial.gov, EMBASE, APA PsycNET, and PubMed from January 1990 to December 2014 was conducted. The following combination of search words were used: “acceptance and commitment therapy” or “ACT,” “randomized,” “clinical trials,” “psychosis,” “schizophrenia,” and “major depressive disorder AND psychosis.” These words were searched as key words, title, abstract, and MeSH subject heading terms. All studies were read by two authors and checked for eligibility. Additional search was complemented with previous meta-analyses and review articles. All obtained studies in the references list were also checked.

## Study selection

Studies meeting the following inclusion criteria were selected for the meta-analysis: a) randomized clinical trial of ACT or treatment as usual (TAU); b) TAU defined as medical treatment and group psychotherapy or individual psychoeducation; c) ACT delivered in an individual format; d) human participants of any age; e) published in English; and f) diagnosis of psychosis, schizophrenia, or major depression with psychosis.

**Exclusion criteria:** a) single case reports; b) non-randomized trials; c) implementation of motivational interviewing, family engagement,

behavioral therapy or social skill training besides ACT; d) active treatment in group format; e) secondary analysis of a data set and f) comparative group other than TAU as defined.

## Analysis

Mantel and Haenszel approach was used to determine the heterogeneity in the study [42]. Heterogeneity was measured using I-squared. In this study, I-squared value above 75% was considered indicative of significant heterogeneity effect. In absence of heterogeneity, the fixed effects model was considered as the final model for estimating the effect size and 95% confidence interval (CI). Since we did not find significant heterogeneity effect, a fixed effect model was used to obtain the combined effect of ACT on various outcomes as compared to TAU. For quantitative outcomes, standardized mean difference (SMD) between ACT and TAU was used to summarize effect size, while relative risk (RR) was used for categorical outcomes along with 95% confidence interval (CI). Forest plot was used to demonstrate the important finding in the study. All the statistical analysis was carried out using STATA 12.1. *p*-values less than 5% were considered significant results.

## Results

A total of 212 studies were identified through database searching, and 5 additional dissertations were added from other sources. Ninety-two studies were selected for review after removing the duplications. We excluded 88 records as noted in Figure 1, which displays a flow diagram. A total of 4 studies [33,34,36,37] were included in quantitative-synthesis; see Table 1 for characteristics of study participants. The mean age for the participants in active treatment (ACT) and in TAU was 38 years of age. Over half of the participants randomized to TAU were white and male.

## Types of outcomes

Outcome measures focused on the overall mental state as measured using the Positive and Negative Syndrome Scale (PANSS) total score. This scale is a 30-item observer rated scale used to assess the presence and severity of positive and negative symptoms. Rates of re-hospitalization were compared at 4 months.

In examining treatment outcomes, there was a significant difference between the two arms in the degree of change of negative symptoms ( $p=0.008$ ), but the difference was not significant for positive symptoms (Table 2). There was a reduction of re-hospitalization rate at 4 months

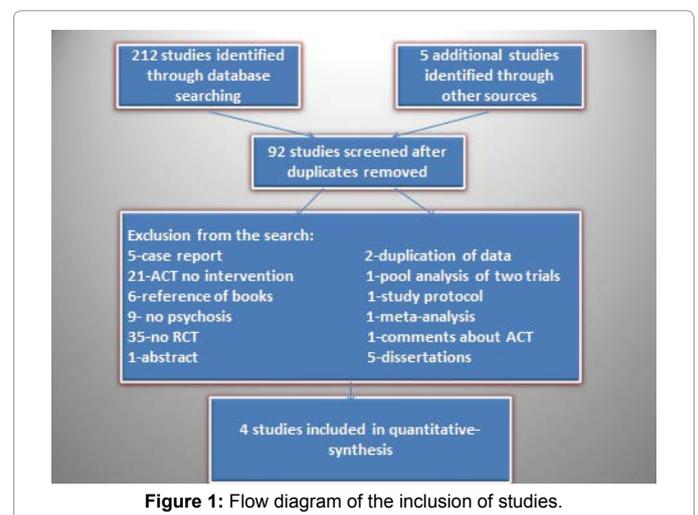


Figure 1: Flow diagram of the inclusion of studies.

Study	Target	n	Race	DX	Treatment type	Primary outcome	Outcome
Bach and Hayes	In-patients with psychosis	80	75% Caucasian-non Hispanic	SXZ 53 pts	TAU or TAU plus 4 individual sessions of ACT	Hospitalization rate at 4 month follow-up Hallucinations Delusions	ACT + TAU > TAU 20 % vs 40%  ACT produced lower belief in positive symptoms
Gaudiano and Herbert	In-patients with psychosis	40	88 % AA	Psychosis	TAU or TAU plus 3 individual session of ACT	Hospitalization rate at 4 month follow-up Hallucinations	ACT +TAU > TAU 28% vs 45% Improvements in affective symptoms, social impairment, and hallucination-related distress. No benefit of ACT compared TAU on negative symptoms
Shawyer	Outpatients with psychosis and command hallucinations in the last 6 months	43		SXZ 31 pts	15 sessions of TORCH vs Befriending vs waitlist 12 weekly sessions	Degree of compliance with harmful command hallucinations	No significant difference
Ross White	Patient with psychosis	27		SXZ	TAU or TAU plus 10 sessions of ACT	Emotional dysfunction following psychosis	ACT + TAU > TAU, greater increase in mindfulness skills and reduction in negative symptoms.

Table 1: Background data of the included ACT studies in the meta-analysis.

Variable	N	I <sup>2</sup>	SMD	95% C.I.	p-value
+ PANNS score	2	0.00%	-0.153	-0.941	0.523
- PANNS score	2	0.00%	0.648	0.166 - 1.13	0.008

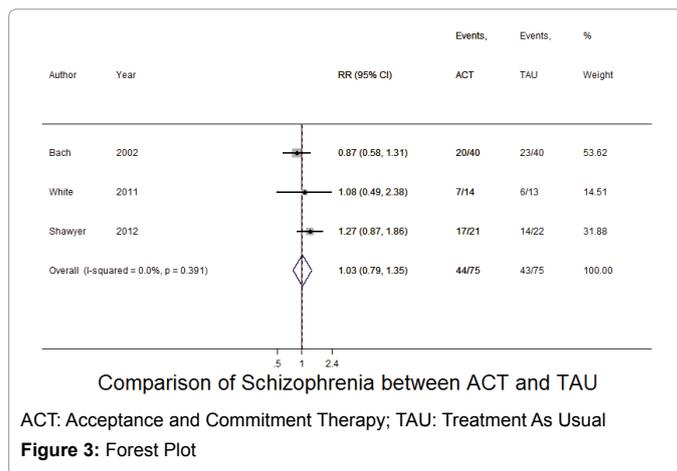
Note: PANNS: Positive and Negative Syndrome Scale; SMD: standardize mean difference between ACT and TAU; CI: Confidence Interval

Table 2: Comparison of PANNS scores between studies.

in ACT compared to TAU in participants with psychosis. There was no significant effect of ACT on participants with schizoaffective disorder but a positive trend was found when ACT was compared to TAU as seen in forest plots (Figures 2 and 3) and Table 3.

## Discussion

ACT is a mindfulness-based behavior therapy that is under-recognized by psychiatrists for psychosis treatment. ACT may be helpful in coping with either hallucinations or delusions; the rationale for treating these two symptoms with acceptance and defusion procedures

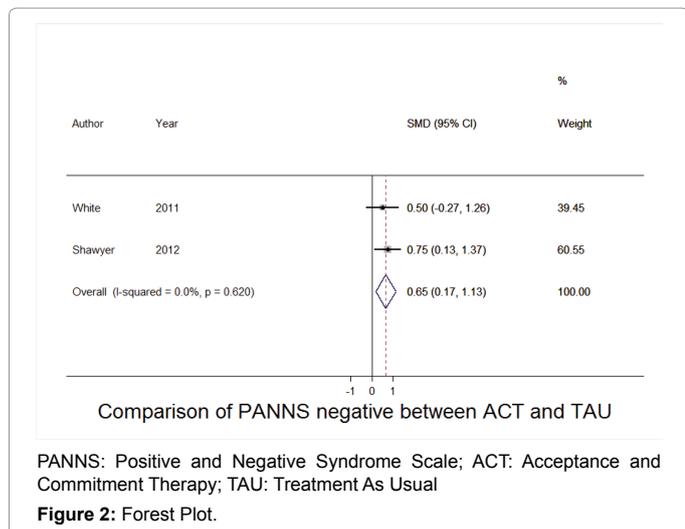


Variable	N	I <sup>2</sup>	Relative Risk	95% C.I.	p-value
Schizophrenia	3	0.00%	1.029	0.786 – 1.346	0.835
Schizo-Affective	3	25.90%	0.726	0.383 – 1.378	0.328
Re-Hospitalization	2	0.00%	0.54	0.307 – 0.95	0.033

There was a reduction of re-hospitalization rate at 4 months in ACT compared to TAU in participants with psychosis. There was no significant effect of ACT on participants with schizoaffective disorder.

Table 3: Comparison of count variables across studies.

differs. Delusions often seem to serve as explanations for personal failures that place blame outside of the individual [43]. Conversely, hallucinations may themselves become a focus of control in psychotic patients [44]. ACT targets voice hallucinations by primarily helping a patient disengage attention from the intrusiveness and verbal content of the hallucinations, while breaking associated habitual behavioral responses. ACT promotes a process of letting go of resistance to voice hallucinations when such resistance interferes with living a valued life. This process can be supported by several ACT processes: cognitive defusion, adopting the stance of a mindful observer of voice experience,



and fostering an attitude of willingness to experience voices while pursuing valued action. Our research included a more homogeneous sample of patients with a diagnosis of psychosis compared with the systematic review done by Ost who included patients with several psychiatric disorders, somatic disorders and stress reactions in work situations. Ost concluded that ACT is possibly efficacious for psychotic symptoms [38].

This meta-analysis indicates that ACT is an effective intervention in treating negative symptoms and reducing the rate of re-hospitalization at 4 months for individuals with psychotic disorders. The results suggest that ACT is a promising adjunctive therapy for patients with psychosis, in spite of the small number with different outcomes and heterogeneity of studies included in the meta-analysis.

## Conclusions

ACT for psychosis seems to be a promising therapy. More prospective studies with larger samples, extended follow up, in outpatient settings, and using a rigorous methodology are needed to confirm the obtained results. Comparisons of ACT with other modalities of active treatment are also recommended.

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