



CBT Variations in Treatment of Positive Symptoms for People with Schizophrenia: Scoping Review

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Abstract

Schizophrenia is a disorder that affects thoughts, feelings, and behavior, often accompanied by positive symptoms such as delusions and hallucinations. CBT (cognitive behavioral therapy) is a psychotherapeutic approach that help individuals with schizophrenia develop coping strategies and reduce positive symptoms. This scoping review research maps the variations of CBT types through 24 journals from PubMed, Google Scholar, and ScienceDirect (published from 2000 to 2022), which studied participants aged 18–65 years without comorbidities. CBT can be applied individually or in groups, including general cognitive behavioral therapy, acceptance-based, cognitive behavioral social skill training, brief CBT for psychosis (culturally adapted), guided self-help, and module-based for specific symptoms. Most participants in the reviewed study were of age 30 to 50, with the majority being male. Based on the scoping review conducted, CBT can be conducted with therapist guidance or self-administered. CBT was also found to be effective in addressing positive symptoms in individuals with schizophrenia.

Keywords: schizophrenia; CBT; intervention; scoping review

Schizophrenia is a serious mental disorder that affects how one thinks, feels, and behaves. Individuals with schizophrenia may lose touch with reality, which can cause significant distress to themselves, their families, and friends (National Institute of Mental Health, 2020). This disorder is characterized by certain symptoms; positive symptoms, which include delusions and hallucinations; and negative symptoms, which encompass flat affect, avolition, and anhedonia. There are other symptoms, such as catatonic behavior and disorganized speech (American Psychiatric Association, 2013).

According to World Health Organization (WHO) data from 2022, schizophrenia affects approximately 24 million people or 1 in 300 people (0.32%) globally. In Indonesia, based on Riskesdas data from 2018, the prevalence is 6.4‰ for urban areas and 7.0‰ for rural areas. Generally, the onset of schizophrenia begins in late adolescence to mid-30s, but it is very rare in early adolescence (American Psychiatric Association, 2013). WHO (2022) explained that the onset of schizophrenia starts around late adolescence to the 20s and can occur earlier in men than in women. Schizophrenia is associated with disability and can affect educational and occupational performance of individuals (World Health Organization, 2019). People with schizophrenia are 2 to 3 times more likely to die earlier due to physical illnesses, e.g., cardiovascular, metabolic, and infectious diseases (WHO, 2022).

To date, there are several common approaches to managing schizophrenia, including psychopharmacological and psychological therapies. Pharmacological therapy is provided by psychiatrists to reduce emerging positive and negative symptoms (Rubio & Kane, 2022). Some commonly

prescribed medications for individuals with schizophrenia include chlorpromazine, risperidone, haloperidol, quetiapine, aripiprazole, and other antipsychotic drugs. Recent reviews have shown the potential benefits of atypical antipsychotic treatments (Stahl, 1999; Stephenson and Pilowski, 1999; in (Rector et al., 2003). Although pharmacotherapy is largely effective in treating acute psychosis and preventing relapse, most patients continue to experience occasional, at times persistent, hallucinations and delusions, negative symptoms, cognitive impairment, and chronic disability due to impairment in social and occupational functioning (Rector & Beck, 2001).

In addition to pharmacological therapy, psychological support is usually provided to individuals with schizophrenia and their caregivers, one of which is the cognitive behavioral model (Barbato et al., 1997). The cognitive approach focuses on subjective responses to dysfunctional thoughts or perceptions. This approach attempts to modify beliefs linked to delusions and ways to cope with auditory hallucinations. The strength of this model lies in its therapeutic goal, which is to build natural coping strategies in individuals with schizophrenia when facing positive symptoms, thus linking professional interventions with self-help efforts (Barbato et al., 1997). The goals of CBT used in addressing psychosis symptoms include: a) establishing a strong therapeutic alliance, characterized by acceptance, support, and collaboration; b) psychoeducation about the nature of psychosis within a biopsychosocial model to reduce stigma and normalize these experiences; c) reducing stress associated with the disorder; d) cognitive and behavioral interventions to reduce the frequency of delusions and hallucinations, and distress associated

with them; e) targeting comorbid affective states, e.g., anxiety and depression; and f) reducing relapse (Rector & Beck, 2001).

Individual cognitive behavioral therapy for schizophrenia is similar to individual supportive psychotherapy in emphasizing therapeutic alliance, aiming to strengthen adaptive coping, and focusing on the patient's current life situations (Kates & Rockland as cited in (Dickerson, 2000)). However, CBT involves a series of interventions that specifically target the patient's psychotic symptoms (Scott & Dixon as cited in (Dickerson, 2000)). In this therapy, the therapist and patient will focus on discussing and examining the specific symptoms experienced by the patient (). One part of the cognitive domain is belief modification (Beck, 2011). In the belief modification component, patients are asked to perceive delusions as one possible interpretation of an event. Patients are not told that the belief is wrong, but are asked by the therapist to consider alternative views of the belief. The therapist will also explain how behavior and attitudes can be influenced by the beliefs held. This approach aims to weaken the patient's beliefs by challenging them. This approach has shown a reduction in the strength of voice-related delusions in 3 of 4 cases; the level of belief dropped from almost 100% to less than 25% for most delusions (Dickerson, 2000).

A meta-analysis conducted by Sommer et al. (2012) showed beneficial effects of cognitive-based therapy on targeted schizophrenia symptoms (33 studies; effect size = 0.40) as well as significant effects for positive symptoms (32 studies), negative symptoms (23 studies), general functioning (15 studies), mood (13 studies), and social anxiety (2 studies) with effect sizes ranging from 0.35 to 0.44.

Although 32 studies reported significant effects for positive symptoms, only 26 studies specifically targeted interventions on positive symptoms. Additionally, a study conducted by Health Quality Ontario (2018) showed that CBT for psychosis, compared to usual care provided to individuals with schizophrenia, can reduce overall psychotic symptoms and positive symptoms, but has inconsistent results at the end of treatment. Furthermore, research conducted by Mortan Sevi et al. (2019) showed that both CBT-group and COPE-CBT can reduce or alleviate the occurrence of hallucinations, delusions, negative symptoms, depression, anxiety, and improve the quality of life of individuals with schizophrenia, but only COPE-CBT is superior compared to routine care. COPE-CBT also has advantages in several measures compared to CBT.

Several scoping reviews have been found, e.g., a study conducted by Chen et al. (2015) that aimed to map integrated care pathways (ICP) for the treatment of schizophrenia; a study by Fitzgerald and Ratcliffe (2020) that mapped gamification techniques in addressing symptoms faced by individuals with severe mental disorders; and Jacobsen et al. (2018) who sought to map psychological interventions that can be provided to address psychosis in inpatient settings. Meanwhile, there are numerous systematic literature reviews conducted to determine the effectiveness of CBT in addressing schizophrenia symptoms ().

This study aimed to map the variations of CBT types that can be provided to individuals with schizophrenia in

addressing their positive symptoms. This is because there has been no research attempting to map the variations of CBT conducted and the session durations that can be provided to individuals with schizophrenia. Additionally, the selection of this therapy for research is based on a review conducted by Bouchard et. al. as cited in (Rector & Beck, 2001) where cognitive restructuring, a component of CBT, was found to reduce domain symptoms. Furthermore, referring to the study conducted by Shafti (2019), psychological therapy provided alongside pharmacology has shown quite good post-treatment effects, prompting researchers to further map CBT in addressing schizophrenia symptoms. This study can serve as a reference for future research aiming at determining the most effective CBT intensity in addressing positive symptoms.

The research questions posed in this study included:

- 1.) What are the criteria for individuals with schizophrenia to be given CBT?
- 2.) What types of CBT can be provided to individuals with schizophrenia?
- 3.) Which professionals are involved in providing CBT therapy?
- 4.) What interventions are provided in conjunction with CBT to address positive symptoms of schizophrenia?

1. Methods

1.1 Study Design

This study used the scoping review method. A scoping review is ideal for determining the scope or coverage of the literature on a topic and provide a clear indication of the volume of literature and research available, as well as an overview (either broad or detailed) related to the focus being studied. This method is useful for examining emerging evidence that cannot yet be explained by systematic review research (Armstrong, et. al. as cited in (Munn et al., 2018)). The general purpose of conducting a scoping review is to identify and map the available evidence (Arksey & O'Malley; Anderson, et. al. as cited in (Munn et al., 2018)).

The literature search was conducted on search engines such as PubMed, Google Scholar, and ScienceDirect using the following keywords: a) "Cognitive Behavioral Therapy" OR "CBT" OR "Cognitive Therapy"; b) "Schizophrenia" OR "Psychosis" OR "Schizo" OR "Schizoaffective disorder"; c) "Effectiveness" OR "Efficacy" OR "Effectivity"; d) "Randomized Controlled Trial" OR "Controlled Trial". The journals obtained were then selected using the Rayyan Systematic Review tool to check the relevance of the titles and abstracts with the PCC (Population (or participants)/Concept/Context) framework. After selection using Rayyan, the data were further analyzed to check the relevance of the journal content with the research objectives. Once the selection was completed, the data from the journals that matched the research objectives were extracted. See Table 1

1.2 Inclusion Criteria

Studies will be included when they fulfill the following criteria: a) focuses on people who are diagnosed with schizophrenia and not undergoing hospitalization, b) the study was published and available in a database, and c) discusses CBT therapy given to people with schizophrenia. See Table 2

Table 1
Database Search String

Effectiveness of CBT in People with Schizophrenia									
Effectiveness	AND	Cognitive Behavioral Therapy	Schizophrenia / Schizo	AND	Positive Symptoms	AND	Randomized Controlled Trial	OR	Controlled Trial
Efficacy		CBT	Psychosis						
Effectiveness		CBT	Schizophrenia / Schizo						
Efficacy		Cognitive Behavioral Therapy	Psychosis						

Table 2
PCC

PCC	Inclusion
Population	People with Schizophrenia
Context	Cognitive Behavioral Therapy compared to Treatment as Usual or other psychotherapies
Concept	May reduce positive symptoms of schizophrenia

1.3 Protocol and Registration

This study received approval from the Research Ethics Commission of the Faculty of Psychology, Universitas Gadjah Mada with registration number 8833/UN1/FPSi.1.3/SD/PT.01.04/2022. Meanwhile, the protocol used in this study has been registered with the Open Science Framework with DOI registration number 10.17605/OSF.IO/KJFT8

1.4 Data Extraction

The article selection process was conducted in two stages. The first stage involved the selection of titles and abstracts, followed by the selection of full-text articles. During the title and abstract stage, screening was performed by a single reviewer, HP, who extracted data from 4,284 journals. In the full-text stage, two reviewers, HP and LS, reviewed a total of 3,833 journals separately. The article selection was conducted independently using Rayyan.ai. During the title and abstract screening, HP marked journals that did not meet the criteria for exclusion. Subsequently, the full-text selection was also conducted independently, and discussions were held only after the entire selection process was completed. A total of 24 journals met the criteria and were then extracted into Microsoft Excel 365. The information extracted included: researcher names and publication year; research title and objectives; research methodology; components of the therapy provided (including therapy objectives); media used and implementation of therapy; participant characteristics; comparing therapy; therapy providers; and therapy effects.

1.5 Data Analysis

This study used a mapping review/systematic map approach for data analysis. The analysis focuses on the volume, quantity, and quality of the literature, possibly including study design and other key features. This approach can identify the need for primary or secondary research. It is a valuable tool for policymakers, practitioners, and researchers to obtain relevant data related to the practices being conducted. Mapping reviews can

characterize studies in other ways, such as by theoretical perspective, population groups, or settings in which the studies were conducted. In addition to describing the research field, systematic maps can also provide a basis to determine the need for an in-depth review and synthesis of all studies or just a subset. These maps can show whether the total population of studies is sufficiently similar for coherent synthesis. They can also determine whether these studies will help answer the review questions and address pragmatic considerations about the resources available to complete the review (Grant & Booth, 2009).

In a scoping review, the results can be presented as a 'map' of data in logical, diagrammatic, or tabular form, and/or in a descriptive format aligned with objectives and scope. Tables and charts can show the distribution of studies by year or publication period (depending on each case), country of origin, area of intervention (clinical, policy, education, etc.), and research methods. After that, reviewers are free to decide which format most rationally and clearly depicts the nature of the results in terms of the study's objectives and questions. The summary of results should logically describe the intent or objectives of the included articles, the concepts or approaches adopted in each, and the outcomes related to the review questions. For each category, a clear explanation should be provided (Peters et al., 2015).

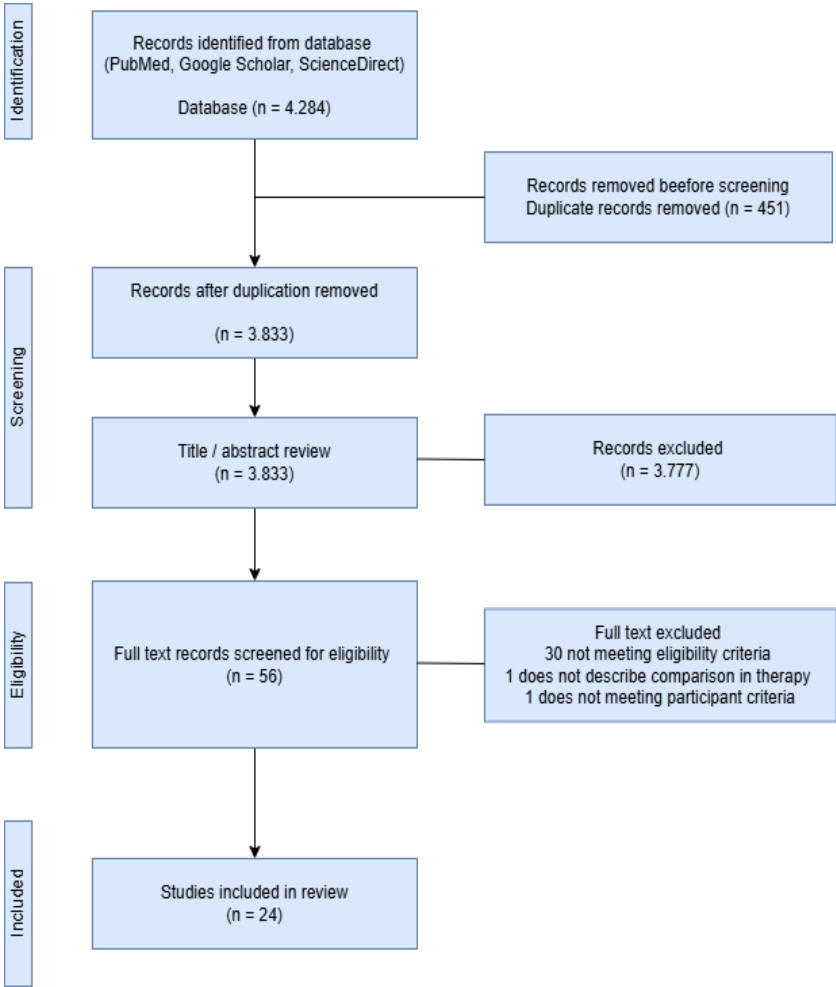
1.6 Results

The findings of this study were analysed based on the PCC guidelines used. See Figure 1

Figure 1 shows that the search across three databases (PubMed, Google Scholar, and ScienceDirect) yielded 4,284 articles. All the obtained articles were then imported into the Rayyan.ai software. After all the data were entered, the researchers re-screened each article to identify any duplicates from the collected studies. A total of 451 articles were identified as duplicates and were excluded from the next step.

The following step was the selection of titles and abstracts, where it was found that 3,777 articles did not meet the criteria as they did not use randomized controlled trials, were not research journals, did not target participants who were individuals with schizophrenia, did not focus on positive symptoms (either primary or secondary), and did not use CBT to treat schizophrenia. The screening results using the Rayyan application yielded 56 journals for further review.

Figure 1
PRISMA Diagram of the Study



The final screening was conducted by reading the full-text articles based on the established inclusion criteria. At this stage, the researchers were assisted by LS and SK in the review process. Based on the review results, it was found that 30 studies were excluded for not meeting the criteria, one journal did not provide an explanation regarding the comparing therapy, and one journal did not have targeted participant characteristics. Thus, 24 journals were included in this study.

1.7 Demographic Characteristics

The average age of participants involved fell within the following age ranges: 30-39 years (41%), 40-49 years (45%), and 50-59 years (14%).

There were two studies that did not provide demographic information on the age or gender of the participants. Based on the literature review, cognitive-behavioral therapy is typically administered to participants aged 18–65 years. In other literature not included in the reviewed journals, it is noted that cognitive behavioral therapy for psychosis can be administered to individuals as young as 16 years old, particularly those experiencing their first episode of schizophrenia (Liu et al., 2019).

Most studies involved participants aged 18 and above. This is explained in a study by Haddock et al. as cited in (O'Keeffe et al., 2017) which found that participants diagnosed with schizophrenia who are over 21 years old respond better to CBT than those under 21. Additionally, participants with higher educational level also respond better to CBT for psychosis (Kukla, et al. as cited in (O'Keeffe et al., 2017).

Rathod et al. (2005) indicated that younger patients show improvement in insight post-therapy. Eleven studies provided specific information on the gender distribution of research participants, with 68% being male and 32% female. Regarding gender, it was found that women with schizophrenia showed a greater reduction in overall symptoms and an improvement in insight (Brabban et al., 2009) in (O'Keeffe et al., 2017). Women, in general, may be better at processing, identifying, and distinguishing emotions than men. They may also be more skilled at forming relationships and alliances both inside and outside of therapy. Therefore, typically women should respond better to CBT (Brabban et al., 2009). Women in both diagnostic groups had better premorbid adjustment, less symptom misattribution, and a later start of regular drug use compared to men.

Women, however, showed a greater reduction in PANSS (Positive and Negative Syndrome Scale) depression scores than men. A significant gender-by-time interaction for drug dependence in the primary psychosis group reflected reduced drug use among primary psychosis women during the two-year follow-up period than men, and a significant gender-by-time interaction for positive symptoms in the substance-induced psychosis group. This indicated that women with schizophrenia experienced fewer positive symptoms during the follow-up period compared to their male counterparts (Caton et al., 2014).

Conversely, a study by Lincoln et al. as cited in O'Keeffe et al. (2017), which involved 73 participants, found that gender had no significant effect on positive and negative psychosis symptoms. The higher number of male

participants compared to their female counterparts may be influenced by the onset of schizophrenia itself, where men show an earlier symptoms of the disorder, a higher tendency for negative symptoms, lower social functioning, and comorbid substance abuse compared to women, while women show a relatively later onset with more affective symptoms (Li et al., 2014).

The following is the distribution of countries where CBT research was conducted: the United Kingdom (59%); the United States (21%); and the Netherlands, Pakistan, Germany, Canada, and Australia (each at 4%). Currently, CBT has become the gold standard for treating schizophrenia symptoms in the United Kingdom and is gradually spreading to the United States (A. K. Morrison, 2009). The limited application of CBT for treating schizophrenia in Asia or other areas may be influenced by several factors, such as differences in service structures across countries and skepticism towards non-medical treatments for schizophrenia (Wykes, et al. as cited in (Wong et al., 2019). Another possible factor affecting the limited use of CBT in treating schizophrenia is the assumptions and competencies of therapists in administering CBT to psychotic patients (Wong et al., 2019). See Table 3

Table 3
Participant Description

Keywords	References
Types of Psychotherapy	
Cognitive Behavioral Therapy	Garety et al. (2008); Valmaggia et al. (2005); Gumley et al. (2003); Turkington et al. (2004); Startup et al. (2006); Turkington, Kingdon, Rathod, et al. (2006)
Brief Cognitive behavioral therapy	Naeem et al. (2014); Brabban et al. (2009)
Group Cognitive Behavioral Therapy (or Group Person Based Cognitive Behavioral Therapy)	Bechdolf et al. (2004); Penn et al. (2009); Barrowclough et al. (2006); Chadwick et al. (2016)
functional Cognitive Behavioral Therapy	Cather et al. (2005)
Cognitive behavioral therapy for worry	Foster et al. (2010); Freeman et al. (2015)
Acceptance-based cognitive behavioural therapy for command hallucinations	Shawyer et al. (2012)
Cognitive Behavioral Social Skill Training	e. Granholm et al. (2005); E. Granholm et al. (2006)
Cognitive Behavioral Therapy for psychosis based Guided Self-help (CBTp-GSH)	Naeem, Johal, et al. (2016)
Cognitive behavioral therapy in clozapine - resistant schizophrenia (FOCUS)	A. P. Morrison et al. (2018)
Cognitive behavioral therapy for psychosis	Rathod et al. (2013), Rector et al. (2003)
Guided self-help cognitive-behaviour Intervention for VoicEs	Hazell et al. (2017)
Cognitive behavioral therapy for voices	Wykes et al. (2005)
Comparing Treatment	
Treatment as Usual	Foster et al. (2010); E. Granholm et al. (2006); Naeem et al. (2015); Naeem, Khoury, et al. (2016); Garety et al. (2008); A. P. Morrison et al. (2018); Rathod et al. (2013); Rector et al. (2003); Gumley et al. (2003); Turkington et al. (2002); Barrowclough et al. (2006); Chadwick et al. (2016); Hazell et al. (2017); Startup et al. (2006); Turkington, Kingdon, and Weiden (2006); E. Granholm et al. (2006); Brabban et al. (2009); Wykes et al. (2005)
Family Intervention	Garety et al. (2008)
Supportive Counselling	Penn et al. (2009); Valmaggia et al. (2005)
Befriending Therapy	Shawyer et al. (2012); Bechdolf et al. (2004)
Psychoeducation	Cather et al. (2005)
Standard Care	Freeman et al. (2015))
Age of Intervention Group (Range)	
30 – 39 years old	Bechdolf et al. (2004); Valmaggia et al. (2005); Rathod et al. (2013); Rector et al. (2003); Gumley et al. (2003); Barrowclough et al. (2006); Hazell et al. (2017); Startup et al. (2006); Wykes et al. (2005)
Comparing Treatment	
40 – 49 years old	Foster et al. (2010); Cather et al. (2005); Shawyer et al. (2012); Penn et al. (2009); Naeem, Johal, et al. (2016); A. P. Morrison et al. (2018); Freeman et al. (2015); Turkington et al. (2002); Chadwick et al. (2016); Brabban et al. (2006)
50 – 59 years old	E. Granholm et al. (2006); Naeem, Khoury, et al. (2016); e. Granholm et al. (2005)
Age of Control Group (Range)	
30 – 39 years old	Foster et al. (2010); Shawyer et al. (2012); Bechdolf et al. (2004); Penn et al. (2009); Naeem, Johal, et al. (2016); Valmaggia et al. (2005); Rathod et al. (2013); Gumley et al. (2003); Barrowclough et al. (2006); Startup et al. (2006); Wykes et al. (2005)
40 – 49 years old	Cather et al. (2005); A. P. Morrison et al. (2018); Rector et al. (2003); Freeman et al. (2015); Turkington et al. (2002); Chadwick et al. (2016); Hazell et al. (2017); Brabban, et. al., (2006)
50 – 59 years old	E. Granholm et al. (2006); Naeem et al. (2015); E. Granholm et al. (2006)
Education Period	
6 – 12 years	Rector et al. (2003); Chadwick et al. (2016); E. Granholm et al. (2006); A. P. Morrison et al. (2018); Valmaggia et al. (2005)
13 – 18 years	Chadwick et al. (2016); Valmaggia et al. (2005); Cather et al. (2005)
IQ	
100–105	Freeman et al. (2015); Rector et al. (2003)
106–110	Rector et al. (2003); Barrowclough et al. (2006)
Number of Sessions	
6 Sessions	Naeem et al. (2015); Freeman et al. (2015); Turkington et al. (2002); Brabban et al. (2006)
7 Sessions	Wykes et al. (2005)

Tabel 3 (Continued)

Keywords	References
12 Sessions	Shawyer et al. (2012); Penn et al. (2009); Rector et al. (2003); Chadwick et al. (2016); Hazell et al. (2017)
12 – 16 Sessions	Naeem, Khoury, et al. (2016)
16 Sessions	Cather et al. (2005); Bechdolf et al. (2004); Rathod et al. (2013)
18 Sessions	Barrowclough et al. (2006)
12 – 20 Sessions	Garety et al. (2008)
24 Sessions	e. Granholm et al. (2005); E. Granholm et al. (2006)
12 – 25 Sessions	Startup et al. (2006)
26 Sessions	A. P. Morrison et al. (2018)
Duration of Interventions	
8 weeks	Bechdolf et al. (2004); Freeman et al. (2015)
8 – 12 weeks	Turkington et al. (2002); Turkington, Kingdon, Rathod, et al. (2006); Brabban et al. (2006)
12 weeks	Gumley et al. (2003)
16 weeks	Naeem et al. (2015)
16 – 20 weeks	Rathod et al. (2013)
22 weeks	Valmaggia et al. (2005)
24 weeks	Rector et al. (2003); Barrowclough et al. (2006)
36 weeks	Garety et al. (2008); A. P. Morrison et al. (2018)
Duration per Session	
50 – 60 minutes	Startup et al. (2006)
60 minutes	Penn et al. (2009); Valmaggia et al. (2005); A. P. Morrison et al. (2018); Rathod et al. (2013); Freeman et al. (2015); Turkington et al. (2002); Hazell et al. (2017); Brabban, et. al., (2006)
60 – 90 minutes	Bechdolf et al. (2004)
90 minutes	Chadwick et al. (2016)
120 minutes	e. Granholm et al. (2005)
Therapy (CBT) Effect	
Small effect size	Foster et al. (2010); Cather et al. (2005); Shawyer et al. (2012); Bechdolf et al. (2004); e. Granholm et al. (2005); Garety et al. (2008); Valmaggia et al. (2005); A. P. Morrison et al. (2018); Gumley et al. (2003); Chadwick et al. (2016)
Moderate effect size	Penn et al. (2009); Naeem, Khoury, et al. (2016); Rector et al. (2003); Freeman et al. (2015); Barrowclough et al. (2006); E. Granholm et al. (2006); Wykes et al. (2005)
Large effect size	Naeem et al. (2015); Rathod et al. (2013); Turkington et al. (2002); Hazell et al. (2017); Startup et al. (2006); Turkington, Kingdon, and Weiden (2006)
Lower anxiety	Foster et al. (2010); Freeman et al. (2015)
Declined psychotic symptoms	Cather et al. (2005); Penn et al. (2009); Naeem et al. (2015); Valmaggia et al. (2005); Rector et al. (2003); Freeman et al. (2015); Chadwick et al. (2016); Hazell et al. (2017). Startup et al. (2006); E. Granholm et al. (2006)
Improved hallucination control	Shawyer et al. (2012)
Improved self-esteem	Bechdolf et al. (2004)
Improved social skills	e. Granholm et al. (2005)
Lower negative symptoms	Turkington, Kingdon, Rathod, et al. (2006); E. Granholm et al. (2006)
Lower relapse rate	Bechdolf et al. (2004); Gumley et al. (2003)
Lower depression	Chadwick et al. (2016)
Declined helplessness and low self-esteem	Barrowclough et al. (2006); Hazell et al. (2017)
Improved insight	Turkington, Kingdon, and Weiden (2006)
Reduced duration of hospitalization	Bechdolf et al. (2004)
Lower psychopathology	Naeem, Johal, et al. (2016); A. P. Morrison et al. (2018); Rathod et al. (2013); Turkington et al. (2002);
Unable to lower psychosis	Turkington, Kingdon, Rathod, et al. (2006); Wykes et al. (2005)
Unable to reduce relapse rate	Garety et al. (2008)
Improved psychological well-being	Freeman et al. (2015)
Country	
United Kingdom	Foster et al. (2010); Garety et al. (2008); A. P. Morrison et al. (2018); Rathod et al. (2013); Gumley et al. (2003); Freeman et al. (2015); Turkington et al. (2002); Barrowclough et al. (2006); Chadwick et al. (2016); Hazell et al. (2017); Startup et al. (2006); Turkington, Kingdon, Rathod, et al. (2006); Brabban et al. (2009); Wykes et al. (2005)

Tabel 3 (Continued)

Keywords		References
	United States	Cather et al. (2005); e. Granholm et al. (2005); Penn et al. (2005); Rector et al. (2003); E. Granholm et al. (2006);
Netherlands		Valmaggia et al. (2005)
Canada		Naeem, Khoury, et al. (2016)
Pakistan		Naeem et al. (2015)
Germany		Bechdolf et al. (2004)
Australia		Shawyer et al. (2012)

*Results reporting table refers to the scoping review conducted by Chen et al. (2015)

2. Discussion

Schizophrenia is a disorder that causes psychosis and contributes to significant disability, affecting various aspects of life, including personal, family, social, educational, and occupational functions (WHO, 2022). One of the therapies increasingly applied in the treatment of schizophrenia is Cognitive Behavioral Therapy (CBT), which aims to address both the positive and negative symptoms of this disorder. This study focused on mapping the types of CBT that could help individuals with schizophrenia manage the positive symptoms they experience.

In its application, CBT for schizophrenia varies, in which therapy modules are developed according to the specific goals of each approach. Some are even tailored to cultural factors, such as specific ethnic groups or countries. These variations have different impacts on individuals with schizophrenia, ranging from reducing positive symptoms, and decreasing concerns about delusions, to lowering the risk of relapse. However, in some cases, not all patients experience reduced relapse rates. Factors influencing the effectiveness of CBT include the modules used, the skills taught, the therapy setting, and the involvement of the support system and resources available to the patient.

Currently, CBT is considered the gold standard in psychological therapy for schizophrenia, although its application is still limited in some countries due to differences in healthcare systems and skepticism toward non-medical approaches in treating schizophrenia (Wykes et al. as cited in (Wong et al., 2019)). CBT has become the primary standard because it's studied extensively. Additionally, the mechanism of CBT aligns with the main theories in information processing and human thinking and behavior patterns (David et al., 2018). Another advantage of CBT is its potential to address symptoms that cannot be specifically targeted by antipsychotic medications. Several studies conducted with sound methodologies have shown that CBT is effective in reducing anxiety related to delusions and increasing control over harmful auditory hallucinations.

In terms of duration, CBT can be administered over varying periods, ranging from a minimum of 6 sessions over 8 weeks with each session lasting 50 minutes, to a maximum of 26 sessions over 36 weeks with each meeting lasting 90 minutes. Some countries that have implemented CBT to address positive symptoms of schizophrenia include the United Kingdom, the United States, the Netherlands, Canada, Pakistan, Germany, and Australia.

However, the meta-analytic database on the effectiveness of CBT in treating schizophrenia symptoms is still limited and the results are not entirely encouraging (Jauhar et al., 2019). Future research is expected to further explore the various components of CBT that can be developed into an effective schizophrenia treatment. Additionally, researchers need to examine the challenges faced by countries outside the United Kingdom and the United States in accessing CBT, so that more inclusive therapy guidelines can be developed and tailored to the specific conditions of each region.

Referring to Bighelli et al. (2018), it is known that CBT is also associated with a reduction in positive symptoms in people with schizophrenia compared to inactive controls. The number of sessions, duration, setting (indi-

vidual or group), therapist expertise, and initial severity did not affect the impact on participants. However, patients involved in the study generally fell into the moderate disorder category, unlike the participants in meta-analyses that compared antipsychotic drugs with placebos, where they tend to exhibit severe symptoms. This indicates that patients with severe conditions are generally not included in psychotherapy-related studies. However, this is consistent with clinical practice, as psychotherapy requires active participation and cooperation from patients, while patients with very severe conditions often do not possess this capacity.

3. Conclusion

Based on the scoping review, it can be concluded that CBT designed to reduce positive symptoms in people with schizophrenia is quite varied, whether in delivery mechanism (individual or in groups), length (number of sessions, duration of each session), instructors (therapist/counselor or self-administered), and so on.

This study certainly had limitations. Researchers did not use a more specific string of keywords, leading to the large results at the beginning of the review. This resulted in a longer time spent on the study. In addition, some of the journals reviewed did not explain more details about the intervention process carried out so the findings obtained were not optimal. The second reviewer was not involved from the beginning in selecting data so the potential of bias in this study was quite high. Not only that, there were changes in the inclusion criteria so that the record of findings changed, especially in the protocol used.

3.1 Recommendations

Future research could improve the search strings to make them more specific, which would allow researchers to identify relevant journals more easily. Additionally, all involved researchers should participate from the early stage of the data selection process—particularly when reviewing titles and abstracts—to minimize potential bias. Future research could also focus on determining the most effective intensity of CBT for individuals with schizophrenia.

4. Declaration

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This research received no funding from any party.


4.3 Author Contributions


SK contributed to the supervision of the research manuscript. HP contributed to data collection, data analysis, and manuscript writing.

4.4 Conflict of Interest

Authors declare no conflict of interest in regards to this research.

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