

COGNITIVE BEHAVIOURAL THERAPY TO REDUCE DEPRESSION IN POST STROKE PATIENTS: A SCOPING REVIEW

By Dwi Puji Susanti

Review Article

COGNITIVE BEHAVIOURAL THERAPY TO REDUCE DEPRESSION IN POST STROKE PATIENTS: A SCOPING REVIEW

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Abstract

Background: Post-stroke depression is one of the psychological disorders that is often experienced by post-stroke patients. Depression is more than just sadness. People with post-stroke depression will experience a lack of interest and pleasure in daily activities, weight loss or excessive sleep, lack of energy, inability to concentrate, feelings of worthlessness or guilt and recurring thoughts of death or suicide. Based on several studies of post-stroke depression management, psychosocial interventions have been shown to reduce the likelihood of developing post-stroke depression. One of the interventions to reduce post-stroke depression is cognitive behavioral therapy.

Objective: This scoping review aims to identify the effectiveness of cognitive behavioral therapy to reduce depression in post-stroke patients.

Design: This study used a scoping review through a review of articles on cognitive behavioral therapy that has been used to reduce depression in post-stroke patients.

Data Sources: Search for articles accessed through a database, including: CINAHL, MEDLINE, Academic search ultimate, PubMed, and google scholar with a range of search years 2011-2020.

Review Methods: Quality appraisal assessment for each selected study was conducted using the Preferred Reporting Items for scoping review (PRISMA) method.

Results: The results of this literature review show that cognitive behavioral therapy to reduce depression in post-stroke patients can change thoughts, feelings and behaviors to influence each other. The relationship between thoughts, feelings and behavior greatly influences respondents in dealing with post-stroke conditions with a positive way of thinking so that it will accelerate or help the post-stroke recovery process. The way to implement cognitive behavioral therapy is to be given as many as 12 sessions in 25-35 minutes each session. Cognitive behavioral therapy can be done in a hospital and has a significant post-stroke depression rate with $p < 0.01$.

Conclusion: Cognitive behavioral therapy can be used as an intervention to reduce depression in post-stroke patients including cognitive behavioral therapy, duration of cognitive behavioral therapy and sessions in cognitive behavioral therapy.

Keywords: *Cognitive behavioral therapy, post stroke depression.*

INTRODUCTION

Post-stroke patients always have or tend to experience permanent disabilities such as paralysis, hemiparesis, aphasia, diastria, cognitive impairment, and other forms of disability as a result of impaired brain function (Espárrago Llorca, Castilla-Guerra, Fernández Moreno, Ruiz Doblado, & Jiménez Hernández, 2015). Post-stroke patients will experience dependence on meeting basic human needs as a result of their disabilities. Dependence on the fulfillment of daily activities such as eating, bathing, dressing, and elimination will cause post-stroke patients to feel anxious, depressed, have low self-esteem, uncontrolled emotions, and always want to be noticed (Kadan & Larson, 2017).

Previous research has shown that of the seven respondents at 1 and 6 months after stroke, all respondents had a feeling of turning to negative emotions, had night symptoms, felt changes in body sensations, felt sad about themselves, and asked for spiritual help. 3 Patients with post-depression strokes tend to that sometimes calling themselves useless, stronger thoughts and emotions about sadness and frustration such as feelings of helplessness in relationships and dependence on others (Kouwenhoven, Kirkevold, Engedal, & Kim, 2011). In-depth interviews with post-stroke sufferers who suffered from depression found that they mostly had feelings of loss, hopelessness, and sadness (Kouwenhoven et al., 2011).

Reducing depression in post-stroke patients can be done through an independent nursing intervention called cognitive behavioral therapy. Previous research states that cognitive behavioral therapy can reduce symptoms of depression in some post-stroke sufferers and is very useful for use in this group of cases (K Ward et al., 2016). Cognitive behavioral therapy can help stroke patients who are depressed and it is hoped that post-stroke patients can have a better way of thinking to help the healing process (K Ward et al., 2016). Cognitive behavior therapy can be taught to respondents to overcome maladaptive thoughts

that are influenced by feelings of helplessness and the ability to control these thoughts. Changing these negative thoughts can also later change the inappropriate behavior that stroke patients have (Wang et al., 2018). The aim of this review is to identify the effectiveness of cognitive behavioral therapy for reducing depression in post-stroke patients.

METHODS

Design

The scoping review is made in five stages, namely: 1) Identifies research questions; 2) Identify relevant articles; 3) Selecting articles; 4) Map data; and 5) Summarize, analyze and report data (Arksey & O'Malley, 2005).

Search Methods

The author searches the database, namely CINAHL, MEDLINE, Academic search ultimate, PubMed, Science direct, and Google Scholar using several phrases used throughout the database of cognitive behavioral therapy, post stroke depression. The articles used with the search year range 2011-2020 on all the data obtained were collected

Search Outcome

The inclusion and exclusion criteria were as follows:

Table 1. Literature Criteria.

Research Characteristics	Inclusion Criteria	Exclusion Criteria
Design	Randomized control trial design, and quasi experimental	Descriptive study, case study, prevalence, diagnostic
Respondents	Post stroke respondents with an age > 18 years, diagnosed with ischemic and hemorrhagic strokes are undergoing treatment both in	Age under <18 years

Research Characteristics	Inclusion Criteria	Exclusion Criteria
	hospitalization and rehabilitation.	
Intervention	Cognitive behavioral therapy in post-stroke patients	Not using cognitive behavioral therapy interventions
Measurement results	There is a measure of depression as a psychological problem in post-stroke patients	There are no reports of post-stroke depression

important part of research selection is to use cognitive behavioral therapy and explain the outcome for post-stroke depression (S., 2011).

Quality Appraisal

Title, abstract and the article were reviewed independently according to inclusion and exclusion criteria. The information that should be considered each study that the full text study consists of authors, date and year of study, population, exercise type, outcome measures, study design, duration of the intervention and its intensity. Quality appraisal assessment for each selected study was conducted using the Preferred Reporting Items for scoping review (PRISMA) method.

Data was selected by deleting duplicates, articles below from the last 10 years, and articles that were not full text. The most

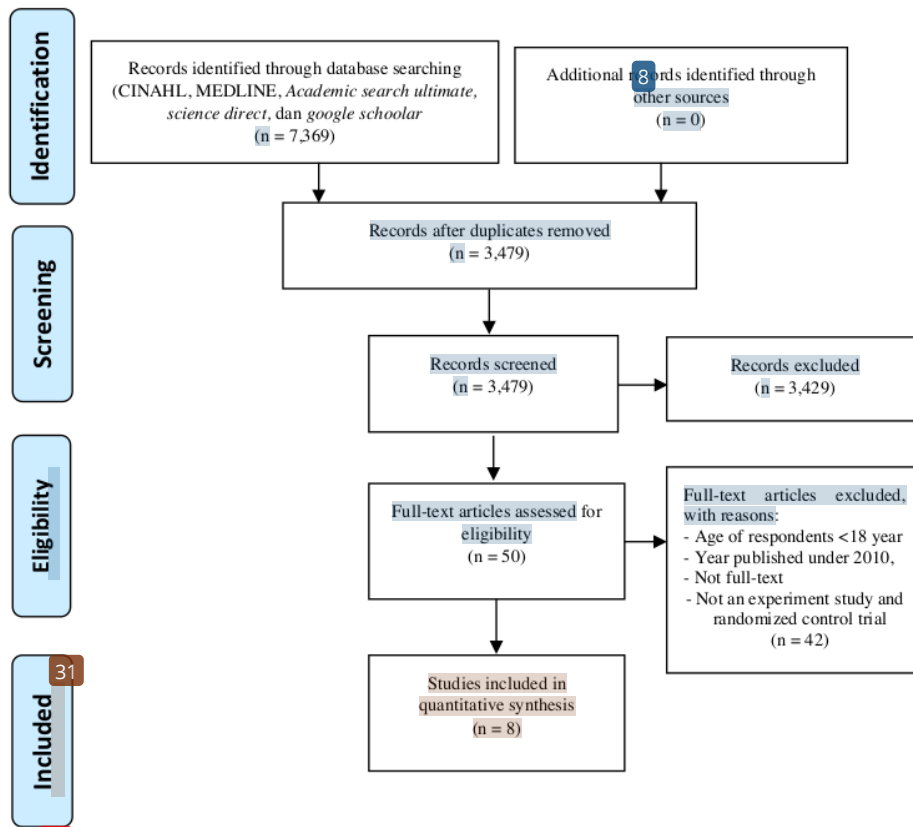


Figure 1. The PRISMA Flow Diagram is Depicting the Flow of Information through the Different Phases of the Scoping Review.

Data Abstraction

Two authors independently reviewed the abstracts of studies retrieved from the database. Search and read the full-text of potentially relevant articles. For 37 studies that met the inclusion criteria, data extraction was independently conducted by two investigators using standard data extraction templates. Disagreements in data extraction were solved by a third investigator.

Data Analysis/ Synthesis

Eight studies were selected for scoping review, Cognitive behavior therapy is a form of psychological intervention that can help individuals recognize, prioritize, and connect thoughts, feelings, and physical symptoms by using cognitive and behavior techniques. One of the cognitive behavior therapies, which carried out on 32 respondents with stroke, concluded that Negative Automatic Thought's (NAT's) and brainstorm are very effective for positive thoughts that can increase motivation in post-stroke patients to increase efforts to

achieve post-stroke recovery expectations. Extracted data of the 8 studies are presented in Table 1.

RESULTS

The articles obtained came from several countries, from 8 selected studies, research was carried out in Indonesia and other countries, namely Indonesia: 1, England: 5, China: 1, United States America (USA): 1. Of 8 research studies, 1 research is a Quasy experimental pre-post-test design, 1 study is a Quasy experimental control group design and 1 study is 6 randomized controlled trials. The number of respondents was more than 30 respondents, the average age range of participants in this study was > 18 years and over. The most widely used intervention is cognitive behavior therapy (CBT) to assess the level of depression, which can be measured using the Hamilton Depression Rating Scale (HAMD) questionnaire, Beck Depression Inventory (BDI). The respondents in this article are located at the hospital or rehabilitation location.

28 **Table 2.** Summary of Included Article Cognitive Behavioral Therapy to Reduce Depression in Post Stroke Patients.

Author / year / country	Title	Setting	Method, Measuring Instrument & Statistical Analysis	Intervention	Result
1 Potker, Caroline M van Heugten, Bart Kral, Sascha MC Rasquin, Alexander C Geurts, and Luciano Fasotti (2019) England	A Caregivers' effects of augmented cognitive-behavioral therapy for post-stroke depressive symptoms in patients: secondary analysis to a randomized controlled trial	Outpatient rehabilitation	Method: Randomized Controlled Trial Measuring Instrument: Hospital Anxiety and Depression Scale (HADS) Statistical Analysis: Secondary analyzes	1 Stroke patients and their caregivers were randomly assigned to cognitive behavioral therapy with as many respondents (n = 23) or computerized cognitive training (n = 27) given every week once every 4 months by knowing the emotional, behavioral and	36 results showed that caregivers of patients who received cognitive behavioral therapy said that the level of mental health was significantly higher (mean difference (MD) = 1.78, 95% confidence interval (CI) = 0.43–3.13, P = 0.01) and not too concerned about the patient's well-being (MD = 1.9, 95% CI = 0.56–3.24, P <0.01)

Author / year / country	Title	Setting	Method, Measuring Instrument & Statistical Analysis	Intervention	Result
7 Shi-Bin Wang, Yuan-Yuan Wang, Qing-E Zhang, Shuo-Lin Wu, Chee H. Ng, Gabor S. Ungvari, Liang Chen, Chun-Xue Wang, Fu-Jun Jia, Yu-Tao Xiang (2018) China	Cognitive behavioral therapy for post-stroke depression: a meta-analysis	Hospital	Method: Randomized Controlled Trial Measuring Instrument: Hamilton Depression Rating Scale (HAMD) Statistical Analysis: Meta-Analysis, Meta-Regression	social of stroke patients. Cognitive behavioral therapy To determine neurological function, daily life activities and cognitive function were given as much as 3-6 months	The results showed that in total, 23 studies with 1,972 participants with PSD were included and analyzed. Of the 23 RCTs, 39.1% (9/23) rated the study as high quality, while 60.9% (14/23) rated it as low quality. CBT showed a positive effect on PSD compared to the control group (23 arms, SMD = -0.83, 95% CI: -1.05 to -0.60, P < 0.00001)
18 Joyce A Kootker, Luciano Fasotti, Sascha MC Rasquin, Caroline M van Heugten, and Alexander CH Geurts (2012) England	1 The effectiveness of an augmented cognitive behavioral intervention for post-stroke depression with or without anxiety (PSDA): the Restore4Stroke-PSDA trial	Rehabilitation	Method: Randomized Controlled Trial Measuring Instrument: Hospital Anxiety and Depression Scale (HADS) Statistical Analysis: Multi-Center, General Linear Model	Cognitive behavioral therapy can be done recognizing, changing negative thoughts, cognition, and feelings together and given for 12 sessions for 6 months	The results showed that increased CBT led to a greater effect on HADS than cognitive training and that this effect would persist for at least 6 months after discontinuation of therapy, the primary end point being 6 months after treatment with Alpha 0.05.
Victor K, L. Cheung (2019) English	14 The effectiveness of Cognitive Behavioral Therapy for People with Depression Following Stroke: A Systematic	Hospital	Method: Randomized Controlled Trial Measuring Instrument: Hamilton Depression Rating Scale (HAMD)	Cognitive behavioral therapy can provide motivation, instill hope, and restore function to improve quality of life and this therapy is given for 6 months	The results showed that depression rates for CBT and controls were comparable after randomization. In 32 post-treatment phase, the CBT group showed a significant reduction in depressive symptoms compared to the control (Hedges'g [95% CI] = -

Author / year / country	Title	Setting	Method, Measuring Instrument & Statistical Analysis	Intervention	Result
	Review and Meta-Analysis		Statistical Analysis: Meta-Regression		0.52 [-0.78, -0.25], p <.001
Ward, SK, Turner, A, Hambridge, JA, Halpin, SA, Valentine, M, Sweetapple, A, White, J and Hackett, Maree (2016) USA	Group cognitive behavioral therapy for stroke survivors with depression and their cars	Inpatient and outpatient stroke	Method: Randomized Controlled Trial Measuring Instrument: Beck Depression Inventory (BDI) and Hospital Anxiety and Depression Scale (HADS) Statistical Analysis: Linear Mixed Models	Cognitive behavioral therapy can increase activity, motivation and socialization and in developing a more adaptive cognition and given for 6 months	The results showed that 48 stroke sufferers and 34 nurses attended brainstorming, with an average attendance of 88% of the sessions. Follow-up assessments were completed by 77% (post-treatment), 46% (1 month) and 38% (6 months) of stroke survivors. Stroke depression scores decreased from baseline to post-treatment (p <.001)
Nidya Rizki, Aris Budi Utomo, Ahmad Gimmy Prathama (2016) Indonesia	The Influence of Cognitive Behavior Therapy to Reduce Symptom of Depression Post Stroke Patients	Hospital	Method: Quasi Experimental Measuring Instrument: Beck Depression Inventory (BDI) Statistical Analysis: ANOVA	Cognitive behavioral therapy conducted for 7 sessions, each session for 45 minutes for 3 months related to information on cognitive behavioral therapy, NAT's, core beliefs, motivation and relaxation	The results showed that CBT had an effect on reducing the degree of depression symptoms in respondents, which was marked by a decrease in post-stroke negative emotional symptoms, increased motivation to improve health conditions and decreased physical complaints with p <.001
Joanne Woodford, Paul Farrand, Edward R Watkins, David A Richards, and David J Llewellyn (2014) England	Supported cognitive-behavioral self-help versus treatment-as-usual for depressed informal carers of stroke	Stroke rehabilitation	Method: Randomized Controlled Trial Measuring Instrument: Hospital Anxiety and Depression Scale (HADS)	Cognitive behavioral Therapy There are 12 sessions each given 25-35 minutes for 3 months in the form of behavior activation, problem solving, and goal setting	The results showed that effective psychological interventions can reduce depression. CBT can also improve quality of life, reduce stress and burden on nurses by p <.000

Author / year / country	Title	Setting	Method, Measuring Instrument & Statistical Analysis	Intervention	Result
	survivors (CEDArS): 38 dy protocol for a feasibility randomized controlled trial		Statistical Analysis: Linear Mixed Models		
Niall M. (2011) Tomfi eld, Ken Laidlaw, Emma Hickabottom, Marion F. Murray, Rachel Pendrey, Janice E. Whittick, and David C. Gillespie (2011) English	Post-Stroke Depression: The Case for Augmented, Individually Tailored Cognitive Behavioral Therapy	Hospital	Method: Quasi Experimental Measuring Instrument: Beck Depression Inventory (BDI) Statistical Analysis: ANOVA	Cognitive behavioral therapy can provide motivation, sadness resolution, selection optimization compensation, cognitive deficit adaptation, and executive skills training and is given for 6 months.	The results showed that CBT to help patients regulate emotions better, increase activity towards optimal function levels and maintain realistic thinking p 0.05

Cognitive behavioral therapy can understand the difficulties experienced by respondents related to providing information about the impact of depression, the impact of the role of caring on mood and cognitive behavioral therapy has an effect on reducing the degree of depression symptoms in respondents, which is characterized by decreased negative emotional symptoms after stroke, increased motivation to improve health conditions and decrease physical complaints. Respondents were also taught to recognize, register, and change negative thoughts, cognitions, and feelings together and this cognitive behavioral therapy can be applied in everyday life.

*Components of cognitive behavioral therapy:
Cognitive behavioral therapy*

Several studies related to cognitive behavioral therapy focus on activating behavior, solving problems, changing negative

thoughts, cognition, and feelings together. Therapeutic goals are set in terms of increasing participation in activities that are meaningful or enjoyable (Farrand, Woodford, Coumoundouros, & Svedin, 2020). Therapy begins with building relationships that create a safe atmosphere, psychoeducation moods and guiding and preparing patients for the next phase (Cuijpers et al., 2014). Cognitive behavioral therapy on improving mood by increasing activity, motivation, and socialization in developing a more adaptive cognitive (Kootker et al., 2017). Cognitive behavioral therapy techniques include psychoeducation, mood monitoring, activity monitoring and planning, monitoring thoughts and challenges (K Ward et al., 2016).

Duration of cognitive behavioral therapy

Several studies have discussed the duration or duration of cognitive behavioral

therapy to reduce depression in post-stroke patients. Cognitive behavioral therapy can be given with a duration of 35 minutes, with each session and carried out for 6 months (Broomfield et al., 2011). Cognitive behavioral therapy can also be given with a duration of 2-3 hours and the administration is carried out for 6 months. This program is run in a span of 4 months, Each session is conducted for 20-25 minutes (K Ward et al., 2016).

Session in cognitive behavioral therapy

Several studies related to cognitive behavioral therapy sessions to reduce depression in post-stroke patients. Respondents received 1 assessment session to 12 sessions, cognitive behavioral therapy in everyday life and content sheets were given each session consisting of 12 sessions (Broomfield et al., 2011). Other respondents were also given 7-10 sessions with a duration of 2-3 hours. First, cognitive behavioral therapy was carried out for 7 or 8 sessions a week. Cognitive behavioral therapy is extended with 2 sessions for groups of 6-8 (6 sessions a week), followed by 2 sessions of 2 weeks, and then 2 sessions a month (K Ward et al., 2016).

DISCUSSION

Categorize some cognitive behavioral therapy in a trial measuring the level of depression, the writer categorized it in the form of cognitive behavioral therapy. The differences were not only in the name of the intervention but in duration and intensity. Several articles state that cognitive behavioral therapy has benefits for respondents for some populations, it is run in a span of 4 months, each session is conducted for 20-25 minutes (Kootker et al., 2015). Several articles used as a review state that patients with moderate and severe levels of depression, cognitive behavioral therapy can be used as a solution as a reference for providing independent nursing interventions (Schmid et al., 2011). A number of 1 article uses more than one measuring tool that is related to each other (Farrand et al., 2020).

Several articles have concluded that group cognitive behavioral therapy is highly recommended for reducing post-stroke depression (Loubinoux et al., 2012). Cognitive behavioral therapy is a form of psychological intervention that aims to help individuals recognize, prioritize, and connect thoughts, feelings, and physical symptoms using cognitive and behavioral techniques. One of the cognitive behavioral therapy, which was carried out on 32 respondents with stroke, concluded that cognitive behavioral therapy, the duration of cognitive behavioral therapy and sessions in cognitive behavioral therapy are very effective for positive thoughts that can increase motivation in post-stroke patients to increase efforts to achieve post-recovery expectations. Stroke (Kootker et al., 2015).

Cognitive behavioral therapy can positively affect psychosocial functioning, and rehabilitation can improve quality of life (Uebelacker, 2017). Innovative aspects of cognitive behavioral specifically can be proposed with movement therapy to facilitate behavior change in real life by promoting and encouraging activities that are meaningful or fun (Kootker et al., 2015). Cognitive behavioral therapy can be tailored to the needs of stroke sufferers. This effective psychological intervention can reduce depression in post-stroke patients. In addition to improving mood, cognitive behavioral therapy can also improve the quality of life and burden of nurses. Improvement in post-stroke depression can also improve stroke survivor recovery itself as well as a cost-effective model of care (Farrand et al., 2020). Findings from the overall review of interventions above identify additional evidence about cognitive behavioral therapy for reducing depression in post-stroke patients (Zhao et al., 2018).

CONCLUSION

This review can answer the research objectives, namely to find several interventions related to cognitive behavioral therapy that can reduce depression in post-stroke patients

including cognitive behavioral therapy, duration of cognitive behavioral therapy and sessions in cognitive behavioral therapy. This research can help inform cognitive behavioral therapy that post-stroke patients can do in the future. Overall, this very simple and cost-effective, non-pharmacological intervention is used to reduce depression in post-stroke patients. The findings obtained from the scoping review process found that post-stroke depression decreased significantly with cognitive behavioral therapy.

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DECLARATION OF CONFLICTING INTEREST

No conflict of interest in this study.

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AUTHOR CONTRIBUTION

Dwi Puji Susanti: Contribution in design, perform collecting article and analyze the literature.

Niken Safitri Dyan Kusumaningrum: Contribution for involved in planning and supervised the work of scoping literature review.

Fitria Handayani: Contribution for discussed the results and contributed to the final manuscript.

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