



## The Effect of Cognitive Behavioral Therapy for Trauma on Children Victims of Disasters: A Literature Review

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### ABSTRACT

Disasters can happen anywhere and anytime and can cause trauma to anyone who experiences them. Trauma is a psychological problem caused by unpleasant events or scary events that can happen to a person, including children. The purpose of this literature review was to identify the studies that have been conducted on the effect of CBT in overcoming trauma in disaster victims. The method used was a literature review by searching for articles using databases such as: PubMed, ProQuest, Science Direct, and Google Scholar, with Indonesian and English keywords. 10 articles matched the inclusion criteria, two of which used the CBT method combined with other interventions, while the other eight studies only used the CBT method, and all of which were proven to have an effect on reducing the PTSD score of disaster victims, so CBT can be applied to children disaster victims in Indonesia.

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### Kata kunci:

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### ABSTRAK

Bencana dapat terjadi dimanapun dan kapanpun serta dapat menyebabkan trauma pada seseorang yang mengalaminya. Trauma adalah sebuah masalah psikososial yang disebabkan oleh kejadian-kejadian yang tidak nyaman, menakutkan yang dapat terjadi pada seorang individu, termasuk anak. tujuan dari studi literatur ini adalah untuk mengidentifikasi beberapa penelitian yang telah dilakukan terhadap efek CBT dalam mengatasi trauma pada anak korban bencana. Metode yang digunakan adalah studi literatur dengan pencarian artikel menggunakan basis data seperti PubMed, ProQuest, Science Direct, dan Google Scholar, dengan menggunakan kata kunci bahasa Inggris ataupun bahasa Indonesia. Didapatkan 10 artikel yang sesuai dengan kriteria inklusi, dua penelitian menggunakan metode CBT yang dikombinasikan dengan intervensi yang lain, sementara delapan penelitian hanya menggunakan metode CBT, dan semuanya memberikan efek menurunkan skor PTSD pada korban bencana, sehingga CBT dapat digunakan untuk anak korban bencana di Indonesia

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### INTRODUCTION

Based on Undang-Undang No 24, 2007, disaster is an event or series of events that can disrupt the lives of residents in an area which can be caused by natural factors

and/or non-natural factors, as well as human factors, resulting in human casualties, environmental damage, property losses, and psychological impacts.

In general, disasters always cause casualties, and children are a group that is very vulnerable to becoming victims.

Disasters often threaten the lives of so many children around the world. There are 66 million children affected by disasters every year (Muzenda-Mudavanhu, 2016).

Trauma events due to disasters in children cannot be left alone, especially on the psychological conditions caused. Thoyibah's research found that there was a change in the attitude of children affected by disasters, such as children becoming often crying, sensitive, irritable, crying when they heard someone making loud noises and also panicking easily, children becoming easily worried when entering the house, becoming silent a lot. and withdraw from the environment (Thoyibah et al., 2019). There are about 4.5% - 95% of earthquake victims children and adolescents showing symptoms of post-traumatic stress disorder (PTSD) (Zhang et al., 2015). Children who are victims of disasters need intervention or trauma healing to overcome their trauma due to the disaster. Trauma healing is a post-traumatic therapy process that is carried out so that the sufferer can live a life without those shadows again. Trauma healing can also be provided by nurses.

One study in Nigeria involved school nurses in dealing with trauma to children who were in war zones, using a randomized sampling technique involving 15 school nurses, 14 teachers, and 109 secondary school children. The intervention provided is in the form of a School-Based Psychosocial Intervention, which is in the form of training for school nurses for 3 days regarding psychological health and the need for support for at-risk groups, in this case children in war zones or social conflicts. School nurses teach teachers about the material that is obtained, then the teachers apply it in the classroom for their students. The results of the intervention showed a significant increase after 6 weeks of post-intervention which included an increase in the average knowledge of teachers and nurses, children's depression scores decreased, children's resilience increased, self-esteem, and increased social connections in children (Olowokere & Okanlawon, 2013). Based on this research, it can be seen that

nurses can play a role in efforts to overcome trauma in children.

In overcoming the problem of post-disaster trauma, nurses can perform their role as preventive and rehabilitative agents. In trauma healing activities nurses can perform their role as rehabilitative agents such as carrying out nursing interventions to restore trauma experienced by children due to natural disasters that befell them, many choices of trauma healing methods, such as play methods, as well as consultation methods, as well as other interventions such as cognitive behavioral therapy (CBT). CBT is the most frequently used intervention to treat PTSD (Corsini, 2011).

Based on the description above, it can be seen that CBT is a type of intervention that is often used in dealing with post-traumatic stress disorder (PTSD), helping to eliminate post-disaster trauma in children so as to prevent the impact of trauma on children in the future. Therefore, researchers are interested in identifying the studies that have been carried out on the effect of cognitive behavioral therapy (CBT) in overcoming trauma in disaster victims.

## METHODS

The method used is a literature study. Researchers used literature sources from databases and search engines such as Google Scholar, PubMed, ProQuest and Science Direct. The keywords used are "children", "disaster", "CBT", "PTSD", "intervention", "trauma healing". The inclusion criteria in this study were full text articles, published in 2005-2021, articles in Indonesian and English. In the article search stage, 347 articles were obtained, which were then selected until 10 articles were selected that matched the inclusion criteria and then analyzed. There is also an article search flow below:

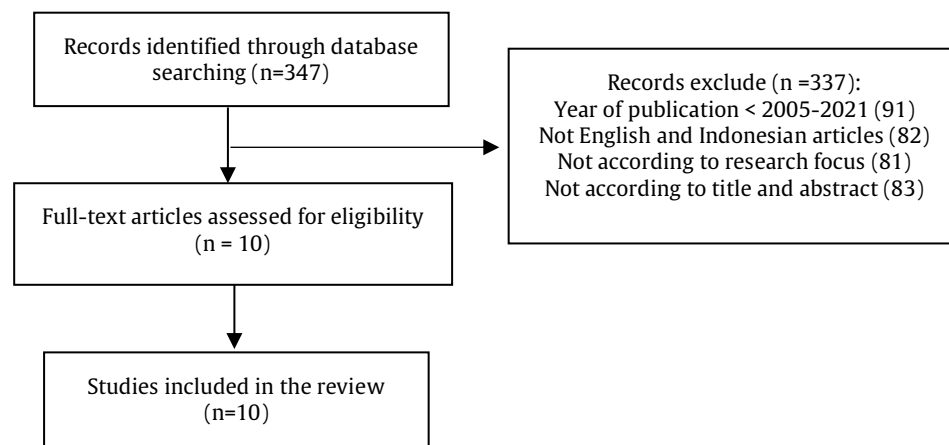


Figure 1. Articles Search Flow

## RESULTS AND DISCUSSION

Selected 10 articles were reviewed, six articles used a quasi-experimental research design, four articles used RCTs. The research was conducted in various countries, including: Indonesia (3), Thailand (1), United States (1), China (1), Iran (1), Netherlands (1), England (1) and Greece (1). The

publications of the articles reviewed ranged from 2005 – 2018. The types of disasters contained in the 10 articles are: floods, tsunamis, storms, war earthquakes, fires. The types of CBT carried out include: CBT 5 sessions, CBT 12 sessions, CBT combined with Play Therapy, CBT combined with Problem Solving Therapy (PST), CBT combined with Eye Movement Desensitization and Reprocessing (EMDR).

**Table 1**  
**Summary of Study Characteristics**

Authors, country	Types of Disaster	Sample Size	Methods	Procedure	Findings
(Dawson et al., 2018) Indonesia	Tsunami	64	RCTs	5 sessions for 60 minutes for 5 weeks and follow up after 3 months	CBT has a positive effect on PTSD. (t= 99.32, p < 0.275)
(Chen et al., 2014) China	Earthquake	40	RCTs	6 sessions of 60 minutes per week for 6 weeks	CBT has an effect on reducing PTSD. (F=4.55 p,.01)
(Smith, 2011) USA	Storm	64	Quasi experiment	12 60 minutes sessions per week	CBT has a positive effect on PTSD. (t= 0.65, p < .05)
(Shooshtari et al., 2008) Iran	Earthquake	210	Quasi experiment	9 sessions for 4 weeks 1 hour each session	CBT has an effect on reducing PTSD. (t= 9.35, p < .001)
(de Roos et al., 2011) Netherlands	Fire	11.872	Comparative study	9 sessions for 4 weeks 1 hour each session	CBT has a positive effect on reducing PTSD. (F= 1.05, p < 0.11)
(Sarimin & Tololiu, 2017) Indonesia	Flood	59	Comparative study	12 per week for 60 minutes for CBT and 90 minutes for CBT plus play therapy	CBT has an effect on reducing PTSD. (F= 11,661, p < 0.001)
(Ehnholt et al., 2005) England	War	26	Quasi experiment	6 sessions of 60 minutes each session is done once a week for 6 weeks	CBT has an effect on reducing PTSD. (F= 6.495, p < .018)
(Pityaratstian et al., 2015) Thailand	Tsunami	36	RCTs	3 sessions of 120 minutes per week activities are carried out for 1 month including follow-up in the last week	CBT reduces PTSD symptoms. (F= 5.38, p < 0.005)
(Hayati et al., 2018) Indonesia	Flood	38	Quasi experiment	5 60 minutes sessions and 5 60 minutes sessions per week for 6 weeks	CBT has an effect on reducing PTSD levels. (F= 6.00, p < .0, 648)
(Giannopoulou et al., 2006) Greece	Earthquake	20	Quasi experiment	6 sessions of 2 hours per week for 6 weeks	CBT has a positive effect on reducing PTSD. (F= 38.76, p < .001)

This literature review aims to identify the studies that have been conducted on the effect of CBT in overcoming trauma in disaster victims. The 10 articles reviewed discussed the effect of CBT on trauma to child victims of disasters. Disasters create trauma for a person, thus making individuals feel threatened and experience stress. The stress response can occur when a healthy individual who has been exposed to a traumatic event in the past and then as an adult experience a great bad memory event, this event is usually accompanied by feelings of unconsciousness, disconnected from social relationships, extreme tension and feelings of anxiety. discomfort felt in one's body (Cisler et al., 2016). Post-disaster stress disorder is usually accompanied by mental confusion, panic reactions, dissociation, acute sleeplessness, suspicion, and inability to perform self-care activities, work, and social relationships (Zhou et al., 2019). In fact, relatively few disaster victims experience more severe trauma than described above, unless the traumatic event is an eternal catastrophe that will continue to haunt

them until the end of their lives, the destruction of their social environment, or loss of housing, loss of parents and relatives as well as the community. around them (Yang et al., 2018). Individuals with trauma in catastrophic events that have been experienced may be ready to withstand exposure by providing training and therapy, but individuals with complex trauma will take months to recover from their trauma and also be able to find appropriate coping for themselves (Nixon & Bralo, 2019).

CBT is a psychological recovery effort with the aim of changing negative thoughts into positive thoughts, thereby causing their maladaptive behavior due to wrong thoughts to be expected to change, and in the end adaptive behavior is shown by being more flexible in living difficult situations at every stage of their lives. (Lopes et al., 2014).

Research conducted by Dawson on the effectiveness of CBT-PST (Problem Solving Therapy) as PTSD recovery for children affected by the tsunami explained that the therapist provided material with child-friendly techniques such as

learning and playing activities. The therapist sets a film showing a cartoon that has been designed filled with verbal narratives in each session with the aim of recovering PTSD problems in adolescents and children. The children were tested by the therapist randomly at the time of pre-test, post-test and examination which proved successful in reducing PTSD symptoms in children. This study states that CBT-PST can be used to reduce PTSD (Dawson et al., 2018).

Research on the effectiveness of CBT as a supportive intervention for children whose parents died due to the 2008 earthquake in Sichuan China, who suffered from symptoms of PTSD and depression. This research was inspired by the program in the book *Children and Disaster: Teaching Recovery Techniques* and the experience of researchers working with earthquake victims. Researchers compared patients to determine psychological resilience (Connor-Davidson Resilience Scale), PTSD symptoms (Children's Revised Impact of Events Scale) and depression (Center for Epidemiological Studies Depression Scale). The CBT session begins with demonstrating relaxation and coping methods to reduce fear (Chen et al., 2014).

Research on the effectiveness of trauma-focused cognitive behavioral therapy (TF-CBT) for disaster-affected children (PTSD) after Hurricane Katrina, in New Orleans, USA, where CBT sessions include problem-solving skills training, education psychology about PTSD, how to recognize emotions accompanied by tiered exposure (such as fantasies and images) which of course has something to do with the trauma that is being experienced. This study measures PTSD, anxiety disorder (SAD), major depressive disorder (MDD), attention hyperactivity disorder (ADHD) symptoms and anticipatory disorder (ODD) attention hyperactivity disorder (ADHD) symptoms using the Preschool Age Psychiatric Assessment module, nightmares, disassociated memories, emotions and angry reactions. This study concluded that TF CBT is effective for reducing PTSD symptoms (Smith, 2011).

Evaluation of Cognitive Behavioral Outcomes after the earthquake in Iran used child-friendly intervention methods such as providing materials using child-friendly methods including learning and playing activities and distributing clothes and toys in one session. In this study, the intervention was divided into 4 sessions for 4 weeks with a total of 30 teaching materials including Psychological debriefing, Intrusion, Avoidance, Hyperarousal, Cognitive components. After the intervention process was completed, the children were randomly assessed by assessors before and after the intervention which showed a successful reduction in PTSD scores to the intervention group, although there was no significant difference in scores between the control and treatment groups. This study concludes that CBT is an effective therapy in reducing PTSD scores (Shooshtari et al., 2008).

Evaluation of cognitive behavioral therapy (CBT) and eye movement desensitization and reprocessing (EMDR) by comparing the effectiveness of cognitive behavioral therapy and EMDR on children affected by the fireworks fire disaster in the Netherlands, with CBT material on psychological education, examining trauma experienced, straightening thoughts existing and correcting erroneous thoughts and feelings. The intervention was given at a different meeting each week. This study shows that both cognitive behavioral therapy and EMDR are equally effective to give to children who experience trauma after fireworks fires in the Netherlands (de Roos et al., 2011).

Evaluating the comparison between cognitive behavioral therapy and cognitive behavioral therapy plus play therapy, which was conducted on two groups of school children who

had been diagnosed with PTSD. The study was conducted by separating two groups of children, group A was given CBT plus play therapy while Group B was given CBT only. The CBT method used is the cognitive restructuring method (writing negative thoughts and solving problems). Respondents in this study were students aged 8-12 years and diagnosed with PTSD, the respondents taken were students who were actively attending school and willing to become respondents. The steps of CBT carried out are review, cognitive therapy, behavioral therapy, evaluation of cognitive therapy and behavioral therapy, and relapse prevention. In this study, the average respondent experienced a flood in 2014, and they still feel the impact at the time of data collection. In this study, the average PTSD score in the group after being given CBT was 44.67 while the average PTSD score in the group given CBT plus was 31.55. There was a significant decrease in PTSD scores between the two interventions, although based on the results of the study, CBT therapy plus play therapy proved to be more effective in reducing PTSD scores in children after being victims of natural disasters (Sarimin & Tololiu, 2017).

Evaluating School-based Cognitive-Behavioural Therapy Group Intervention for Refugee Children who have Experienced War-related Trauma in refugee children or asylum seekers who have experienced trauma or experienced traumatic events due to war events in previous countries, these children are also recommended by the teacher thought that they had a psychological disorder, and then continued with the interview and pre-test session, and it was found that 26 children scored above the average for a possible PTSD diagnosis and volunteered in this study, after which 26 children were divided into two groups. namely the intervention group and the control group who were not given any treatment. Therapy was given for 6 weeks and 1 hour of meetings per week in the intervention group, starting with the first meeting making introductions and conveying the goals and objectives, after the entire therapy was carried out, a final assessment was carried out after two months, and the results showed that there was a significant difference in scores between the two groups. between the two groups where there was a significant reduction in PTSD scores in the intervention group (Ehnholt et al., 2005).

Research on the effectiveness of CBT for PTSD recovery, 4 years after the tsunami in Thailand. The researcher separated the participants into three treatment groups with 6 children in each group being given the assistance of 2 psychiatrists at once. CBT sessions were given for two hours per day with progress being seen 1 month after treatment. Researchers changed the training program from 5 teaching sessions to 3 sessions, also changed it to three consecutive days due to limited resources. Each session is made longer when compared to the original. The results of the research conducted show that CBT is very effective in overcoming PTSD problems in children and adolescents (Pityaratstian et al., 2015).

The effectiveness of CBT to treat PTSD in adolescents after the floods that occurred in Garut before and after being given 5 sessions of CBT and also 12 sessions. Previously respondents were divided into 2 groups, group 1 was given 5 sessions of CBT, the second group was given 12 sessions of CBT. After looking at the results of the pre-test and also the post-test, it proved that there was no significant difference in PTSD scores between the two treatment groups, because the two interventions, both 5 sessions and 12 sessions, both significantly reduced PTSD scores and showed effective intervention results. so that there was no significant



difference between the groups that were given 5 sessions of CBT and also 12 sessions (Hayati et al., 2018).

Evaluating Cognitive-behavioral Group Intervention for PTSD Symptoms in Children Following the Athens 1999 Earthquake: A Pilot Study. In this study involved 20 children who had been diagnosed with PTSD in the previous selection process, which then these children were divided into 2 groups, namely the intervention group and the delayed intervention group, with the intervention being given CBT for 7 weeks with an intervention time of 2 hours every week. the first session of the therapist only involved parents at a meeting with the aim of discussing the intervention to be given and the participation of parents during this activity, at subsequent meetings the children were given intervention, as for the material provided in each session, namely: statements goals, review of the previous week's homework, introduction of new information, psychoeducation and skills training, practice with the help of a therapist and homework for the coming week (Giannopoulou et al., 2006).

Various studies have been conducted to determine the effectiveness of CBT against trauma to children who are victims of disasters. Some studies only use CBT in therapy to treat PTSD. In addition, there are studies that combine CBT with other interventions. Various studies have proven that CBT can not only be used in adults but is also effective for children and adolescents.

Various studies have found that the application of therapy sessions in CBT is very diverse, starting from 3 sessions to 12 sessions, however, the average research conducted uses 12 sessions of CBT. The application in each CBT session in each study was found to be broadly the same, but there were some different discussions. The research conducted by Chen in the first session began by explaining about, education, communication and evaluation (Chen et al., 2014). Whereas in the research conducted by Pityaratstian, the first session was started with treatment, where the components of the treatment included psychological education, breathing training, ensuring a safe environment from disturbances (Pityaratstian et al., 2015). Biological research on adolescents after the flood disaster in Garut found that CBT 5 sessions or 12 sessions had no significant effect on the level of decline in PTSD scores (Hayati et al., 2018).

The studies discussed above prove that CBT can prevent or reduce PTSD symptoms, although not all studies provide a significant PTSD reduction score. CBT has structured sessions, but the implementation can also vary. Mental nurses can maximize this CBT by modifying some of the methods and also the media used, and of course involving other parties who are also competent in this field.

#### LIMITATION OF THE STUDY

This literature study only uses four databases, so it is likely that more literature will be obtained if more databases are used, we used two articles for analysis with a publication year of more than 10 years, we used two articles for analysis with more than 10 years of publication, because these articles are still relevant to the topic we raised. There are still very few studies that discuss trauma in child victims of disasters, so further research is needed on this topic.

#### CONCLUSIONS AND SUGGESTIONS

Based on the results of a review of all the articles used in this literature study, it was found that various CBT methods started from child-friendly delivery methods, giving gifts, sessions and intervention hours that varied from 3 to 12 sessions, various ways of delivering material, such as drawing and playing videos, as well as modifications such as combining therapies such as the cognitive behavioral therapy method combined with play therapy, PST, EMDR. Of all the articles from various countries, although the methods and methods of delivery are different and some are modified, basically all the interventions provided have almost the same average results in reducing PTSD scores in disaster victims. In this literature study, the highest PTSD reduction results were found in research conducted by Giannopoulou, where in this study the therapist involved the participation of parents in this trauma recovery activity, as well as child-friendly teaching techniques such as drawing homework, and others, so it is suggested that in carrying out CBT on children, parental involvement and fun activities is very important to increase the effectiveness of the CBT given.

#### ETHICAL CONSIDERATIONS

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##### Conflict of Interest Statement

None

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