

EFFECTIVENESS OF BEHAVIORAL COGNITIVE THERAPY ON ANXIETY IN PATIENTS WITH DIABETES MELLITUS

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Abstract

Diabetes mellitus is a chronic disease characterized by high blood glucose levels and disturbances in the metabolism of carbohydrates, fats, and proteins due to insufficient insulin hormone. Anxiety in DM sufferers affects fluctuations in blood glucose which causes unstable blood sugar levels, even though diet, physical exercise, and drug use have been attempted appropriately. DM sufferers have three times the risk of anxiety compared to the general population, diabetes complications can make daily life activities more difficult to carry out, resulting in prolonged sadness. Anxiety in Diabetes Mellitus sufferers affects blood glucose fluctuations which cause unstable blood sugar levels, even though diet, physical exercise and appropriate use of medication have been made. Cognitive behavioral group counseling emphasizes how emotional and behavioral problems can be overcome effectively through cognitive restructuring and shows how irrational beliefs interfere and how they can change inaccurate thoughts with a variety of methods. The purpose of this study was to determine the effectiveness of cognitive behavioral therapy for anxiety in people with diabetes mellitus. Methods To electronic data based Pubmed and Google Scholar with keywords in English and Indonesian, which are published nationally and internationally. This literature study uses The Joanna Briggs Institute guideline is used for assess quality and the Prisma checklist to guide this review. from the search for articles found results that have identified as many as 279 articles with the number of results entered as many as 5 articles. This literature study shows that Cognitive Behavior Therapy for anxiety in patients with diabetes mellitus is effective in reducing anxiety in patients with diabetes mellitus.

Keywords: *Cognitive Behavior Therapy, Anxiety, Diabetes Mellitus*

Introduction

Diabetes mellitus is a chronic disease characterized by an increase in blood glucose levels above normal and disturbances in carbohydrate, fat, and protein metabolism due to a lack of the hormone insulin (Suyono, 2009). Diabetes Mellitus is also a metabolic disorder as evidenced by hyperglycemia which is associated with abnormalities in carbohydrate, fat, and protein metabolism caused by decreased insulin secretion or decreased insulin sensitivity or both and causes chronic microvascular, macrovascular, and neuropathy complications (Elin Yuliana, 2009).

DM sufferers have three times the risk of anxiety compared to the general population, diabetes complications can make daily life activities more difficult to carry out, resulting in prolonged sadness (Soegond, S., Soewondo, P., &Subekti, 2009). Anxiety in Diabetes Mellitus sufferers affects blood glucose fluctuations which cause unstable blood sugar levels, even though diet, physical exercise and appropriate use of medication have been made (Nurhayati, 2015). Therefore, it can be concluded that one of the triggers for increasing blood glucose levels in diabetes mellitus sufferers is the level of anxiety.

Research on behavioral counseling conducted (Febrianto, 2019) shows that behavioral counseling is effective in reducing anxiety in clients of community institutions. Providing behavioral counseling for correctional institution clients provides an opportunity to share about the problems they face. Through behavioral counseling, each client gets real solutions from

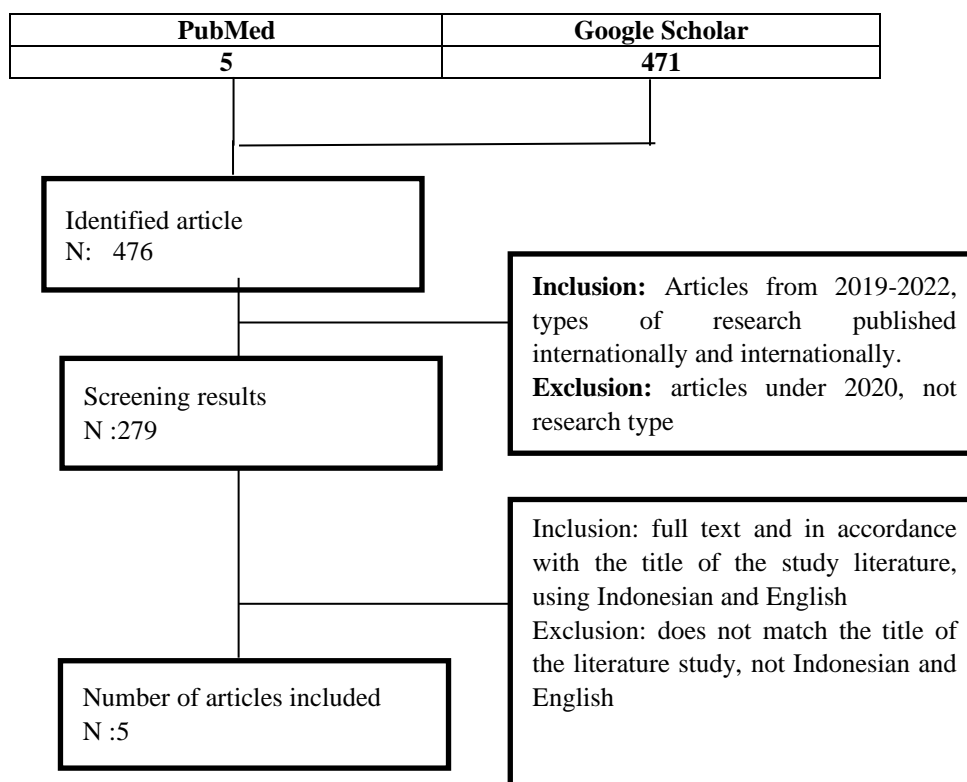
other clients who have the same problems as themselves and provides the possibility of sharing experiences between group members because they have similar characteristics (Yusriany, Rani., Purnamasari, 2021).

Cognitive behavioral group counseling emphasizes how emotional and behavioral problems can be overcome effectively through cognitive restructuring and shows how irrational beliefs interfere and how they can change inaccurate thoughts with a variety of methods (Corey, 2009). Another opinion: According to Vernon (Amilin, 2014), cognitive behavioral group counseling can be carried out in two activity formats, namely homogeneous groups whose group members have the same problems and open group formats. Thus, this research aims to determine the effectiveness of cognitive behavioral therapy on anxiety in diabetes mellitus sufferers.

Method

The search method was carried out by searching the results of scientific publications using the Pubmed and Google Scholar databases. The languages used for keywords are Indonesian and English. In the Pubmed database using keyword 1 "Cognitive Behavior Therapy," 11,372 articles were found. The second keyword "Anxiety" was found 14,143 times. The third keyword "Diabetes Mellitus type 2" was found in 8,955 articles. Then combining these three keywords, 5 articles were found. Furthermore, the number of limit-associated data articles found 2 relevant articles. In the Google Scholar database using keyword 1 "Cognitive Behavior Therapy" found 9,090 articles. The second keyword "Anxiety" found 7,150 articles. The third keyword "Diabetes Mellitus type 2" found 16,500 articles. Then combining these three keywords, we got 471 articles. After searching for articles, we then limited the number of articles by considering the period. 2019-2022, 274 articles were found. Of the 274 articles, 3 related articles were found which can be seen in the following diagram. Inclusion criteria in this literature study are articles from 2019-2022, types of research published internationally and internationally, full text, and the title of the study literature, using Indonesian and English. While the exclusion criteria in this literature study. Articles under 2020, are not research type and do not match the title of the literature study, not Indonesian and English.

Selection Study



No	Paper (Year)	Title	Country	Objective	Respondents	Research Methode	Result
1	Rani Yusriany et al, 2021	Reducing Anxiety in Diabetes Mellitus Patients Through Cognitive Behavioral Group Counseling	Indonesia	To reduce the anxiety experienced by DM survivors by using cognitive group counseling techniques behavior.	The research subjects consisted of 7 female DM survivors who came from the XXX Community Health Center environment in Yogyakarta	The method used in this research was an experiment with a group of DM survivors given the Hamilton Anxiety Rating Scale (HARS) questionnaire.	The results show that cognitive behavior group counseling is significant in reducing anxiety in DM survivors (p 0.018 <0.05).
2	Rohmaaning tyas Hidayah Setyaningrum et al, 2018	The Effect of Cognitive Behavior Therapy on the Degree of Depression and Self-Care Activities in Type 2 Diabetes Mellitus (DM) Patients	Indonesia	This research aims to find out the effectiveness of Cognitive Behavior Therapy (CBT) in reducing the degree of depression and increasing self-care activities in patients with Mellitus type-2 at Dr. Moewardi Surakarta.	The number of subjects was 34 patients, divided into two groups, namely treatment and control. The subject is patient 34 type 2 Diabetes Mellitus patient at the Internal Medicine Clinic, Dr. Moewardi Surakarta with GDP levels ≥ 100 mg/dL, GD2PP ≥ 140 mg/dL, age 18–60 years.	This research used the experimental method with a randomized controlled trial pre and post-design.	So it was concluded that reducing the degree of CBT depression was effective and improved self-care activities in type-2 diabetes mellitus patients.
3	Chandradewi Kusrianti et al, 2019	Intervention with the Cognitive Behavior Therapy Approach for Reducing Diabetes-Related Distress in Elderly People with the Disease Diabetes Mellitus Type 1 and Type 2	Indonesia	This research aims to study cognitive influences and behavioral therapy approaches to reduce diabetes-related distress in older DM patients.	This study used elderly respondents who experienced anxiety about diabetes mellitus	This research uses the PAID (Problem Areas in Diabetes) questionnaire method.	The research results show that this therapy is effective in reducing the level of anxiety in sufferers.
4	Mohammad M. Alsheri et al, 2020	The effects of cognitive behavioral therapy for insomnia in people with type 2 diabetes mellitus, pilot RCT part II: diabetes health outcomes	Saudi Arabia	The purpose of this exploratory study was to examine the effects of Cognitive Behavior Therapy for Insomnia (CBT-I) on glycemic control, DSCB, and fatigue.	A total of 13 participants completed the intervention in each group and were included in the final analysis.	This Randomized Controlled Trial (RCT) uses a non-inferiority framework for testing the effectiveness of CBT-I, DSCB, and fatigue. The Wilcoxon signed rating test was used for comparison change in the group from baseline to post-intervention. The Mann-Whitney test was used to measure differences between groups. Linear regression was used to assess the relationship between blood glucose levels and the number of days in the CBT-I group.	This research shows effective results for reducing anxiety.

5	Jeannete M. Rossello et al, 2019	Cognitive-Behavioral Therapy for Depression in Adolescents with Diabetes: A Pilot Study	Spanyol	The purpose of this study is to adapt and pilot test a group Cognitive-Behavioral Therapy (CBT) model which has been proven to be effective in treating depression in Puerto Rican adolescents, treating depressive symptoms, and improving glycemic control in adolescents with diabetes.	Eleven adolescents aged 13-16 participated in a 12-session group CBT intervention.	Outcome effect indicators (depressive and anxiety symptoms, self-esteem, hopelessness, diabetes self-efficacy, self-care, and glycemic control) were assessed before and after therapy using self-report instruments and the size of glycosylated hemoglobin. Depression symptomatology, diabetes self-concept, and self-efficacy significantly improved after the intervention, and symptoms of anxiety and hopelessness were also observed.	The findings of this pilot study suggest that group CBT is a feasible intervention for adolescents with diabetes and depressive symptomatology.
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Results

From the results of the analysis, there are five articles related to research related to the effectiveness of Behavioral Cognitive Therapy on Anxiety in Patients with Diabetes Mellitus. Based on the results of research conducted by (Yusriany, Rani., and Purnamasari, 2021). The method used in this research was an experiment with a group of DM survivors who had been given the Hamilton Anxiety Rating Scale (HARS) questionnaire. The results obtained showed that cognitive behavioral group counseling was significant in reducing anxiety in DM survivors ($p = 0.018 < 0.05$). So it can be concluded that this method is effective for reducing anxiety.

Research conducted by (Hidayah, 2018) where this research used experimental methods with a randomized controlled trial pre and post-design. The experimental method is a method that aims to test the influence of one variable on another variable or test the causal relationship between one variable and another variable. The results of the research are that it can be concluded that CBT reduces the degree of depression effectively and increases self-care activities in type-2 diabetes mellitus patients.

Research conducted (Kusristanti, 2019) where this research used the PAID (Problem Areas in Diabetes) questionnaire method. The research results showed that this therapy was effective in reducing anxiety levels in sufferers. The limitations experienced during the research were the number of samples which is limited, so it does not get statistical significance. Another limitation is that the sample has physical limitations, which caused the researcher to redesign the method of delivering material, giving homework, and so on. Another limitation is that this CBT-based intervention does not produce or reveal the sample's core beliefs, or the condition of the elderly sample, but only focuses on the sample's negative thoughts. So the elderly sample could not continue with CBT intervention.

Research conducted by (Alsheri, 2020) The method used in this research is a Randomized Controlled Trial (RCT) using a non-inferiority framework to test the effectiveness of CBT-I, DSCB, and fatigue. The Wilcoxon signed-rank test was used for comparison of within-group changes from baseline to post-intervention. The Mann-Whitney test was used to measure differences between groups. Linear regression was used to assess the relationship between blood glucose levels and the number of days in the CBT-I group. The results obtained in this study were the duration of recruitment from October 2018 to May 2019. A total of 13 participants completed the intervention in each group and were included in the final analysis. No side effects, due to being part of this RCT, were reported. CBT-I participants showed significantly greater improvements in glycemic control, DSCB, and fatigue. There was a significant relationship between the number of days of CBT-I intervention and blood glucose levels before going to bed ($B = -0.56, p = .009$) and after waking up in the morning ($B = -0.57, p = .007$).

Research conducted by (Rossello, 2019) the method used in this research is the outcome effect indicator method (symptoms of depression and anxiety, self-esteem, hopelessness, diabetes self-efficacy, self-care, and glycemic control) assessed before and after therapy using a self-report instrument and a measure of glycosylated hemoglobin. Depressive symptomatology, diabetes self-concept, and self-efficacy improved significantly after the intervention, and symptoms of anxiety and hopelessness were also observed. The results of the study showed that group CBT was a feasible intervention for adolescents with diabetes and depressive symptomatology.

From the five articles that have been reviewed, the main differences between the five articles can be seen in the research methods, measuring instruments, or questionnaires used to measure anxiety levels. Apart from that, in carrying out research, researchers found different limitations in the application of cognitive behavior to reduce anxiety in diabetes mellitus patients. However, the results of the 5 articles reviewed show that cognitive behavioral therapy is effective in reducing anxiety.

Discussion

Diabetes mellitus is a disease that is evidenced by hyperglycemia and disorders of carbohydrate, fat, and protein metabolism which are closely related to deficiencies in insulin action or secretion. Symptoms that are usually felt by sufferers are polydipsia, polyuria, polyphagia, weight loss, and tingling (Hakim, 2010).

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Diabetes is a chronic disease that requires self-care in daily life, namely adherence to diet, avoiding fast food, not smoking, medication adherence, exercise habits including lifestyle, for example including physical activity in daily life: choosing to take the stairs instead of the elevator. Sometimes this feels heavy and boring, causing therapy failure (Kresnowati, 2008).

Generally, the psychological changes that occur are stress, anxiety, and depression. The consequences that occur from the complications that accompany DM are physical, psychological, and social changes (Nurhayati, 2015). Someone who experiences complications has three times the risk of anxiety compared to the general public. These complications can result in daily activities in the environment becoming more difficult, resulting in prolonged sadness (Soegond, S., Soewondo, P., &Subekti, 2009). In DM sufferers, anxiety affects blood glucose fluctuations which results in unstable blood glucose levels, even though diet, physical exercise, and appropriate medication use have been tried (Yusriany, Rani., Purnamasari, 2021).

Diabetes sufferers are more likely to experience depression if they lack control over diabetes (Iutsman, 1997). Problems with medication and diet compliance can affect the quality of life caused by depression (Clause, 2005).

Regarding behavioral counseling research conducted (Febrianto, 2019) said that behavioral counseling is effective in reducing anxiety in clients. By providing behavioral counseling for clients, they provide the opportunity to tell each other about the problems they are facing.

With behavioral counseling, clients receive real solutions from other clients with the same problems and provide various shared experiences with group members who have similar levels of anxiety (Yusriany, Rani., Purnamasari, 2021). Thus, group cognitive provision is effective in reducing the anxiety suffered by DM sufferers (Febrianto, 2019).

One of the things that causes anxiety levels to decrease in sufferers is during the active patient process when providing therapy during the intervention process (Yusriany, Rani., Purnamasari, 2021). From several studies that have been reviewed, the author concludes that providing cognitive behavioral therapy can help individuals understand the problems they face. Cognitive behavior can help find out every problem faced by the individual in everyday life. This therapy can help identify the source of an individual's anxiety so that when they experience physical reactions or tension when they are anxious they can do things that can reduce tension, for example, relaxation. Apart from that, it can help change individual emotions and behavior for the better.

Conclusion

Based on several research results regarding the effectiveness of Cognitive Behavior Therapy on anxiety in diabetes mellitus patients, it can be concluded that cognitive behavior therapy is effective in reducing anxiety in diabetes mellitus patients.

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