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EFFECTIVENESS OF GROUP COGNITIVE BEHAVIOR THERAPY (CBT) WITH MINDFULLNESS ON DEPRESSION AND CLINICAL OUTCOMES IN HEMODIALYSIS PATIENTS

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ABSTRACT

Hemodialysis patients experience many stressors related to the medical procedures they undergo. This causes various psychological problems in patients, including depression. Patients' psychological problems can affect their physical conditions, one of them is clinical outcomes. Objective: The purpose of this study was to determine the effect of Group CBT with mindfulness on depression and clinical outcomes of hemodialysis patients in Jendral Ahmad Yani Hospital. Method: A quasi-experiment with a pre-post test design and a control group was the study methodology employed. Data from patients who reported depression in the intervention group were assessed both before and after the group CBT with mindfulness intervention. Consecutive sampling was used to create the research sample, which included 66 respondents in total 33 for the intervention group and 33 for the control group. BDI II was the research tool utilized to measure depression's score. Before and after CBT, depression scores and clinical outcomes were measured. For statistical testing, the paired t test was utilized for depression and the Wilcoxon test for clinical outcomes. Results: According to the findings, depression significantly declined in the intervention group compared to the control group (p-value: 0.000), and improved clinical outcomes results (p-value: 0.000) after CBT. Conclusions: Group CBT with mindfulness effectively reduces the level of depression and improve clinical outcomes of patients to be better. By providing specialized nursing interventions, the hemodialysis room can work to improve clinical outcomes for hemodialysis patients, reduce depression, provide comprehensive and high-quality nursing care that is integrated into their health services.

Keywords: CBT; clinical outcomes; depression; hemodialysis

INTRODUCTION

End Stage Renal Disease (ESRD) is a progressive and irreversible impairment of kidney function, where the body fails to maintain fluid and electrolyte balance, leading to uremia (Smeltzer & Bare, 2013). ESRD is currently a major problem because it is a disease that is difficult to cure. Renal failure is irreversible and requires permanent renal replacement therapy. Without renal replacement therapy, death from metabolic abnormalities can occur quickly. ESRD patients must undergo dialysis therapy throughout their lives, usually twice a week for at least 3 or 4 hours per treatment, or until they receive a new kidney through a kidney transplant. In the world, kidney disease is still a big problem, in addition to being difficult to cure, the cost of care and treatment is also expensive. According to the World Health Organization (WHO) in 2018, the global incidence of ESRD reached 10% of the population, while ESRD patients undergoing hemodialysis (HD) are estimated to reach 1.5 million people worldwide. The incidence rate is estimated to increase by 8% annually. ESRD is the chronic disease with the 20th highest mortality rate in the world (WHO, 2018). Riskesdas data in 2018 states that Lampung Province ranks 18th with a prevalence of 3.8‰ (Indonesian Ministry of Health, 2010). According to the Lampung Provincial Health Office profile (2019), ESRD disease cases have increased every year, as evidenced in 2017 the number of ESRD

disease cases reached 1,211 cases, in 2018 reached 1,241 cases and in 2019 reached up to 1,406 cases. The district that ranked first was Bandar Lampung City, reaching 533 cases and the lowest was Metro City, reaching only 87 cases. Central Lampung Regency alone for the incidence of ESRD disease cases reached 120 cases (Lampung Provincial Health Office Profile, 2019).

Based on the Medical Record profile of Jendral Ahmad Yani Hospital, In 2016 there were 133 patients with kidney failure who needed to get hemodialysis therapy and 67 (50.4%) clients could not be handled, in 2017 the number of clients who needed to get hemodialysis therapy increased quite high, which was recorded as many as 149 and of these 83 (55. 7%) clients had not received treatment, while in the last record in 2018 there were 143 patients who registered to do haemodialysis therapy but 76 (53.1%) clients had not been handled (Medical Record of RSUD Jendral Ahmad Yani, 2018). Many efforts are made to overcome ESRD problems such as diet, kidney transplantation and hemodialysis. ESRD patients who are required to undergo hemodialysis therapy will certainly face problems from the impact of therapy that must be undertaken, including physical, social and psychological impacts. The physical impacts include having to adjust their life patterns such as diet, drinking patterns (fluid intake), activity patterns and rest patterns, all of which must be balanced, not excessive or adjusted to their physical abilities, decreased stamina, endurance, and physical strength (Sherwood, 2001).

The impact on patients if diagnosed with ESRD will usually experience psychological impacts such as anxiety, threat of death, feelings of guilt for continuing to depend on others, feeling useless and worthless, unable to work as usual, disruption of social roles, family and community and despair (Purwanto, 2004). In addition, there is also anger that is always directed at oneself, leading the patient to a state of depression. The prevalence of depression in hemodialysis patients reaches 20%-30% and can even reach 47%. Depression in ESRD patients itself can have a negative effect on sufferers such as worsening the clinical symptoms of kidney disease, affecting the continuity of treatment, increasing the length and number of treatments, increasing the rate of relapse, increasing medical costs, and reducing quality of life (Andri, 2013). This leads to non-compliance with medical prescriptions, treatment negligence and thus further worsens clinical outcomes.

Therapy is needed to help hemodialysis patients to overcome all the problems experienced. CBT can be an alternative to help patients deal with various problems experienced, especially when having to undergo hemodialysis therapy. This study was conducted because there is no research that connects the psychological problems experienced by patients undergoing haemodialysis with physical conditions related to clinical outcomes before and after CBT. The purpose of this study is to determine whether Group CBT with mindfullness can reduce the level of depression experienced by hemodialysis patients and whether Group CBT with mindfulness can also improve clinical outcomes if depression has decreased.

METHOD

The research method used was quasi experiment with pre-post test design with control group. The study was done from November 2023 to January 2024. Group CBT with mindfulness therapy has been conducted by researchers in 7 sessions. In the implementation of CBT, researchers conducted this therapy for 12 meetings in six weeks. The implementation of each session is carried out on average for 45-60 minutes. Inclusion criteria in this research were Aged > 18 years old, Willing to follow CBT therapy with mindfullness and be a respondent,, BDI II depression score is in mild to

severe depression, more than 3 months of hemodialysis. The 66 respondents that made up the research sample were selected via consequtive sampling; 33 respondents belonged to the intervention group and 33 respondents to the control group. Subjects who met the inclusion criteria were examined for some clinical outcomes (hemoglobin, hematocrit, and erythrocyte). Three mLs EDTA venous blood samples were taken, and the Complete Blood Count examination was done with the Sysmex XN 1000. The clinical outcome was measured both before and after group CBT with mindfulness. The research instrument employed the BDI II to determine the degree of depression. For statistical testing, the paired t test was utilized for depression and the Wilcoxon test for clinical outcomes. This research had received approval from the Health Research Ethics Committee of RSUD Jendral Ahmad Yani with number 370/367/KEPK-LE/LL-02/2023.

RESULTS AND DISCUSSION

Table 1.
Changes In The Level Of Depression And Clinical Outcomes Before And After CBT In Hemodialysis Patients In The Intervention Group

Variable	Pre test		Post test		p-value
	Mean	SD	Mean	SD	
1. Depression	22.79	9.178	15.58	6.586	0.000
2. Clinical Outcomes					
Erythrocytes	3.13	0.423	3.42	0.459	0.000
Hemoglobin	9.28	1.099	10.32	1.263	0.000
Hematocrit	28.26	3.534	30.76	3.819	0.000

The results of the statistical trial using the paired t-test n obtained p-value = 0,000 less than the level of signalization set by the researchers is $\alpha = 0.05$ (p-values < 0.05) so that it can be concluded that there was a change in the depression level and clinical outcomes before and after CBT intervention in hemodialysis patients in the intervention group.

Table 2.
Changes In The Level Of Depression And Clinical Outcomes Before And After Health Education In Hemodialysis Patients In The Control Group

Variable	Pre test		Post test		p-value
	Mean	SD	Mean	SD	
1. Depresssion	20.67	8.388	19.58	7.036	0.021
2. Clinical Outcomes					
Erythrocytes	3.04	0.433	3.07	0.559	0.899
Hemoglobin	8.94	0.603	8.94	0.536	0,672
Hematocrit	28.06	2.784	28.64	2.727	0.030

The results of the statistical trial using the paired t-test n obtained p-value = 0,000 (p-values < 0.05) so that it can be concluded that there was a change in the depression level before and after health education intervention in hemodialysis patients in the control group. However, no changes in erythrocytes, hemoglobin and hematocrites were obtained using the wilcoxon test. The p-value value was higher than the indicative value of $\alpha = 0.05$ (p-values > 0.05), so it could be concluded that there was no change in the level of the Clinical Outcome (erythrocytes, hemoglobin, hematocrites) in hemodialysis patients in the control group.

Table 3.
Differences In Changes In Level Of Depression And Clinical Outcomes Between Groups Receiving And Not Receiving CBT In Hemodialysis Patients

Variabel	Intervention		Control		p-value
	Mean	SD	Mean	SD	
1. Depression	-7.21	5.122	-1.09	2.590	0.000
2. Clinical Outcomes					
Erythrocytes	0.292	0.415	0.034	0.309	0.000
Hemoglobin	1.042	1.268	0.000	0.415	0.000
Hematocrit	2.509	3.488	0.587	1.678	0.003

The results of the statistical trial using the Independent T-Test obtained a p-value = 0,000 (p-values < 0.05) so there is a difference in level of depression between the group who received and not received CBT in hemodialysis patients. While the Clinical Outcome variation between the groups that received and those that did not receive CBT in hemodialysis patients tested using the Mann-Whitney, the p-value was less than the indication value specified by the researchers is $\alpha = 0.05$ (p-values < 0.05). There is a difference in the change in the level of the clinical outcome between the groups that receive CBT and those that did not receive CBT in hemodialysis patients.

The state of dependence on the hemodialysis machine results in changes in the lives of people with terminal renal failure who are on hemodialysis therapy. Changes that occur include financial problems, difficulty in maintaining employment, loss of sexual drive and impotence, depression due to chronic pain, feelings of disappointment and hopelessness, and suicide attempts (Alfiyanti et al., 2014). In addition, planned lifestyle changes associated with dialysis therapy and restrictions on food and fluid intake take a toll on patients' morale. This can lead to psychological problems, namely depression in patients with chronic renal failure In addition, planned lifestyle changes associated with dialysis therapy and restrictions on food and fluid intake take a toll on patients' morale. This can lead to psychological problems, namely depression in patients with chronic renal failure (Smeltzer & Bare, 2013). Depression is the most common psychiatric problem in patients undergoing hemodialysis (Saeed et al., 2012). Depressive symptoms are present in 30% of patients undergoing haemodialysis. These depressive symptoms are associated with increased mortality and decreased quality of life of patients undergoing hemodialysis (Khalil et al., 2010).

Numerous research claim that depression affects hemodialysis users. In terms of anxiety and depression, it was discovered that almost half of the participants had anxiety (58.3%) and that more than half had depression (50.5%) (Alshelleh et al., 2022). ESRD patients undergoing hemodialysis at Semarang Regency Hospital, most of them had mild depression, 41 people (48.2%) (Wakhid et al., 2019). In the dialysis clinic of a tertiary care hospital located in the northern region of Tamilnadu, forty-one percent (41%) of the ninety-two individuals screened positive for borderline clinical depression or more. 17.07 was the mean BDI score (Shanmukham et al., 2022). According to additional research, out of 200 patients at a Sarajevo hemodialysis clinic, 51% experienced depression, with 30% having mild depression, 8.5% having moderate depression, and 12.5% having severe depression (Čengić* & Resić, 2010). Sixty-three percent of HD patients at the Hodeida City Dialysis Center suffered from depression (Alkubati et al., 2024).

Cessation of renal function leads to a number of maladaptive changes, including fluid retention (excess extracellular volume), anemia, impaired bone and mineral metabolism, dyslipidaemia, and protein energy malnutrition. Despite advances in HD technology, worsening of the condition of

patients receiving HD remains a major public health concern. Lifestyle changes, the need for medication, adherence to many medical recommendations on diet and daily functioning, can compromise the quality of life and mental health of patients with chronic renal failure. This leads to non-adherence to medical prescriptions, treatment negligence and thus further worsens clinical outcomes.

In chronic renal failure, many complications occur, one of which is anemia. Anemia in CKD occurs due to decreased erythropoetin production in the kidneys, shortened red blood cell life, nutritional deficiencies, and a tendency to bleed due to the patient's uremic status, especially from the gastro intestinal tract. The function of erythropoetin is to stimulate the bone marrow in the formation of red blood cells (Mehta & Hoffbrand, 2008; Kamaludin, 2010). The results showed that on average, chronic renal failure patients undergoing hemodialysis suffered from anaemia with a decrease in erythrocytes of 3.01 jt/µl, hemoglobin of 8.3 g/dl and haematocrit of 25.2% (Muchtar, 2013). On the other hand, anemia was linked to a higher number of depressive symptoms ($p = 0.023$) (Saeed et al., 2012). Therefore, researchers conducted CBT to reduce the level of depression and improve the clinical outcomes of patients undergoing hemodialysis. The results showed that CBT effectively reduced the level of depression in the intervention group, besides that the clinical outcome also showed an improvement. The depression of hemodialysis patients in this study decreased after CBT, patients accepted their condition, did not often experience sleep disturbances, were more enthusiastic and appreciated their life and felt happy more easily. This led to an improvement in quality of life. Patients will adhere to the therapy carried out and comply with the diets that they must adhere to so that clinical outcomes improve and minimise the occurrence of anemia.

According to Bush (2005) CBT combines two of the most effective types of psychotherapy, namely cognitive and behavioural therapy. Behavioural therapy helps to weaken the link between distressing situations and habitual reactions. Reactions such as fear, depression or anger and self-destructive behaviour. It also teaches how to capture the mind and body so as to feel better, think more clearly and solve problems or make better decisions. Cognitive therapy identifies or recognises negative and destructive thoughts (Bush, 2005). Stallard (2002) says that the overall goal of CBT is to increase self-awareness, facilitate better self-understanding, and to increase self-control by developing appropriate cognitive and behavioural skills. CBT helps to identify negative thoughts and beliefs, biases and self-criticism (Stallard, 2002). CBT for people with chronic illnesses such as kidney failure aims to address beliefs about the illness, as well as beliefs about the self that interfere with functioning and adjustment, and to learn effective ways to manage depression and the illness itself (Jongsma, A. E. et al., 2006).

The results of the study showed that CBT had an influence in reducing the level of depression in the Study Subjects, which was characterized by a decrease in symptoms of negative thoughts, negative emotions, increased motivation and decreased physical complaints in the Research Subject (Sartika et al., 2016). Other research results show that CBT decreases distraction due to the hemodialysis process that is visible from more positive distortion changes (Manafe, 2018). CBT is also effective in lowering depression for other chronic diseases. Cognitive Behavioral Theraphy improved Quality of life, Illness Perception and reduced Depressive symptoms in atrial fibrillation (Shan et al., 2022)

CONCLUSION

Group CBT with mindfulness effectively reduces the level of depression and can improve the clinical outcomes of hemodialysis patients. Depression rates decreased significantly (mean 22.79 to 15.58) in the intervention group. Similarly, clinical outcomes have also been improved. Psychological problems affect a person's physical condition, therefore, health care professionals, especially nurses, must have a great deal of care for the patient so that the patient can cope with chronic illnesses experienced with enthusiasm.

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