

Effectiveness of Diaphragmatic Breathing Relaxation to Reduce Anxiety Intensity in Undergoing Hemodialysis Treatment in Patients with Chronic Kidney Disease

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Abstract— This study aims to examine the effectiveness of diaphragmatic breathing relaxation to reduce the intensity of anxiety in undergoing hemodialysis treatment in patients with chronic kidney disease. The research design used quasi experimental one group pre-test post-test design, with a purposive sampling method. The subjects of this study consisted of six patients with chronic kidney disease undergoing hemodialysis. The measurement of anxiety intensity uses the subjective units of discomfort scale (SUDS) which is analyzed using the Wilcoxon nonparammetric statistical test. The results showed that the entire study sample experienced a decrease in anxiety intensity scores in undergoing hemodialysis treatment after being given diaphragmatic breathing relaxation. This is indicated from the value of Negative Rank = 6. ($p = 0.014 < 0.05$). Based on the results of statistical analysis shows that diaphragmatic breathing relaxation effective to reduce the intensity of anxiety in undergoing hemodialysis treatment in patients with chronic kidney disease.

Keywords— Anxiety, diaphragmatic breathing relaxation, chronic kidney disease, hemodialysis.

I. INTRODUCTION

Chronic kidney disease is a condition of progressive kidney damage where the kidneys are no longer able to maintain metabolism and fail to maintain the acid base balance in the blood (Killen, 2017). Himmelfarb and Ikizler (2010) define chronic kidney disease as a form of kidney damage or a decrease in glomerular filtration rate (GFR) which is considered the best overall index of kidney function. Structural abnormalities in kidney function occur more than three months.

Treatment that can be taken for kidney disease patients is through three modalities of kidney replacement therapy; hemodialysis, peritoneal dialysis and kidney transplantation. Hemodialysis is the most widely used therapy and plays an important role in increasing the life span of patients with chronic kidney disease (Killen, 2017). Hemodialysis is a medical action providing renal replacement therapy services as part of the treatment of kidney failure patients in an effort to maintain optimal quality of life (Himmelfarb and Ikizler, 2010).

Generally, hemodialysis is performed twice a week and takes five hours for each hemodialysis. Hemodialysis routines that use machines that are directly connected to the patient's body give rise to feelings of anxiety for patients with chronic kidney disease (Wang & Chen, 2018). Anxiety can bring

about autonomic arousal such as tense muscles, rapid heart rate, cold hands, and rapid breathing, Miltenberger (2012). This in turn makes many patients feel anxious to do hemodialysis, even though hemodialysis functions as a support for kidney replacement that is no longer functioning optimally.

One therapy that can help reduce the intensity of anxiety that gives rise to autonomic arousal is relaxation. One procedure for relaxation is diaphragmatic breathing. Diaphragmatic breathing is a relaxation procedure that makes individuals breathe deeper in slow rhythms. At each breath, the individual uses the diaphragm muscle to put in the oxygen into the lungs. Anxiety or autonomic arousal usually makes breathing fast and short. This diaphragmatic breathing reduces anxiety by changing breathing patterns to a more relaxed pattern, Miltenberger (2012).

The results of research conducted by Chen, Huang, Chien and Cheng (2016) show that diaphragmatic breathing relaxation is effective in reducing anxiety intensity. As a relaxation technique, diaphragmatic breathing has no negative side effects and can be applied to reduce anxiety symptoms. Furthermore, research conducted by Kim, Roth & Wollburg, (2015) shows that diaphragmatic breathing relaxation is also shown to have a calming effect and help stabilize the autonomic nervous system. Thus, researchers are interested in conducting experimental studies of patients with chronic kidney disease undergoing hemodialysis by providing diaphragmatic breathing relaxation before the hemodialysis action begins.

II. OBJECT AND METHODS

The main objective of this study is to examine the effectiveness of diaphragmatic breathing relaxation to reduce the intensity of anxiety in undergoing hemodialysis treatments in patients with chronic kidney disease. The research design used quasi experimental one group pre-test post-test design, with a purposive sampling method. The subjects of this study consisted of six patients with chronic kidney disease undergoing hemodialysis.

The intervention was divided into three stages; pre-intervention, implementation of intervention and post-intervention. In the pre-intervention stage, the therapist begins by providing a subjective units of discomfort scale (SUDS) to

determine the intensity of participants' anxiety before being given diaphragmatic breathing relaxation. At the intervention stage, the therapist provides diaphragmatic breathing relaxation for six times in two weeks. Follow up was carried out twice within two weeks after the intervention was carried out. In the post intervention stage, the therapist measures the intensity of anxiety again using the subjective units of discomfort scale (SUDS), then the pre-intervention and post-intervention data are analyzed using the Wilcoxon nonparammetric statistical test.

III. RESULT AND DISCUSSION

The hypothesis in this study is that diaphragmatic breathing relaxation effectively reduces the intensity of anxiety in undergoing hemodialysis treatment in patients with chronic kidney disease. This hypothesis is proven by Wilcoxon nonparammetric statistical test results. The score of N Rank = 6 indicates that the entire study sample experienced a decrease in anxiety intensity from pre-test to post-test obtained scores $Z = -2,449$ ($p = 0.014 < 0.05$). Thus H_0 was rejected, H_a was accepted. So it can be seen that diaphragmatic breathing relaxation effectively reduces the intensity of anxiety in undergoing hemodialysis treatment of patients with chronic kidney disease.

The statistical test results above show that diaphragmatic breathing relaxation can reduce the intensity of anxiety in all participants who were treated. This is in line with the results of research conducted by Chen, Huang, Chien and Cheng (2016). Participants reported that through diaphragmatic breathing relaxation exercises they experienced a decrease in anxiety intensity by practicing their focus on breathing through the diaphragm. Participants in this study breathe using the diaphragm muscle slowly for 3-5 seconds. When inhaling and exhaling, participants focus on the sensation of breathing, the result is that participants succeed in reducing the intensity of anxiety that arises. This is in line with what was stated by Miltenberger (2012) that to reduce the intensity of anxiety participants must focus their attention on the sensation of breathing.

Diaphragmatic breathing relaxation given six times to patients with chronic kidney disease helps them become more relax and able to reduce autonomic arousal that arise due to anxiety such as tense muscles, rapid heart rate, cold hands, and rapid breathing. This achievement is in line with the results of research conducted by Kim, Roth & Wollburg, (2015) which shows that diaphragmatic breathing relaxation is also shown to have a calming effect and help stabilize the autonomic nervous system.

IV. CONCLUSION

Based on the explanation above, it can be concluded that diaphragmatic breathing relaxation is significantly effective in reducing the intensity of anxiety in undergoing hemodialysis treatment in patients with chronic kidney disease. A decrease in the intensity of anxiety in undergoing hemodialysis treatment in patients after getting diaphragmatic breathing relaxation exercises that can be obtained from the Wilcoxon test results. Through the results of this study, it is known that

diaphragmatic breathing relaxation is effective in reducing the intensity of anxiety in undergoing hemodialysis treatment in patients with chronic kidney disease.

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