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The effectiveness of gamelan therapy on depression levels in chronic kidney failure patients☆

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Abstract
Introduction: The effect of depression on human behavior have been widely recognized in chronic kidney failure patients who undergoing hemodialysis. There was some depression technique management which could be applied. It could be a pharmacological or non-pharmacological technique. One of the complementary non-pharmacological therapy are Javanese gamelan therapy.
Objective: This research reduced depression level with Javanese gamelan therapy in chronic kidney failure patients' who undergo hemodialysis at RSUD KRMT Wongsonegoro Semarang.
Method: It was a quasi-experimental research with pretest–post-test without control group. The research was administered during March–May 2019 with 30 respondents taken as sample using the total sampling technique.
Results: The research on 30 respondents showed that p-value = 0.00, $<\alpha = 0.05$, so that Ha was accepted, and Ho rejected.
Conclusion: There is significant Javanese gamelan therapy on level depression reducing chronic kidney failure patients' who undergo hemodialysis at RSUD KRMT Wongsonegoro Semarang.
Suggestion: Javanese gamelan therapy may help in naturally maintains heart health and controlling normal blood pressure using music as relaxation medium.

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Introduction

Depression is now recognized as the most common psychiatric problem in patients with chronic kidney disease and is only considered the second problem after hypertension, in a large variability study and observed in the study concluded the prevalence of depression in patients undergoing hemodialysis from 10% to 60% depending on demographics population and assessment tools.[1] According to WHO,[2] depression is a common problem throughout the world with more than 300 million people worldwide experiencing depression, this being a very serious health problem that can cause people affected by and worse to cause 800 thousand people killed by suicide every year in each country, and in the year. In hemodialysis patients there is often a high incidence of depression, this is often overlooked and focuses on physical aspects and diseases. Depression symptoms in 30% of patients with chronic renal failure undergoing hemodialysis are associated with increased mortality and decreased quality of life in patients undergoing such therapy. Depression experienced during treatment and the burden of disease due to hemodialysis cannot be avoided for life by patients, especially in the family head. Depression is the most psychiatric problem in patients undergoing hemodialysis. The prevalence of major depression in the general population is around 1.1%–15% in men and 1.8%–23% in women, but in hemodialysis patients the prevalence is around 20%–30% and can even reach 47%.[3] According to World Health Organization (2018), many hemodialysis patients who are depressed if they are not treated immediately will cause more severe psychological problems and will do dangerous things. Hemodialysis patients tend to experience changes in physical, psychological and social culture. Changes that occur in patients can provide pressure and a sense of being a burden on their families after feeling depressed, guilty, becoming a burden arises the desire to do things that are dangerous and can also arise a sense of suicide.[4] To prevent the nets and depression getting heavier, there are various treatments for people with depression. Can be pharmacological and non-pharmacological. One of the complementary non-pharmacological therapies that can be given to depressed patients is music therapy.[5] Alpha and theta waves are frequencies found in classical music that can stimulate serotine and endorphine hormones so that they create a sense of relaxation and make the heart rhythm stable.[6] In line with Im and Lee[7] it is shows that there were significant differences between before and after treatment in depression with music therapy and art therapy. The results of the study show that the value of $p = 0.003$ which is smaller than the significance value of 0.05 indicates that there are differences in results. The results of the study showed that the significance value (p sign = 0.000) where the p-sign value was smaller than p sign = <0.05, indicating a decrease in tension which resulted in relativization.[8] Music is popularly believed to usher in bliss and serenity, and healing is considered its natural quality. It has an emotionally charging charisma of its own, that we all as listeners might have experienced at times. How this therapy came into being and how it has evolved, and what the old and current research says about its role in psychiatric disorders. This review tries to explore these questions and arrives at a conclusion that music certainly promises more than just entertainment, and evidence so far suggests music therapy can be beneficial in the treatment of psychiatric disorders, as a cost effective noninvasive adjunct to standard therapy in a variety of settings and patient groups, yet more validated scientific research is still required to establish it as a sole quantified therapy.[9]

Methods

This research uses quantitative methods. This study uses a quays research design experiment with the design of one group pre–post-test design. The population in this study were all patients with chronic renal failure who performed hemodialysis at the KRMT Wongsonegoro Hospital in Semarang. Population of with a total sample of 30 of respondents. The sampling method uses total sampling. This research was conducted at the KRMT Wongsonegoro Semarang Regional General Hospital conducted in March 2019 until May2019. The tool for collecting data was the observation sheet and the Back-Depression Inventory questionnaire. Data analysis was performed using univariate analysis, normality test and bivariate analysis (Wilcoxon Macth Pair test and Mann–Whitney test). Inclusion criteria include sample with chronic kidney failure patient, willing to be a respondent, a patient who has hemodialysis, a patient who has no hearing loss, patients undergoing hemodialysis <3 months, patients with severe depression and moderate depression, Javanese patients, patients who can still read. The research process was carried out when the respondents underwent hemodialysis, a pre-test was conducted using the Back Depression Inventory questionnaire, performed Javanese gamelan therapy for 2 weeks, using headphones, a post-test was performed by using the Back Depression Inventory questionnaire. Ethical approval this research no 445/2365/2019 issued by the KRMT Wongsonegoro, based on WHO CIOMS 2018.[2]

Results

Characteristic chronic kidney failure patients with hemodialysis at RSUD KRMT Wongsonegoro are 55% male, and 45% female, 33 years old until 56 years old, and most of their education senior high school.

Table 1 obtained data on depression levels in hemodialysis patients before Javanese gamelan therapy in RSUD KRMT Wongsonegoro Semarang, amounting to 30 respondents were mild depression of 21 respondents (70.0%) and moderate depression of 9 respondents (30.0%). The minimum value is 11, the maximum is 20, the mean value is 14.57, the median value is 14.00 and Std. div. 2.373.

Table 2 shows data on depression levels in hemodialysis patients after Javanese gamelan therapy in hemodialysis room at RSUD KRMT Wongsonegoro Semarang, amounting to 30 respondents were no depression as many as 7 respondents (23.3%), mild depression 22 respondents (73.3%) and depression moderate as much as 1 respondent (3.3%). The minimum value is 8, the maximum is 17, the mean is 11.50, the median value is 11.50 and Std.div 2.373.

Based on Table 3 based on the results above, it shows that before and after the intervention. Non-parametric test results using Wilcoxon match pair test gained $0.000 < \alpha$ 0.05.

Table 1 Frequency distribution based on the results of the pre-test on chronic kidney failure patients who performed hemodialysis hospital KRMT Wongsonegoro Semarang in March–May 2019 ($n = 60$).

Before music therapy	*f*	%	Minimum	Maximum	Median	Mean	Std. div.
Mild depression	21	70.0	11	20	14.00	14.57	2.373
Moderate depression	9	30.0					
Total	30	100.0					

Table 2 Frequency distribution based on the results of post-test on patients with chronic kidney failure performed hemodialysis hospital KRMT Wongsonegoro Semarang in March–May 2019 ($n = 60$).

After music therapy	*f*	%	Minimum	Maximum	Median	Mean	Std. div.
Not depression	7	23.3	8	17	11.50	11.50	2.286
Mild depression	22	73.3					
Moderate depression	1	3.3					
Total	30	100.0					

Table 3 The effect of Javanese gamelan therapy on decreasing depression in patients with chronic kidney failure with hemodialysis at RSUD KRMT Wongsonegoro Semarang in March–May 2019 ($n = 30$).

Depression	Frequency	Mean rank	Sum of ranks	*Z* count	*p*-Value
Negative rank	30	15.50	465.00	−4.835	0.000
Positive rank	0				
Ties	0				
Total	30				

Thus, if $p = 0.000 < \alpha$ 0.05, Ha is accepted and Ho is rejected, which means that there is an effect of Javanese gamelan therapy in decreasing depression levels in chronic kidney failure patients with hemodialysis at RSUD KRMT Wongsonegoro Semarang.

Discussion

In this study, based on depression levels in hemodialysis patients before music therapy in KRMT Wongsonegoro Hospital, Semarang, which amounted to 30 respondents were mild depression of 21 respondents (70.0%) and moderate depression were 9 respondents (30.0%). The minimum value is 11, the maximum is 20, the mean value is 14.57, the median value is 14.00 and St.d 2.373. According to Endah Rahma,[10] depression is a natural disorder characterized by lack of enthusiasm, lack of confidence, disturbances in sleep patterns and eating disorders. Music therapy in end-of-life care aims to improve a person's quality of life by helping relieve symptoms, addressing psychological needs, offering support, facilitating communication, and meeting spiritual needs. In addition, music therapists assist family and caregivers with coping, communication, and grief/bereavement.[11] According to Iyus Yosep and Sutini[12] depression is a natural disorder accompanied by physical changes: decreased appetite, disturbance of sleep patterns as well as psychological changes. Chronic kidney failure patients undergoing hemodialysis take 14–18 h for dialysis every week, or at least 4–5 h each time for therapy. Patient's adjustment to the disease results in changes in his life.[13] It causes maladaptive responses experienced by patients, patients experience suppression responses (denial) that are elongated and cause depression.[14] Depression levels in hemodialysis patients after music therapy in the hemodialysis room at KRMT Wongsonegoro Hospital, Semarang, amounting to 30 respondents were no depression, 7 respondents (23.3%), mild depression 22 respondents (73.3%) and moderate depression 1 respondent (3.3%). The minimum value is 8, the maximum is 17, the mean is 11.50, the median value is 11.50 and Std 2.373. Javanese gamelan music can provide a relaxing effect on the body of a person, but the type of music used is music that has a rhythm that will provide regular response also in heart rate. If the heart rate is in a regular beating condition it will cause a relaxed response to the body, so that it can reduce body stressors that are obtained both from the body and from the environment.[15] This study is in accordance with the study[6] which states the level of depression after being given music therapy most respondents experienced a decrease in the level of depression. According to Murtisari et al.,[6] after the provision of music therapy the decline in depression rates is a lot of mild depression. Patients who are mildly depressed and who are basically just the same feel there are only long differences in symptoms that last.

In this study, non-parametric test results using Wilcoxon match pair test obtained $0.000 < \alpha$ 0.05. Thus, if $p = 0.000 < \alpha$ 0.05 then Ha is accepted and Ho is rejected, which means that There is the effect of Javanese gamelan therapy in decreasing depression levels in patients with chronic kidney failure performed hemodialysis hospital KRMT Wongsonegoro Semarang. According to researchers Endah Rahma[10]

after doing music therapy the level of depression in the elderly reduces psychological impact so that the elderly can control themselves when the signs and symptoms of depression. The effects of music affect the body's psychological response. The reduced impact of depression after being given music therapy is because music therapy can increase the feeling of relaxation with alpha brain waves so that a person becomes calm in behaving. It by increasing serotonin hormone as a music therapy t discount to effect change one's mood.[15] According to Murtisari et al.,[6] music can reduce the level of depression, music alone is able to change a bad mood for the better. Using music therapy has smaller side effects and music therapy has the advantage that the costs incurred are not expensive and more practical, compared to drugs. Music therapy can also help naturally nourish the heart's work and normalize blood pressure with relaxation music. Traditional music or Tibetan singing bowls, you can affect the mood and to get peace.[16] Using Javanese gamelan therapy has a smaller side effect and this therapy has the advantage that the costs incurred are not expensive and more practical, compared to drugs. Javanese gamelan therapy can also help naturally nourish the work of the heart and normalize blood pressure with Javanese gamelan relaxation music.[16]

The average respondent before the music therapy was mild depression as many as 21 respondents (70.0%) and moderate depression as many as 9 respondents (30.0%). The average respondent before treatment was mild depression as many as 24 respondents (80.0%) and moderate depression as many as 6 respondents (20.0%). The average respondent after therapy was no depression as many as 7 respondents (23.3%), mild depression as many as 22 respondents (73.3%) and moderate depression as much as 1 respondent (3.3%). The average respondent after therapy was no depression as many as 8 respondents (26.7%), mild depression as many as 19 respondents (63.3%) and moderate depression as many as 3 respondents (10.0%).

Conflict of interests

The authors declare no conflict of interest.

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