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Empowering Hemodialysis Patients Through Health Education And Neurographic Art Therapy: A Community-Based Intervention To Reduce Anxiety

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ABSTRACTS

Introduction: This community service program aims to support hemodialysis patients in managing anxiety through health education and the implementation of Neurographic Art Therapy.

Method: The program was carried out through socialization activities, training in therapeutic drawing techniques, the use of digital media for continuous mentoring, and evaluation of patients' conditions before and after the intervention. **Result:** The program improved patients' knowledge, coping skills, and independence in managing anxiety, accompanied by a measurable decrease in anxiety levels (average score decreased from 18.09 to 10.28). The program outputs included printed and digital educational modules, video tutorials, and the establishment of a patient community as a sustainability effort. **Conclusion:** The impact of this community service is reflected in increased emotional calmness, strengthened psychosocial support, and the application of art therapy as a practical non-pharmacological approach in patient assistance services, with the expectation that this therapy can become part of routine supportive care in hospitals.

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1. INTRODUCTION

Chronic Kidney Disease (CKD) requiring regular hemodialysis therapy affects not only patients' physical health but also their psychosocial well-being. Among patients at the partner institution, hemodialysis treatment is frequently associated with anxiety, emotional distress, psychological fatigue, and feelings of helplessness resulting from dependence on dialysis machines and uncertainty regarding health outcomes. These conditions may negatively affect patients' quality of life and interfere with adherence to treatment regimens (Akram et al., 2023).

Based on interviews conducted with healthcare professionals and patients at the partner institution, several major issues were identified. Many patients reported experiencing anxiety before undergoing hemodialysis sessions, sleep disturbances, panic symptoms, and excessive concern about their illness. Healthcare providers also observed decreased motivation, social withdrawal during dialysis sessions, and inadequate coping strategies among some patients. Furthermore, psychosocial support services within the hemodialysis unit remained limited, and no structured assistance program specifically aimed at helping patients manage anxiety had been implemented.

Consistent with these findings, numerous studies conducted in Indonesia have reported that anxiety is a common problem among hemodialysis patients. Several healthcare facilities have documented that many patients experience anxiety ranging from mild to severe levels, highlighting the need for interventions that address not only medical aspects but also psychological well-being. The conditions observed at the partner institution indicate the need for a structured, practical, and impactful support program capable of directly improving patients' emotional well-being (Anjum et al., 2024; Bosniawan et al., 2024; Yunia et al., 2023).

Despite this need, psychosocial interventions for hemodialysis patients at the partner institution remain limited. Educational and supportive approaches have not yet been systematically implemented, leaving many patients without adequate coping mechanisms to manage their anxiety. Therefore, a community service program is needed not only to provide health education but also to offer a safe and therapeutic medium for emotional expression (Hosseini et al., 2023).

This program provides psychosocial support through health education and Neurographic Art Therapy as an alternative non-pharmacological approach to help patients manage anxiety. This method enables individuals to express suppressed emotions and thoughts through

artistic activities, facilitating emotional release and catharsis. By drawing elements that resemble neurons and neural connections, individuals can release emotional tension and reduce the anxiety they experience (Чариева, 2021).

Numerous studies have demonstrated that art therapy is effective in reducing anxiety. Research conducted by Abbing et al. (2019) on the effectiveness of drawing therapy found that it significantly reduced anxiety levels, decreased somatic complaints, and improved emotional expression and social communication skills. In addition, play therapy, drawing, and coloring activities have been shown to effectively reduce anxiety in various populations. These findings support the use of drawing-based art therapy as an effective non-pharmacological intervention for anxiety reduction, with previous studies reporting statistically significant decreases in anxiety levels ($p < 0.001$) (Huang & Yin, 2025a).

Art therapy, particularly Neurographic Art Therapy, involves drawing activities using markers, sketchbooks, and coloring materials. In Neurographic Art, individuals create shapes resembling neurons or neural pathways, while sharp intersections are transformed into smooth, rounded connections. This process helps visualize thoughts and emotions, providing greater insight into an individual's psychological condition. The technique incorporates an understanding of how the brain functions, allowing patients experiencing anxiety to express their emotions through artistic creation while simultaneously enhancing cognitive processes involved in problem-solving. Consequently, Neurographic Art Therapy can reduce anxiety levels and possesses unique characteristics that distinguish it from other forms of art therapy (Huang & Yin, 2025b; Parmaksız & Demirbilek, 2021)

Through socialization activities, training sessions, technology-based continuous mentoring, and the establishment of a patient support community, this program aims to enhance patients' knowledge, coping skills, self-confidence, and emotional well-being. Ultimately, the program is expected to address the needs of the partner institution, strengthen psychosocial support systems, and contribute to improving the quality of life of patients undergoing hemodialysis.

2. METHODS

The community-based intervention program was implemented through five stages:

1. Socialization

The initial stage aimed to introduce the program to hemodialysis patients, their families, and healthcare professionals working in the hemodialysis unit. The activities included:

- a. Coordinating with the hospital or clinic where patients received hemodialysis treatment.
- b. Providing information regarding the objectives, benefits, and procedures of Neurographic Art Therapy for anxiety reduction.
- c. Collecting baseline data through interviews and questionnaires to assess patients' anxiety levels before the intervention.
- d. Conducting discussions and technical preparations related to program implementation.

Outputs:

- a. Establishment of collaboration agreements with partner hospitals/clinics.
- b. Increased awareness among patients and their families regarding the importance of anxiety management.

2. Training

During this stage, participants (hemodialysis patients and healthcare professionals) received health education and basic training on Neurographic Art Therapy and anxiety management techniques. The activities included:

- a. Health education covering the definition of anxiety, signs and symptoms of anxiety, causes of anxiety among hemodialysis patients, psychosocial support and motivation, and anxiety management through Neurographic Art Therapy.
- b. Neurographic Art training, including an introduction to the concept of Neurographic Art and techniques for creating patterns that promote relaxation and anxiety reduction, followed by hands-on practice.

Interactive simulations and discussions on how art therapy can be integrated into daily life.

Outputs :

- a. Improved patient understanding of Neurographic Art techniques and their application as coping mechanisms.
- b. Enhanced knowledge among healthcare professionals to support patients in utilizing this therapy

3. Technology-Based Implementation

This stage involved integrating Neurographic Art Therapy into patients' routines while utilizing technology to support therapeutic activities. The activities included:

- a. Developing digital educational modules and Neurographic Art tutorial videos that patients could access independently.
- b. Providing virtual mentoring through a WhatsApp group to monitor patients' progress.
- c. Monitoring the application of Neurographic Art Therapy during several hemodialysis sessions to evaluate its effectiveness.

Outputs:

- a. Continuous patient access to educational materials.
- b. Utilization of technology as a medium for support and monitoring.

4. Mentoring and Evaluation

To ensure effective program implementation, patients received continuous assistance in applying the therapy, accompanied by regular evaluations. The activities included:

- a. Intensive mentoring over several weeks to ensure patients felt comfortable using the technique.
- b. Evaluating program effectiveness by assessing changes in patients' anxiety levels from baseline to the completion of the intervention.
- c. Conducting interviews with patients and healthcare professionals regarding their experiences in implementing the therapy.

Outputs:

- a. Data on the impact of Neurographic Art Therapy on patients' anxiety levels.
- b. Recommendations for future program improvement.

5. Program Sustainability

To ensure the continuity and long-term benefits of the program, sustainability strategies involving patients, families, and healthcare professionals were developed. The activities included:

- a. Advanced training for healthcare professionals to enable them to independently guide patients in applying the therapy.
- b. Providing permanent educational resources in the form of videos and guidebooks.
- c. Establishing a community of hemodialysis patients interested in continuously practicing Neurographic Art Therapy and sharing their experiences.
- d. Collaborating with the hospital to integrate the therapy into supportive care services for hemodialysis patients.

Outputs:

- a. Continued implementation of the program beyond the initial intervention period.
- b. Increased patient independence in managing anxiety.
- c. Adoption of Neurographic Art Therapy by hospitals and healthcare professionals as a complementary approach in patient care.

3. RESULTS AND DISCUSSION

1. Socialization

The socialization activities were conducted in the Hemodialysis Unit of Al-Ihsan Regional General Hospital, West Java Province, involving hemodialysis patients, family members, and healthcare professionals. A total of 32 patients and 3 healthcare professionals participated in the program. During this stage, coordination with the hospital was established, the objectives of the program were introduced, the benefits of Neurographic Art Therapy were explained, and baseline assessments were conducted to determine patients' anxiety levels prior to the intervention. The results indicated that 23 patients (71.9%) experienced mild anxiety, while 9 patients (28.1%) experienced moderate anxiety.

This socialization stage effectively improved patients' and family members' understanding of the importance of anxiety management. Participants demonstrated interest in and readiness to participate in the program and began to recognize the importance of managing anxiety through appropriate approaches.

2. Training



Figure 1. Implementation Process of Neurographic Art Therapy

Participants received training on the concept of anxiety and the practice of Neurographic Art Therapy. The session lasted approximately 30 minutes and was facilitated by nursing professionals. Participants were trained to create Neurographic Art patterns and practiced the technique directly during the session. Observational findings showed that 90% of participants were able to independently create Neurographic Art drawings and reported feeling calmer after the session. Healthcare professionals stated that the activity provided new insights into psychosocial approaches for patients undergoing hemodialysis.

The training was shown to enhance coping skills through visual art activities. Neurographic Art is believed to activate the prefrontal cortex and the limbic system, which play essential roles in emotional regulation. The practice of drawing curved lines and neuron-like connections facilitates relaxation and emotional catharsis (Mollaoğlu et al., 2024).

3. Technology-Based Implementation

The community service team developed a digital educational module and a 10-minute Neurographic Art tutorial video, which were uploaded via QR-code links and distributed to all participants. In addition, a WhatsApp support group was established to facilitate communication and allow patients to share their artwork and experiences. The results showed that 75% of participants actively engaged in the group and shared their drawings during the monitoring period. The use of digital media supported the principles of self-management among hemodialysis patients (Lee et al., 2021). This activity reflects the integration of technology into health education, enabling patients to practice the therapy independently at home. Online mentoring proved effective in maintaining patient motivation and promoting consistent engagement with the therapy (Mailani et al., 2024).

4. Mentoring and Evaluation

Intensive mentoring was conducted over a two-week period to ensure that patients were able to apply the therapy consistently. Program effectiveness was evaluated by comparing patients' anxiety levels before and after participation using the Hamilton Anxiety Rating Scale (HARS). The results demonstrated a reduction in the mean anxiety score from 18.09 to 10.28 following the implementation of Neurographic Art Therapy, with a statistically significant difference ($p < 0.001$). These findings indicate that Neurographic Art Therapy

effectively helped patients feel calmer, achieve better emotional control, and reduce psychological distress.

Table 1. Changes in Anxiety Levels During the Program

Variabel	Anxiety Levels		Mean±SD	Min-Max	t	P Value
	Mild	Moderate				
Pre Test	23 (71,9%)	9 (28,1%)	18,09±4,05	14-27	-8,921	0.000
Post Test	23 (71,9%)	9 (28,1%)	10,28±3,726	6-20		

The findings of this community-based intervention are consistent with previous studies demonstrating that Neurographic Art Therapy can effectively reduce anxiety among hemodialysis patients. Throughout the program, drawing activities helped participants achieve relaxation, alleviate emotional tension, and develop a greater sense of comfort and self-control regarding their condition.

These benefits were directly experienced by participants through feelings of relaxation, active engagement in the activities, and a greater sense of calm following the sessions. The findings reinforce the notion that this art-based approach is not only scientifically grounded but also relevant, feasible, and practical for implementation as a psychosocial support intervention in hemodialysis settings (Bader, 2021).

5. Program Sustainability

To ensure sustainability, the community service team provided the hospital with printed educational modules and permanent instructional videos and conducted advanced training sessions for healthcare professionals. In addition, a patient support community called “NeuroArt Relaxation Community” was established, consisting of 10 active hemodialysis patients. Hospital representatives expressed their commitment to incorporating this activity into routine psychosocial support services for patients.

The sustainability of the program aligns with the principles of community empowerment, whereby patients become active participants in managing their own health. According to Orem’s Self-Care Theory, increased independence in managing emotional stress is an important indicator of successful community nursing interventions. The support provided by

healthcare professionals as change agents helps ensure the continuity of the intervention beyond the completion of the community service program (Lee et al., 2021).

4. CONCLUSION

Based on the implementation outcomes, the community-based intervention program entitled *“Neurographic Art Therapy for Reducing Anxiety Among Hemodialysis Patients”* demonstrated positive impacts on both patients and healthcare partners. The program successfully improved patients’ knowledge, coping skills, and self-management abilities in dealing with anxiety, as evidenced by measurable reductions in anxiety levels using standardized assessment instruments. Furthermore, the intervention strengthened psychosocial support within the hemodialysis unit, enhanced the role of healthcare professionals in providing emotional support, and introduced art therapy as a practical and easily applicable non-pharmacological intervention. Overall, the program contributed to improving the quality of life of hemodialysis patients and supported the advancement of community nursing practice through innovative art-based psychosocial support interventions

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