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Progressive muscle relaxation and hand massage for anxiety during haemodialysis

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Abstract

Background: Maintenance hemodialysis can be accompanied by psychological distress. Progressive muscle relaxation (PMR) and hand massage are practical non-pharmacological approaches that may support comfort during dialysis.
Purpose: To describe pretest-to-posttest changes in anxiety among two hemodialysis patients receiving combined PMR and hand massage.
Method: This descriptive two-patient case study was conducted in a hemodialysis unit. Each participant received four sessions over two weeks during dialysis, consisting of 15 minutes of PMR and 10 minutes of hand massage of the non-fistula arm. Anxiety was assessed before the first and after the fourth session using the Indonesian Generalized Anxiety Disorder-7 (GAD-7). Findings were analyzed descriptively.
Results: GAD-7 scores decreased from 14 to 4 in Patient 1 and from 17 to 5 in Patient 2. The mean score declined from 15.50 ± 2.12 to 4.50 ± 0.71, a mean reduction of 11.00 points. Both patients moved to a lower anxiety severity category.
Conclusion: Anxiety scores were lower after combined PMR and hand massage in these two cases. Without a control group or follow-up, these observations cannot establish treatment efficacy or generalisability.

Keywords: Anxiety; GAD-7; Hand Massage; Hemodialysis; Progressive Muscle Relaxation.

INTRODUCTION

Maintenance hemodialysis sustains patients with advanced kidney failure but can involve repeated procedures, fatigue, dietary restrictions, and emotional distress. Anxiety is common in this population and can adversely affect well-being (Nagy et al., 2023; Qawaqzeh et al., 2023; Timouw et al., 2024; Setyawan et al., 2022).

Nurses may use non-pharmacological approaches alongside standard dialysis care. Progressive muscle relaxation (PMR) involves systematically tensing and releasing muscle groups and has been examined as a means of reducing psychological symptoms in hemodialysis patients (Hudiyawati et al., 2019; Anggraini et al., 2022; Devi et al., 2026; Safitri et al., 2024; Muchtar & Marlian, 2019; Wisuda et al., 2022).

Hand massage is another bedside option. Studies have explored massage to improve comfort or dialysis-related symptoms, although the outcomes and intervention protocols differ (Çeçen & Lafcı, 2021; Ariastuti et al., 2024; Anshari et al., 2026; Field, 2016; Kolcaba et al., 2006; Yücel et al., 2020). The combined use of PMR and hand massage in a brief bedside program remains insufficiently characterized.

This case study, therefore, describes changes in self-reported anxiety scores in two maintenance hemodialysis patients after four sessions of combined PMR and hand massage. The emphasis is on individual patient trajectories rather than estimating efficacy.

RESEARCH METHOD

A descriptive two-patient case study was conducted at the Hemodialysis Unit of KRT Setjonegoro Regional General Hospital, Wonosobo, Indonesia. Two adult males undergoing twice-weekly maintenance hemodialysis were purposively

selected. The number assessed for eligibility, the detailed selection and exclusion criteria, and the exact study dates were not documented; these details were not reconstructed.

Anxiety was assessed using the seven-item Generalized Anxiety Disorder scale (GAD-7; total score 0–21), with each item referring to symptoms over the preceding two weeks. Severity bands were minimal (0–4), mild (5–9), moderate (10–14), and severe (15–21) (Spitzer, Kroenke, Williams, & Löwe, 2006). An Indonesian-language validation study has been published in an epilepsy population (Budikayanti, Larasari, Malik, Syeban, Indrawati, & Octaviana, 2019), but validity specifically in these hemodialysis cases was not evaluated. The instrument estimates self-reported anxiety symptoms and does not independently establish a clinical diagnosis.

Both patients underwent four bedside sessions over two weeks, scheduled twice weekly during hemodialysis. Each session was documented as 15 minutes of guided progressive muscle relaxation (PMR), followed by 10 minutes of gentle hand massage of the arm without the dialysis fistula. PMR consisted of brief tightening and releasing of major muscle groups with slow breathing. Hand massage involved gentle strokes, kneading, and circular movements with the palms and fingers, using baby oil. GAD-7 scores were recorded before the first and after the fourth session.

Individual anxiety scores, absolute changes, and mean ± sample standard deviation (SD) for the two cases were summarized descriptively. No inferential test or standardized treatment-effect estimate was calculated because two cases cannot provide a reliable estimate of effectiveness. Because the GAD-7 asks about symptoms over the preceding two weeks, the post-intervention score reflects symptom recall rather than anxiety immediately following the final massage session.

RESEARCH RESULTS

Table 1. Participant Characteristics (N = 2)

Variable	Results
Age, years, mean ± SD (range)	**43.50 ± 10.61 (36–51)**
Individual patient ages (n/%)	
36 years	1/50.0
51 years	1/50.0
Gender (n/%)	Male: 2/100.0
Haemodialysis duration (years)	2–5
Employment status (n/%)	Driver's assistant: 1/50.0; Unemployed: 1/50.0
Dialysis frequency (n/%)	Twice weekly: 2/100.0

As presented in Table 1, the participants were aged 36 to 51 years (mean ± SD, 43.50 ± 10.61 years). Both were male and underwent hemodialysis twice weekly. One was employed as a driver's assistant, and the other was not employed. Age and employment could not be linked at the patient level from the available records.

Table 2. GAD-7 Scores Before And After Four Sessions

Outcome	Pretest	Posttest	Change
Patient 1, GAD-7	14 (moderate)	4 (minimal)	−10
Patient 2, GAD-7	17 (severe)	5 (mild)	−12
Mean ± SD	**15.50 ± 2.12**	**4.50 ± 0.71**	**−11.00 ± 1.41**

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Table 2 shows that GAD-7 scores decreased from 14 (moderate) to 4 (minimal) in Patient 1 and from 17 (severe) to 5 (mild) in Patient 2. The mean score declined from 15.50 ± 2.12 to 4.50 ± 0.71, with a mean within-patient change of −11.00 ± 1.41 points. No inferential testing was performed.

DISCUSSION

Both patients reported lower GAD-7 anxiety-symptom scores following four sessions of combined PMR and hand massage. These individual score changes describe the two observed cases; they do not measure a controlled treatment effect or establish that the combined program was responsible.

PMR provides a structured process of tightening and releasing muscle groups and can promote attention to physical tension during dialysis. Prior studies have examined PMR in relation to anxiety, stress, and fatigue among hemodialysis patients, although intervention intensity, outcome measures, and study designs vary (Hudiyawati et al., 2019; Anggraini et al., 2022; Priheningtyas et al., 2025; Devi et al., 2026; Hasanzadeh et al., 2025). The latter studies on fatigue or well-being provide contextual evidence rather than confirming anxiety reduction in these two case reports.

Gentle hand massage may support tactile comfort and focused nurse–patient interaction during treatment. Studies of massage among hemodialysis patients have assessed symptoms including anxiety and fatigue (Çeçen & Lafcı, 2021; Ariastuti et al., 2024; Anshari et al., 2026). Wider massage research provides background on comfort, but findings from nursing-home populations are not directly transferable to hemodialysis care (Field, 2016; Kolcaba et al., 2006; Yücel et al., 2020). Neither intervention component was evaluated separately in this case report.

Both patients continued routine dialysis care, without an untreated or attention-matched comparison group. Changes in anxiety might also reflect patient–nurse interaction, usual care, changing circumstances, repeated assessment, or regression toward the mean. Because the GAD-7 refers to symptoms over the preceding two weeks, the timing of its repeated administration also limits interpretation of the observed score changes as immediate treatment effects.

LIMITATIONS

Only two adult men from one hemodialysis unit were described. The number considered for participation, some selection details, and study dates were not documented. No comparator group, blinded assessment, standardized adverse-event reporting, or follow-up was available. Anxiety was self-reported with a two-week recall instrument; medication or other care changes could not be assessed. The case-level linkage of demographic details was also incomplete. These limitations preclude causal claims, population-level generalization, and conclusions about the separate contributions or safety of PMR and massage.

CONCLUSION

GAD-7 anxiety-symptom scores were lower after four sessions of combined PMR and hand massage in these two hemodialysis cases. The observations do not establish efficacy, identify which component contributed to the change, or demonstrate lasting benefit.

SUGGESTION

Future research should include larger, more diverse samples, transparent eligibility criteria, detailed reporting of intervention fidelity and safety, a comparison group, and delayed follow-up. Separate PMR-only and massage-only arms would help distinguish their contributions. Anxiety should be assessed with validated instruments at time points consistent with each measure's recall window, alongside patient comfort and other clinically meaningful outcomes.

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