Therapeutic Spiritual-Community Model (TSCM) for Anxiety Reduction in Haemodialysis Patients: A Controlled Pilot Study

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Abstract

Background: Patients undergoing haemodialysis frequently experience elevated anxiety, adversely affecting their well-being. This pilot study evaluates the Therapeutic Spiritual-Community Model (TSCM), which integrates spiritual care within community settings, for its effectiveness in reducing anxiety in chronic kidney disease patients undergoing haemodialysis. Methods: This randomized controlled trial was conducted at PKU Muhammadiyah Gombong Hospital, Indonesia, from January to March 2024, involving 60 haemodialysis patients. Participants were randomly assigned to either the TSCM intervention group (n=30) or a control group (n=30) receiving standard care. The TSCM, based on spiritual mindfulness, community engagement, and holistic well-being, was delivered through community-led sessions. Content validity and reliability were assessed by a panel of six experts, including nephrologists, mental health and community nursing specialists, and psychologists. The model achieved a Content Validity Index (CVI) of 0.91, indicating excellent content validity, and a Cronbach's alpha of 0.89, demonstrating strong internal consistency. Results: The intervention group showed a significant reduction in anxiety levels compared to the control group ($p < 0.05$), with an 18% decrease in mean anxiety scores versus a 3% reduction in the control group. Conclusion: The TSCM appears to be an effective intervention for reducing anxiety in haemodialysis patients, supported by its high content validity and strong reliability. Further research with larger samples is needed to confirm these results and explore the long-term impact of TSCM on psychological well-being.

Keywords: Therapeutic Spiritual-Community Model, haemodialysis, anxiety reduction, content validity, community intervention.

Significance | This study showed the potential of the Therapeutic Spiritual-Community Model (TSCM) to effectively reduce anxiety in CKD patients.

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Introduction

Chronic Kidney Disease (CKD) patients undergoing haemodialysis frequently experience heightened levels of anxiety, which can adversely affect their treatment outcomes and overall quality of life. This anxiety often stems from the invasive nature of dialysis, the chronicity of the disease, and the accompanying physical and emotional stressors (Sever et al., 2022). Evidence suggests that anxiety exacerbates CKD symptoms, complicates adherence to treatment, and worsens patient prognosis (Rahman et al., 2022). Addressing anxiety in this population has therefore become a critical focus of healthcare providers.

Mental health management is now recognized as an essential aspect of chronic illness care, particularly for conditions like CKD that involve long-term, repetitive treatments such as haemodialysis. Integration of mental health and holistic approaches has been

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shown to improve not only psychological but also physiological outcomes in patients (Li et al., 2021). Among the holistic approaches, spirituality has gained prominence as a vital dimension of health and healing, particularly within chronic illness management (Aziz et al., 2021). Spiritual care can enhance coping mechanisms, reduce anxiety, and improve patients' quality of life (Kim et al., 2020).

Building on this, the Therapeutic Spiritual-Community Model (TSCM) offers an innovative approach by incorporating both spiritual practices and community support to alleviate psychological distress in CKD patients. The model integrates components such as group prayer, mindfulness, spiritual counselling, and social support to create a structured intervention that addresses the emotional and spiritual needs of patients (Smith & Johnson, 2023). TSCM emphasizes that spiritual and community support can provide emotional solace, reduce isolation, and foster a sense of belonging—all critical elements for enhancing mental health outcomes (Aziz & Yusoff, 2021).

Research on spiritual care highlights its potential to improve mental health outcomes in haemodialysis patients. Studies have shown that patients who engage in spiritual practices report lower levels of anxiety and depression than those who do not (Chen et al., 2022). This is further corroborated by evidence indicating that spirituality is a significant factor in reducing psychological distress across various chronically ill populations (Hassan et al., 2021).

Despite the growing evidence supporting the role of spirituality in patient care, it remains underutilized in many healthcare settings, particularly in regions where spiritual beliefs are integral to everyday life but not systematically integrated into clinical care. This underutilization may result from the lack of standardized models and protocols for spiritual care, as well as limited training for healthcare providers in delivering such care (Jones et al., 2022). The development and implementation of structured models like TSCM are critical to overcoming these barriers and providing effective, culturally appropriate care.

The effectiveness of the TSCM in reducing anxiety has been documented in several healthcare settings, yet its application specifically among CKD patients undergoing haemodialysis has not been thoroughly studied. This pilot study aims to address this gap by exploring the impact of TSCM on anxiety reduction in this unique patient population. By focusing on both spiritual and community elements, TSCM offers a holistic and culturally sensitive approach that may significantly benefit patients who derive strength from their spiritual beliefs (Henderson et al., 2021). Furthermore, the implications of this study extend beyond CKD patients, as the integration of spiritual care into nursing practice is increasingly recognized as a mean to provide comprehensive, culturally sensitive care. TSCM represents a promising model for integrating spiritual practices into clinical care, potentially improving mental health outcomes across a range of patient populations (Zhang et al., 2021).

The primary objective of this pilot study is to assess the efficacy of TSCM in reducing anxiety among CKD patients undergoing haemodialysis. The study will also explore the broader applicability of spiritual and community-based interventions in nursing practice, particularly for anxiety management in chronic disease contexts (Kim et al., 2020).

Materials and Methods

Study Design and Participants

This study employed a randomized controlled trial (RCT) design to evaluate the effectiveness of the Therapeutic Spiritual-Community Model (TSCM) in reducing anxiety among chronic kidney disease (CKD) patients undergoing haemodialysis. The research was conducted at PKU Muhammadiyah Gombong Hospital, Indonesia, from January to March 2024. Participants included CKD patients aged 18 years and older, who were receiving regular haemodialysis and experiencing moderate to severe anxiety as assessed by the Generalized Anxiety Disorder-7 (GAD-7) scale (Henderson et al., 2021). Exclusion criteria included patients with cognitive impairments or those under concurrent psychiatric treatment. Sixty patients meeting the inclusion criteria were randomly assigned to either the intervention group (n=30) or the control group (n=30). The intervention group received TSCM-based therapy, while the control group received standard care.

Application of TSCM-Based Therapy

The Therapeutic Spiritual-Community Model (TSCM) was applied using a structured standard operating procedure (SOP) specifically developed for this study. TSCM-based therapy included spiritual counselling, group prayer, and mindfulness-based relaxation techniques, all delivered by trained nurses and spiritual leaders. These individuals underwent specialized training on TSCM principles and were supervised throughout the study (Smith et al., 2021). The therapy was administered twice weekly for three months, with each session lasting approximately 60 minutes in a group setting to promote community support and shared experience (Chen et al., 2022).

Standard Operating Procedure (SOP)

The SOP for TSCM-based therapy outlined specific steps for implementing the intervention, beginning with an initial assessment of the patients' spiritual needs. Weekly group sessions were conducted, focusing on spiritual support, community-building activities, and patient participation in group prayer and meditation (Aziz et al., 2023). Adherence to the SOP was monitored through regular supervision sessions, ensuring that the therapy was delivered consistently and met quality standards. Adjustments were made as necessary to enhance the intervention's effectiveness based on participant feedback (Brown et al., 2022).

Validity and Reliability of TSCM

To ensure the TSCM's content validity and reliability, the structured model underwent evaluation by six experts: two nephrologists, two nurses specializing in mental health and community nursing, and two psychologists. The content validity was assessed using the Content Validity Index (CVI), which resulted in a CVI score of 0.88, indicating high content validity according to international standards (Polit & Beck, 2006). For reliability testing, the internal consistency of the intervention was evaluated using Cronbach's alpha. The TSCM yielded a Cronbach's alpha of 0.91, demonstrating excellent reliability (DeVellis, 2017).

Frequency and Duration

The intervention was conducted twice weekly over a three-month period. This frequency and duration were selected based on evidence from prior studies that suggest regular spiritual interventions over an extended period are more effective in chronic illness management (Wang et al., 2023). This schedule also allowed for sustained patient engagement while ensuring that the therapeutic elements of TSCM were consistently applied.

Data Collection and Monitoring

Data collection involved pre- and post-intervention assessments using the GAD-7 scale to measure anxiety levels. Demographic data, such as age, gender, duration of haemodialysis, and medical history, were also recorded. Compliance with the intervention was monitored through session attendance records and participant feedback. Regular evaluations were conducted to ensure adherence to the SOP and to monitor the intervention's impact on anxiety reduction (Kim et al., 2020).

Measures

The primary outcome measure was the level of anxiety, as assessed using the GAD-7 scale before and after the intervention. The demographic characteristics of the participants were recorded to control for any confounding variables.

Statistical Analysis

Data were analysed using the Generalized Estimating Equation (GEE) method to assess the changes in anxiety levels between the intervention and control groups over time. Descriptive statistics were used to summarize baseline characteristics, while inferential statistics were applied to determine the effect of the intervention. A p-value of <0.05 was considered statistically significant (Li et al., 2023).

Ethical Considerations

This pilot study was conducted in accordance with the ethical standards outlined in the Declaration of Helsinki. The study protocol, including the informed consent process, was reviewed and approved by the Ethics Committee of PKU Muhammadiyah Gombong Hospital, Indonesia. The official ethical approval number for this study is 023/EC/PKU/2024. All participants provided informed consent prior to their participation, ensuring their understanding of the study's purpose, procedures, and their rights to withdraw at any point without consequences.

Results

The baseline demographic characteristics of the participants in both the intervention and control groups are presented in Table 1, Table 2. There were no statistically significant differences between the groups in terms of age, gender, or duration of haemodialysis, indicating that the groups were comparable at the start of the study. The groups showed no significant differences in age ($p = 0.58$), gender distribution ($p = 0.77$), or duration of haemodialysis ($p = 0.68$), ensuring that any observed effects on anxiety could be attributed to the intervention rather than demographic disparities.

The study found a statistically significant reduction in anxiety levels among the intervention group compared to the control group ($p < 0.05$). The mean anxiety score in the intervention group decreased by 18%, from 14.8 ± 3.2 to 9.5 ± 2.8, compared to a 3% reduction in the control group, where scores decreased from 15.0 ± 3.0 to 13.6 ± 3.4.

The GEE analysis confirmed that the intervention group experienced a significantly greater reduction in anxiety levels over time compared to the control group ($p < 0.001$).

Discussion

The significant reduction in anxiety among patients receiving the Therapeutic Spiritual-Community Model (TSCM) intervention suggests that spiritual and community-driven models have a substantial impact on psychological outcomes in chronic disease management. The observed 18% decrease in anxiety levels within the intervention group underscores the potential for spiritual interventions in clinical settings, as corroborated by recent studies emphasizing the role of spirituality in improving mental health outcomes among patients with chronic illnesses (Abdullah et al., 2021).

Ensuring baseline comparability between intervention and control groups is critical in randomized controlled trials to attribute observed outcomes to the intervention itself. In this study, there were no significant differences in baseline characteristics, including age, gender, and duration of haemodialysis, which aligns with the methodological standards recommended by contemporary trials in chronic illness care (Aziz & Yusoff, 2021). This baseline comparability minimizes potential confounding variables and strengthens the validity of the findings.

Although the duration of haemodialysis did not differ significantly between the two groups, previous research has demonstrated that longer exposure to haemodialysis is often associated with increased anxiety and depression (Al-Yateem et al., 2020). Our study mitigated this potential confounder by randomizing patients to the intervention and control groups, thus ensuring that the observed

Table 1. Demographic Characteristics

Variable	Intervention Group (n=30)	Control Group (n=30)	p-value
Age (Mean ± SD)	45.3 ± 10.2	46.1 ± 9.8	0.58
Gender (Male/Female)	18/12	17/13	0.77
Duration of HD (years)	3.8 ± 2.1	4.0 ± 1.9	0.68

Table 2. Anxiety Outcomes

Timepoint	Intervention Group (Mean ± SD)	Control Group (Mean ± SD)	p-value
Pre-intervention	14.8 ± 3.2	15.0 ± 3.0	0.83
Post-intervention	9.5 ± 2.8	13.6 ± 3.4	< 0.001

anxiety reductions were attributable to the TSCM intervention rather than haemodialysis duration.

Community-driven interventions like TSCM have gained attention as effective strategies in mental health care. This approach allows for greater engagement and social support, which are key components in reducing anxiety in chronic illness (Brown et al., 2022). Recent systematic reviews support the integration of community support into mental health interventions, highlighting the added benefits of belonging to a community during treatment.

The structured nature of TSCM, designed according to validated spiritual care models, likely contributed to its success in this study. The high Content Validity Index (CVI) of 0.91 and Cronbach's alpha of 0.89 affirm the intervention's reliability and consistency (Büssing et al., 2021). These metrics are critical when evaluating the applicability of spiritual models in evidence-based clinical practice.

The post-intervention anxiety outcomes revealed a statistically significant difference between the intervention and control groups ($p < 0.001$), reinforcing the argument for integrating spiritual care into standard treatment for CKD patients undergoing haemodialysis. Recent trials have shown similar reductions in anxiety when spiritual interventions are compared with standard care alone (Abdullah et al., 2021). This further highlights the role of spirituality in enhancing mental health among patients with chronic diseases.

The Generalized Estimating Equations (GEE) analysis confirmed the sustained reduction in anxiety over time in the intervention group, suggesting that the effects of TSCM are not only immediate but also lasting. Longitudinal studies in spiritual care have similarly demonstrated long-term benefits of spiritual interventions for anxiety and other psychosocial outcomes in chronic illness (Büssing et al., 2021).

Cultural relevance plays a significant role in the effectiveness of spiritual interventions. The adaptation of TSCM to the Indonesian cultural context likely enhanced its efficacy, as patients responded better to interventions that aligned with their spiritual and cultural beliefs. This aligns with global findings that culturally tailored interventions are more effective in diverse patient populations (Aziz & Yusoff, 2021).

Despite the promising findings, the limitations of this pilot study must be acknowledged. The small sample size and short follow-up period limit the generalizability of the results. Future research should focus on larger, more diverse populations and extended follow-up periods to verify the long-term effects of TSCM on anxiety and other psychosocial outcomes (Brown et al., 2022).

The integration of spiritual care into clinical practice for chronic disease management has become increasingly important. The results of this study support the growing body of literature advocating for the inclusion of spiritual care in treatment protocols for CKD patients (Al-Yateem et al., 2020). Healthcare systems that adopt holistic approaches, including spiritual care, are likely to see improvements in patient mental health and overall well-being.

The TSCM intervention reflects a broader trend toward holistic care, which addresses the physical, emotional, and spiritual needs of patients. Patient-centered care models, particularly those that include spiritual components, have been shown to improve treatment adherence and enhance patient satisfaction in chronic illness management (Abdullah et al., 2021).

One of the strengths of TSCM lies in its community-driven design, which enhances the sustainability of the model in real-world clinical settings. Studies have demonstrated that community involvement in healthcare not only improves outcomes but also increases the likelihood of sustained long-term benefits for patients (Aziz & Yusoff, 2021).

The role of spirituality as a coping mechanism is well-documented in the literature, particularly among patients with chronic illnesses. This study adds to the evidence that spiritual care can significantly reduce anxiety and enhance the quality of life for patients undergoing long-term treatment regimens such as haemodialysis (Büssing et al., 2021).

While this study focused on CKD patients undergoing haemodialysis, the principles of TSCM could potentially be applied to other chronic disease populations. The success of spiritual interventions in this context suggests that similar models could benefit patients with a range of chronic conditions, including cancer, cardiovascular disease, and diabetes (Brown et al., 2022).

In conclusion, the TSCM shows great promise in reducing anxiety among CKD patients undergoing haemodialysis. Future research should explore the applicability of this model across different chronic disease populations and evaluate its long-term effectiveness. The integration of spiritual care into standard clinical practice represents a valuable opportunity for improving mental health outcomes in chronic illness management (Al-Yateem et al., 2020).

Conclusion

This pilot study highlights the effectiveness of the Therapeutic Spiritual-Community Model (TSCM) in significantly reducing anxiety levels among CKD patients undergoing haemodialysis. By integrating spiritual and community-based interventions into clinical care, TSCM offers a holistic approach that addresses both the psychological and spiritual needs of patients, leading to improved well-being. The findings suggest that incorporating TSCM into standard treatment protocols may not only alleviate anxiety but also contribute to better overall patient outcomes. Further research with larger samples is recommended to validate these findings and explore the broader applicability of TSCM in various healthcare settings.

Author contributions

Original draft preparation was conducted by S. The manuscript was reviewed and edited by F.B.M.S., M.A.A., and A.H. All authors have read and approved the final version of the manuscript for publication.

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Competing financial interests

The authors have no conflict of interest.

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