



Short-Term Changes in Recorded Anxiety and Systolic Blood Pressure After a Dhikr-Based Relaxation Intervention in Cancer Patients

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Abstract

Background: Anxiety is common during cancer care, and spiritually congruent supportive interventions may be acceptable to patients who request them. Evidence from local implementation settings remains limited. **Objective:** To evaluate short-term changes in recorded anxiety severity and systolic blood pressure after a dhikr-based relaxation intervention among hospitalized adults with cancer. **Methods:** This evidence-based practice implementation project used a one-group pretest-posttest evaluation. Sixteen participants were recruited through a nonprobability consecutive approach between 4 and 26 November 2019. The intervention comprised two 15-minute sessions separated by a 30-minute rest period and combined guided slow breathing, relaxation, and Islamic dhikr. Anxiety and vital signs were assessed immediately before and after the intervention. **Results:** The recorded anxiety category score decreased from 2.31 (SD 0.79) to 1.44 (SD 1.03; $p = 0.001$). Mean systolic blood pressure decreased from 125.63 (SD 15.90) to 113.13 (SD 16.22) mmHg ($p = 0.001$). The archived pulse output contained no pretest or posttest descriptive values and was not interpreted. **Conclusion:** The combined dhikr, breathing, and relaxation intervention was associated with lower immediate postintervention anxiety category scores and systolic blood pressure. The small sample and absence of a control group preclude causal attribution.

Keywords: cancer, anxiety, dhikr therapy, scale Hars

1. Introduction

Cancer remains a major source of morbidity and mortality. The most recent GLOBOCAN estimates indicate that 20.6 million new cancer cases and 9.8 million cancer deaths occurred worldwide in 2024 (Sung et al., 2026). Alongside physical symptoms and treatment-related burdens, patients may experience anxiety at diagnosis, during treatment, and during periods of uncertainty about prognosis. Anxiety can interfere with sleep, communication, decision-making, treatment participation, and quality of life, although its prevalence varies across cancer types, stages, settings, and measurement instruments (Penninx et al., 2021; Pitman et al., 2018).

Supportive cancer care may include pharmacological management, psychological interventions, and patient-preferred spiritual care. Spiritual care should be responsive to an individual's beliefs and wishes rather than applied routinely on the basis of assumed religious identity (Ellington et al., 2017; Miller et al., 2025). For Muslim patients who value religious practice, dhikr involves repeated remembrance of God through prescribed phrases or prayers and may provide a structured attentional focus during periods of distress. A controlled study among patients with cancer reported lower anxiety following dhikr therapy, while a clinical trial found that Qur'an recitation and music were each associated with reduced chemotherapy-related anxiety (Al-Jubouri et al., 2021; Sulistyawati et al., 2019).

These findings cannot be transferred directly across settings because the interventions, comparators, outcome measures, and patient populations differ.

The oncology unit at Dr. Wahidin Sudirohusodo Hospital had no standardized procedure for delivering a brief dhikr-based supportive intervention when this project was conducted. The local practice gap concerned implementation rather than proof of efficacy: clinicians needed a feasible, structured approach that could be offered voluntarily and evaluated in routine care. The intervention used in this project was not dhikr alone. It combined slow breathing, guided relaxation, focused attention, and dhikr, so changes observed after the session cannot be assigned to a single component.

This project evaluated short-term changes in recorded anxiety severity, systolic blood pressure, and pulse after a dhikr-based relaxation intervention among hospitalized adults with cancer. The evaluation was designed to describe within-participant change during local evidence-based practice implementation, not to establish intervention effectiveness or causality.

2. Materials and Methods

2.1 Study Design and Setting

This activity was an evidence-based practice implementation project evaluated with a one-group pretest-posttest design (Eravianti, 2021). It was conducted in the Lontara 2 oncology unit of Dr. Wahidin Sudirohusodo Hospital, Makassar, Indonesia, from 4 to 26 November 2019. The design assessed immediate within-participant changes after implementation and did not include random allocation, a comparison group, or longer-term follow-up.

2.2 Participants, sampling, and sample size

A nonprobability consecutive approach was used during the three-week implementation period. Eligible patients were aged 30 years or older, had a cancer diagnosis, had no documented psychiatric or neurological disorder, were able to participate in the session, and agreed to receive the intervention. Sixteen patients completed the pretest, intervention, and immediate posttest procedures. The sample size was pragmatic and reflected the number enrolled during the implementation period; no a priori power calculation was performed. The project therefore provides a preliminary local estimate rather than a statistically powered test of effectiveness.

All participants voluntarily agreed to receive an Islamic dhikr-based intervention. Religious affiliation was not included in the archived demographic table, so the available records do not verify whether every participant self-identified as Muslim. Future implementation should document religious preference and offer the intervention only to patients who consider it consistent with their beliefs.

2.3 Dhikr-based relaxation intervention

The intervention consisted of two guided 15-minute sessions separated by a 30-minute rest period. A nurse or family caregiver guided the participant while the participant sat or reclined in a comfortable position. The session began with approximately 10 to 15 cycles of slow breathing: inhaling through the nose, briefly holding the breath for about two seconds, and exhaling slowly through the mouth. Participants then closed their eyes if comfortable and focused on the recitation. The sequence included ta'awwudh, basmalah, the shahada, Subhanallah 33 times, Alhamdulillah 33 times, Allahu Akbar 33 times, and the phrases Astaghfirullah al-'azim, La ilaha illallah, and La hawla wa la quwwata illa billah. The same sequence was repeated in the second session. Because breathing, rest, focused attention, and dhikr were delivered together, the intervention is described as dhikr-based relaxation rather than dhikr alone.

2.4 Outcomes and measurement

Anxiety was intended to be assessed with the Hamilton Anxiety Rating Scale, also termed the HAM-A or HARS. The original instrument is a clinician-rated scale with 14 items covering psychological and somatic anxiety symptoms. Each item is rated from 0 to 4, producing a total score from 0 to 56, with higher scores indicating greater symptom severity (Hamilton, 1959). Previous psychometric evaluation found adequate reliability and concurrent validity but also identified limitations in the scale's internal structure and the influence of somatic symptoms (Maier et al., 1988).

The archived project report did not retain the language version, translation procedure, assessor training record, item-level responses, total HAM-A scores, category cutoffs, or a study-specific reliability coefficient. The reported means of 2.31 and 1.44 are incompatible with the standard 0 to 56 total score and appear to represent

coded anxiety categories. They are therefore reported as recorded anxiety category scores and should not be interpreted as HAM-A total scores. This scoring issue requires verification against the original case forms or statistical dataset before publication.

Systolic blood pressure and pulse were measured immediately before the first session and after the second session. The archived records did not specify the device model, cuff size, participant position, number of readings, or interval between completion of the intervention and the posttest measurement. These omissions limit assessment of measurement consistency.

2.5 Statistical Analysis

Participant characteristics were summarized as frequencies and percentages. The archived report states that Shapiro-Wilk tests were used to assess normality. Paired-samples t-tests were used for the recorded anxiety category score and systolic blood pressure, while the Wilcoxon signed-rank test was used for pulse. All tests were two-sided with alpha set at 0.05 and were conducted in IBM SPSS Statistics version 24. The available file did not contain Shapiro-Wilk statistics, paired-test statistics, degrees of freedom, confidence intervals for change, Wilcoxon statistics, or participant-level data; these could not be independently verified. Arithmetic changes shown in Tables 2 and 3 were calculated as posttest minus pretest from the reported means and are not substitutes for change-score estimates derived from raw paired data.

3. Results

Table 1 The frequency distribution based on the characteristics of participants (n=16)

Characteristic	n	%
Age category		
Adult	3	18.8
Early older adult	6	37.5
Late older adult	3	18.8
Older adult	4	25.0
Sex		
Male	5	31.3
Female	11	68.8
Occupation		
Civil servant	2	12.5
Homemaker	7	43.8
Self-employed	4	25.0
Retired	1	6.3
Farmer	2	12.5
Education		
Primary school	5	31.3
Junior secondary school	2	12.5
Senior secondary school	6	37.5
Bachelor's degree	3	18.8
Ethnicity		
Bugis	6	37.5
Makassar	2	12.5
Mandar	5	31.3
Other	3	18.8

Table 1 presents the sociodemographic characteristics of the 16 participants included in the intervention. Based on age, the largest proportion of participants was in the early elderly category, comprising 6 participants (37.5%), followed by the elderly category with 4 participants (25.0%). The adult and late elderly categories each consisted of 3 participants (18.8%). Regarding gender, most participants were women, accounting for 11 participants (68.8%), while 5 participants (31.3%) were men. In terms of occupation, housewives constituted the largest group, with 7

participants (43.8%). This was followed by entrepreneurs with 4 participants (25.0%), civil servants and farmers with 2 participants each (12.5%), and one retired participant (6.3%). Regarding educational background, most participants had completed senior high school, comprising 6 participants (37.5%). Five participants (31.3%) had completed elementary school, 2 participants (12.5%) had completed junior high school, and 3 participants (18.8%) held a bachelor's degree. In relation to ethnic background, Bugis was the most frequently represented ethnic group, with 6 participants (37.5%), followed by Mandar with 5 participants (31.3%), other ethnic groups with 3 participants (18.8%), and Makassar with 2 participants (12.5%). Overall, the participants were predominantly women, were mainly in the early elderly age category, worked primarily as housewives, and had diverse educational and ethnic backgrounds. These findings provide a descriptive overview of the study sample and should not be interpreted as demonstrating differences or associations between participant characteristics and the intervention outcomes.

Table 2 Recorded anxiety category scores before and after the intervention

Outcome	Pretest Mean (SD)	Posttest Mean (SD)	Change	95% CI for change	p
Recorded anxiety category score	2.31 (0.79)	1.44 (1.03)	-0.87	1.89 to 2.74	0.001

Table 2 shows that the recorded mean anxiety score decreased from 2.31 (SD 0.79) before the intervention to 1.44 (SD 1.03) after the dhikr-based relaxation intervention. The arithmetic difference between the two means was 0.87 points. The reported p-value of 0.001 indicates a statistically significant difference between the pre-intervention and post-intervention measurements. These findings suggest that participants reported lower anxiety scores after receiving the intervention. Given the one-group pretest-posttest design, the observed reduction represents a short-term change within the same participants and cannot establish that the intervention alone caused the change.

Table 3 Systolic blood pressure before and after the intervention

Outcome	Pretest Mean (SD)	Posttest Mean (SD)	Change, mmHg	95% CI for change	p
Systolic blood pressure, mmHg	125.63 (15.90)	113.13 (16.22)	-12.50	134.10 to 117.15	0.001

Table 3 presents a decrease in mean systolic blood pressure from 125.63 mmHg (SD 15.90) before the intervention to 113.13 mmHg (SD 16.22) after the intervention. The arithmetic reduction between the reported means was 12.50 mmHg. The reported p-value of 0.001 indicates a statistically significant difference in systolic blood pressure between the two measurement points. Thus, the participants had lower systolic blood pressure immediately after the dhikr-based relaxation intervention than before the intervention. This result describes a within-participant change, but the absence of a control group prevents the reduction from being attributed solely to the intervention.

Table 4 Nadi Differences Before and After Intervention Therapy Dhikr

Variables	Statistical test	Value P Value
Pre Test Nadi - Nadi Post Test	Wilcoxon signed-rank	0.001

Table 4 indicates a statistically significant difference in pulse rate between the pre-intervention and post-intervention measurements, based on the reported Wilcoxon signed-rank test result ($p = 0.001$). Nevertheless, the direction and magnitude of the change cannot be determined from the information currently presented because the table does not report the pre-intervention and post-intervention median pulse rates, interquartile ranges,

change values, or test statistic. These descriptive and statistical values should be added before concluding whether the participants' pulse rates increased or decreased after the intervention.

4. Discussion

The recorded anxiety category score was lower immediately after the dhikr-based relaxation sessions. This within-participant change is consistent with the possibility that a brief, spiritually congruent practice may reduce perceived distress in the short term. It does not demonstrate effectiveness because the evaluation lacked a comparison group and the anxiety values were category codes rather than verified HAM-A totals (Juwita, 2025; Tuldjurin et al., 2024). Repeated assessment, rest, attention from staff or family, clinical changes during the session, and expectation of benefit could each have contributed to the posttest difference.

The direction of the anxiety finding is broadly consistent with previous studies of religiously oriented supportive interventions. Sulistyawati et al. (2019) reported lower anxiety after dhikr therapy in a non-equivalent control-group study among patients with cancer. Al-Jubouri et al. (2021) found reductions in chemotherapy-related anxiety after Qur'an recitation or music in a clinical trial. Direct comparison remains limited because those studies used different interventions, measurement tools, comparators, and treatment contexts. The present project adds information about feasibility in one Indonesian inpatient oncology unit but provides weaker evidence about efficacy.

The intervention combined dhikr with slow breathing, a comfortable resting position, closed-eye focused attention, and a 30-minute interval between sessions. Controlled breathing itself may influence subjective stress and short-term autonomic regulation. Meta-analytic evidence indicates that breathwork can reduce self-reported stress, while voluntary slow breathing is associated with changes in heart rate variability (Fincham et al., 2023; Laborde et al., 2022; Wahdini et al., 2025). These findings provide a plausible rationale for considering the breathing component, but they do not identify the mechanism operating in this project. Autonomic activity, respiratory rate, heart rate variability, catecholamines, cortisol, and brain activity were not measured. Claims that dhikr acts like a beta-blocker or produces specific neuroendocrine effects are therefore unsupported by the available data.

Systolic blood pressure was also lower at the immediate posttest. The average difference of 12.50 mmHg is descriptive and should be interpreted cautiously. Blood pressure may change with posture, cuff technique, recent activity, rest, pain, medication, emotional state, or ordinary measurement variability. The absence of a control condition prevents separation of the intervention from the effect of sitting quietly and repeating the measurement. Pulse cannot be discussed substantively because the available record contains no pretest or posttest values.

For clinical practice, the procedure may be considered an optional supportive activity for patients who explicitly request or accept an Islamic spiritual approach. It should not replace assessment and treatment of clinically significant anxiety, and it should not be offered on the assumption that a patient's ethnicity or treatment setting determines religious preference. A future implementation protocol should document eligibility, faith preference, facilitator training, fidelity to each intervention component, measurement conditions, adverse events, and reasons for declining participation.

4.1 Limitations

The project involved 16 participants from one oncology unit, used nonprobability sampling, had no control group, and assessed outcomes only immediately after the intervention. These features limit precision, external validity, and causal inference. Potential confounding arose from rest, slow breathing, focused attention, caregiver or nurse presence, concurrent clinical care, and repeated measurement. The archived record did not preserve the HAM-A language version, scoring categories, item-level data, assessor training, or study-specific reliability. It also lacked measurement details for blood pressure and pulse, full statistical test output, and descriptive pulse values. Religious affiliation was not recorded, and adverse events were not systematically assessed. These limitations prevent attribution of the observed changes specifically to dhikr and preclude any claim that the intervention is free of adverse effects.

5. Conclusions

In this small evidence-based practice implementation project, recorded anxiety category scores and systolic blood pressure were lower immediately after a combined dhikr, slow-breathing, and relaxation intervention. The findings describe short-term change in one clinical setting and do not establish effectiveness or isolate the contribution of dhikr. Future studies should use verified instrument scoring, standardized physiological measurement, a comparison group, adequate sample-size planning, and longer follow-up.

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Ethical considerations

This evidence-based practice project was conducted as a quality improvement initiative within the participating healthcare institution. According to institutional policy, formal ethical approval was not required. Permission to implement the project was obtained from the hospital management. All participants provided informed consent, and confidentiality and anonymity were maintained throughout the project.

Conflict of Interest

The authors declare no conflict of interest.

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