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Healing Touch as a Supportive Intervention for Adult Acute Leukemia Patients: A Pilot Investigation of Effects on Distress and Symptoms

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Abstract

Background—Goals were to determine the feasibility of conducting a study of Healing Touch (HT) for acute leukemia patients and to obtain preliminary data on its effectiveness.

Methods—Forty hospitalized leukemia patients completed a brief survey of HT knowledge/experience. A prospective cohort (N=12) was invited to participate in an HT intervention (9 30-minute sessions over 3 weeks); they completed measures of distress, symptoms, and sleep (at weeks 1 and 5), and completed single item ratings of fatigue, nausea, distress, and pain immediately pre-post selected HT sessions. The Wilcoxon signed rank test was used to analyze change in pre-post session ratings and distress, symptom, and sleep measures.

Results—Among survey respondents, 8% had used HT in the past, and 71% were interested in using HT. In the prospective cohort, there were significant pre-post session improvements in fatigue and nausea (but not in distress and pain). There were no significant changes between weeks 1 and 5 in distress, symptoms, or sleep. Ratings and qualitative feedback on HT were positive, focused mainly on feeling relaxed following HT sessions.

Conclusions—It is feasible to recruit patients hospitalized for acute leukemia to a study of HT. Preliminary data on short-term improvements in symptoms indicate these are promising outcomes for future study.

Keywords

energy medicine; healing touch; leukemia; symptom management

Quality of Life and Supportive Care for Acute Leukemia Patients

Diagnosis and treatment of acute leukemia are an extremely stressful experience for most patients owing to the often sudden manifestation of symptoms that requires immediate, intensive treatments and prolonged hospital stays.^{1,2} Following a diagnosis of acute leukemia, patients are immediately hospitalized for 4 to 6 weeks (and sometimes longer for complications). Relatively little research has been conducted on supportive interventions during treatment for adult patients with acute leukemia.^{3,4}

The quality of life (QOL) of acute leukemia patients undergoing such intensive treatments with prolonged hospital stays has been considered poor.⁴ Patients often experience significant emotional distress linked to diagnosis and treatment.⁵ Common emotional issues include feelings of shock, fear, anxiety, uncertainty, and helplessness, as well as an overwhelming sense of loss of control, symptom distress, and decreased QOL.^{1,2} Approximately 33 to 45% of leukemia patients experience substantial distress.^{6,7} In an investigation of patients with leukemia and lymphoma, 51% reported moderate distress and 14% reported severe distress.⁸ Further, self-reported QOL in leukemia patients was not associated with physical morbidity but was mainly influenced by emotional functioning.⁴ Symptoms and treatment-related side effects are also strongly linked to QOL in acute leukemia patients.^{4,9} The most commonly reported symptoms and side effects in these patients include fatigue, sleep disturbance, lack of appetite or changes in eating, nausea, vomiting, fever, sores in the mouth, mouth dryness, hair loss, and increased vulnerability to illness and infection.^{1,4,9}

Few studies have evaluated supportive interventions in this patient group.^{1,3,9} Clinical research is needed regarding interventions that can decrease emotional and symptom distress in the midst of high-intensity medical treatment.⁴ Healing touch (HT) is one strategy that may be useful for adult acute leukemia patients undergoing chemotherapy.

what Is Healing Touch?

HT is a biofield or energy-based therapy included under the designation of complementary and alternative medicine (CAM) by the National Center for Complementary and Alternative Medicine of the National Institutes of Health. The goal of HT is to restore balance, harmony, and a sense of well-being. HT is based on compassionate intention directed through light touch or placement of the hands just off the body; HT is often provided by nurses.¹⁰

Physiologically, biofield therapies such as HT appear to affect the autonomic nervous system,¹¹ altering the high frequency to low frequency ratio of heart rate variability, reflecting a greater parasympathetic tone and decreased sympathetic activation.¹² Some studies suggest that biofield healing may decrease stress and enhance immune function.^{10,13} It is also possible that the relaxation response may help explain the effects of HT.^{14,15} However, there is no scientific consensus on the specific physiologic and/or psychological pathways by which HT enhances a patient's sense of well-being.

Previous Research on HT

Research on HT has been conducted with individuals with a variety of physical and mental health issues. The primary clinical benefits attributed to biofield therapies such as HT are a sense of relaxation, diminished anxiety, diminished pain, and a sense of connection and support.^{10,13,16,17} Effects are typically noted within a few minutes of treatment and endure for minutes to hours (and sometimes days) following treatment.

HT may be useful for cancer patients to decrease anxiety, stress, and treatment-related symptoms (fatigue, nausea, pain). It requires no energy expenditure by patients and has no notable side effects. Several studies have begun to evaluate the effectiveness of HT for patients with cancer. A randomized controlled trial of the effects of HT on health-related QOL was conducted with women undergoing radiation therapy for breast or gynecologic cancers ($N = 62$).¹⁸ Study participants were randomized to six HT or six “mock” sessions conducted by laypersons with no HT training. All 30-minute sessions were conducted immediately after radiation therapy treatments. There were significant between-group differences for pain, vitality, and physical functioning; participants in the HT group showed statistically significant within-group improvements in mental health and emotional functioning that were not observed in the mock treatment group. Despite the limitation of the low sample size, these results offer preliminary support for HT to enhance health-related QOL in cancer patients.

The results from a prospective, randomized, crossover intervention study of 164 patients with multiple cancer types undergoing chemotherapy suggested beneficial results of HT.¹⁹ Outcomes investigated in this study included pain, nausea, fatigue, and anxiety for intervention groups (HT and massage therapy) and control groups (a standard medical care group and a “caring presence” group). HT was associated with reduced mood disturbance, blood pressure, heart rate, pain, and fatigue. No effects were seen for anxiety or nausea.

Finally, one study of 35 patients with a variety of types of cancer provided preliminary evidence of the effectiveness of “gentle touch” (presumably similar to HT).²⁰ Over 4 to 6 weeks, patients received four 60-minute “gentle touch” sessions. The touch used in this study was very gentle and involved being calm and centered and having healing intention, similar to HT. The results showed pre-post session improvements in perceived stress and relaxation levels and decreases in pain, depression, and anxiety, especially in patients with the most severe symptoms at study entry. No adverse effects of “gentle touch” were found. Patients’ subjective feedback was positive.

To summarize, in studies of HT or “gentle touch” with cancer patients, study participants reported a variety of subjective benefits, including improved mood, well-being, and vitality, as well as decreased pain, blood pressure, and fatigue.²¹ HT has been described as a potentially useful comfort measure for patients undergoing cancer treatment.²¹ To date, however, minimal research on HT has been conducted with cancer patients, and no study has been conducted with adult leukemia patients. The observed clinical benefits of HT and limited amount of research in this area are factors that highlight the importance of investigating HT as a supportive therapy with cancer patients,¹⁹ particularly adult patients with acute leukemia undergoing intensive treatment and lengthy hospitalizations.

Study Questions

The goal of this pilot study was to determine the feasibility of conducting a randomized clinical trial to test the effectiveness of HT as a supportive intervention for adult patients with acute leukemia who were undergoing induction or reinduction chemotherapy. We also wished to obtain preliminary data on effect sizes to generate accurate sample size calculations for a larger study if such a study appeared feasible. For the purposes of this project, feasibility was defined as the ability to recruit and retain patients; to receive positive qualitative feedback about the project; to have a high rate of responses on the pre- and post-treatment study questionnaires; and to be able to recruit and retain HT practitioners who could provide standardized treatments in the busy inpatient setting.

Methods

Design

To address these questions, we conducted a cross-sectional patient survey and a prospective cohort trial in the inpatient oncology unit at Wake Forest University Baptist Medical Center (WFUBMC). We had funding to complete surveys with 40 patients and enroll a prospective cohort of 12 patients to take part in the HT intervention.

Sample (Eligibility Criteria)

Participants were eligible if they were English-speaking adult (≥ 18 years of age) oncology inpatients hospitalized for induction or reinduction chemotherapy for treatment of acute lymphocytic or myelogenous leukemia at WFUBMC, which admits approximately 10 such patients per month.

Recruitment

Study participants were approached to participate in the survey within 7 days of their admission to the hospital. They were identified by the clinical nurse specialist on the Leukemia Service. All patients who met the study criteria were approached by a research assistant. A subgroup of 12 patients was invited to participate in the HT intervention portion of the pilot study; only the first 12 interested patients were offered the HT intervention. Patients could opt to complete only the brief interview or both the interview and the HT intervention. Participants received a \$10 gift card for each survey and/or questionnaire completed (detailed below).

Data Collection

Cross-Sectional Survey Patients—Patients ($N = 40$) were interviewed about previous use of CAM therapies, knowledge of HT, previous experience with HT, and willingness to participate in a study of HT for acute leukemia patients. A research assistant asked these questions verbally and recorded participant responses. We chose this method of interviewing to be sure that potential participants knew what HT was before they were asked about their willingness to participate in such a study. If patients were not interested in participating in the HT intervention, their participation was complete after completing this cross-sectional survey.

Prospective Cohort—Patients in the prospective cohort ($N = 12$) completed two sets of self-report questionnaires plus three brief ratings of fatigue, nausea, pain, and overall distress. All questionnaires were completed while patients were in the hospital. All baseline questionnaires were completed within 7 days of hospital admission. The follow-up questionnaire was completed during the fifth week of hospitalization or prior to discharge, whichever came first. Once per week during the intervention (weeks 2, 3, and 4), study participants were asked to complete a single-item rating of current fatigue, nausea, distress, and pain. These data were collected immediately before and after the second HT session of the week by the clinical nurse specialist (see intervention details below). A clinical chart review was conducted by a clinical nurse specialist in oncology who works with acute leukemia patients.

Intervention

The HT intervention consisted of nine 30-minute treatment sessions. Sessions were conducted between 1:00 and 5:00 pm. HT sessions were begun during the second week of the patient's hospitalization; three HT sessions per week took place during hospitalization weeks 2, 3, and 4. All HT sessions were conducted in the patient's hospital room. Prior to

each session, unit staff members were consulted to minimize interruptions during the session, and a privacy sign was placed on the door during the HT session. Family members were allowed to stay or leave during the HT session depending on the patient's preference. No music or aromatherapy was provided during HT sessions.

Seven practitioners provided HT sessions; all were certified and had 2 years of substantial training and at least 2 years of HT experience. In addition, one had a background in nursing and massage therapy, one had a background in nursing, and one had a background in massage therapy. The other HT practitioners did not have a background in health care. All sessions for a given patient were conducted by the same HT practitioner unless special circumstances arose (ie, sickness, family emergency). All HT practitioners had gone through volunteer training at the medical center, which included patient privacy issues and blood borne pathogen training. A study-specific training session was held for all practitioners who conducted HT sessions as part of this study to familiarize them with nursing routines and unit staff and to minimize disruptions to usual patient care activities.

A standardized HT noninvasive technique was used with all patients.²² This technique included (1) the practitioner mentally setting an intention for the patient's highest good and (2) a standardized sequence of hand positions (Appendix 1) progressing from the lower body (ankles) upward to the top of the head, placing the hands either lightly touching or several inches above (the location of hand placement depended on patient preference) the patient's clothed or gowned body for 1 minute. Each HT session lasted 30 minutes.

Measures—The following instruments were completed by HT intervention participants and used to measure basic demographic, clinical, and psychosocial variables.

Sociodemographic and Medical Information: The following information was collected at baseline: age, race or ethnicity, marital or partner status, educational history, income, religious affiliation or involvement, and employment status. The patient's medical record was the source of data for the cancer diagnosis and whether the patient was at initial diagnosis or relapse.

M.D. Anderson Symptom Inventory: The M.D. Anderson Symptom Inventory (MDASI)²³ was used to measure treatment-related symptoms. The MDASI is a 19-item self-report measure of the severity and impact of cancer-related symptoms. The 13 core items contain the most common symptoms that cause distress reported by cancer patients in active treatment. Each symptom is rated on an 11-point scale (0–10) to indicate severity, with 0 = “not present” to 10 = “as bad as you can imagine.” The final six items are related to how much symptoms interfered with functioning. These questions are also rated on an 11-point scale (0–10), with 0 = “did not interfere” and 10 = “interfered completely.” The MDASI is designed for simplicity, brevity, and acceptability to very ill patients. The MDASI demonstrates a high level of reliability.²³ A validation study demonstrated that reasonably small numbers of symptom items can account for the majority of symptom distress in patients with different malignancies at various stages.

Women's Health Initiative Insomnia Rating Scale: The Women's Health Initiative Insomnia Rating Scale (WHIIRS)²⁴ is a five-item measure of sleep quality. The first four items are related to initiation insomnia, maintenance insomnia, or early morning awakening and were rated from 0 = “no, not in the past 4 weeks” to 4 = “yes, 5 or more times a week.” The final sleep quality item is rated from 0 = “very sound or restful” to 4 = “very restless.” This brief measure demonstrates excellent validity and short-term test–retest reliability and good internal consistency reliability.

Profile of Mood States – Short Form (POMS-SF): The Profile of Mood States – Short Form (POMS-SF)²⁵ is a 37-item adjective checklist with a 5-point Likert scale. The POMS-SF yields a total mood disturbance (TMD) score and scores for six subscales: Fatigue, Vigor, Tension, Depression, Anger, and Confusion. The TMD score was used to measure psychological distress in this study. The measure has excellent reliability (Cronbach alpha = 0.91) and validity ($r = .95$) in cancer patients.²⁶

Distress Thermometer: The Distress Thermometer²⁷ is a single-item self-report rating of distress from 0 = “no distress” to 10 = “extreme distress” presented in the form of a thermometer to destigmatize patient reports of distress. It can be quickly used to screen for distress in cancer patients. A score of 5 indicates “moderate distress” and is defined as the cutoff point for clinically significant distress levels. The measure is very brief and has acceptable levels of reliability and external validity.^{28,29}

Additional Single-Item Ratings: Before and after selected HT sessions, patients were asked to rate their current level of fatigue, nausea, and pain from 0 to 10 (ie, 0 = no fatigue to 10 = extreme fatigue). The rating scale was selected to match the Distress Thermometer (described above); these items were developed for this study.

Intervention Feedback: A 13-item investigator-developed questionnaire was used to obtain feedback (ratings and open-ended responses) on the HT intervention. Using a rating scale from 0 = not at all to 4 = very much, participants rated the following items: (1) “I liked the HT sessions”; (2) “The HT sessions were helpful to me”; (3) “I plan to continue using HT”; (4) “I would recommend HT to others”; (5) “The HT practitioner was competent”; and (6) “The HT practitioner was sensitive.” They also provided open-ended, qualitative feedback on the best or least liked aspects of the HT intervention, observed physical and emotional benefits, and suggestions for improvement and provided other additional comments.

Data Analysis

Baseline analysis included descriptions of the trial’s recruitment and baseline characteristics of the participants. Descriptive statistics consisting of frequency tables and percentages for categorical variables and means, medians, standard deviations, and ranges for continuous variables were tabulated. Owing to the small sample size of the prospective cohort ($n = 12$), we used nonparametric statistics (Wilcoxon signed rank) to analyze change in the MDASI, WHIIRS, and POMS-SF score from baseline to the week 5 follow-up. We analyzed changes in the single-item ratings (0–10) of current fatigue, nausea, distress, and pain before and after each weekly HT session. To combine data across sessions, we calculated the mean difference in each variable (post-pre) for each participant and then used a Wilcoxon signed rank test to test whether the median difference was significantly different from zero.

Results

Recruitment and Study Sample Description

Over the course of 1 year, 84 potentially eligible patients were approached for study participation. Of these, 40 (48% of those approached) provided informed consent and completed brief surveys in an interview format. Reasons for nonparticipation were lack of interest (66%) or medical issues or feeling too sick (34%). Of the 40 enrolled, 17 (43%) had previously heard of HT. Although only 8% had used HT in the past, the majority of patients (71%) indicated an interest in using HT at the present time or in the future.

Following participation in the survey to determine knowledge of HT, patients were offered the HT intervention as part of a prospective cohort. Of the first 21 patients enrolled to

complete the baseline survey, a group of 15 patients (71%) was recruited into the prospective cohort; 3 of them withdrew. Two of these withdrew prior to any HT treatments: one patient withdrew owing to serious medical complications and another withdrew on the request of a family member who did not want any potential interference with the patient's medical treatment. The third patient received two HT sessions and then refused further study participation after speaking with his minister, who had religious objections to participation. Table 1 provides a complete description of the final prospective cohort. Of the 12 patients who participated in the intervention, 9 of them completed all nine sessions offered. The remaining three did not complete all sessions owing to serious medical complications ($n = 2$) or early hospital discharge ($n = 1$); they had received three to five HT sessions each.

Quantitative Outcomes

Change over Time in Symptoms, Sleep, and Psychological Distress—No significant changes were seen from baseline to the 5-week follow-up for the MDASI (symptom frequency and interference), WHIIRS (sleep), or POMS-TMD (psychological distress) (Table 2).

Pre-Post Session Ratings of Distress and Symptoms—Significant improvements were noted for fatigue (-1.8 on a 0 to 10 scale, $p < .01$) and nausea (-0.5 on a 0 to 10 scale, $p < .01$). The improvements noted for distress ($p = .08$) and pain ($p = .06$) were not statistically significant. Baseline values for pain were actually quite low (median value = 1.0) (Table 3).

HT Intervention Ratings

An overwhelming majority of patients (91%) liked HT “very much.” All patients found the HT sessions to be “quite a bit” or “very much” helpful. Eight patients (73%) wanted to continue using HT. All patients reported that they would recommend HT to others and found the practitioners to be sensitive and competent.

Qualitative Feedback

The most common spontaneously offered response for what patients liked most about HT was that they felt more relaxed and calm during and after the HT sessions ($n = 9$) (“made me very calm,” “relaxing and soothing”). A second response was appreciation of the quiet, uninterrupted time during HT sessions ($n = 2$) (“30 minutes of quiet rest – a time of solitude or prayer”). Few least liked aspects of HT were cited; one person said that sessions were too short and not done frequently enough; another commented on the time of day not being optimal (no suggestion as to when would be better); and a third person mentioned the inability to keep the room quiet and uninterrupted from medical care after the HT session to allow for sleep. When asked about the physical benefits of HT, patients again said that feeling relaxed and calm were the most common ($n = 6$), followed by decreased pain, aches, and muscle tension ($n = 3$) and decreased nausea ($n = 1$). In fact, one patient stated, “I would recommend [HT] to anyone in pain. I was amazed at the results. I encourage you to continue with this program.” When asked to make suggestions on how to improve this program, most patients requested to have longer HT sessions. When asked about the emotional benefits of HT, patients again cited feeling relaxed and calm ($n = 7$), improved mood and less worry ($n = 3$), and improved sleep ($n = 1$). A few suggestions for improvement were offered; these included providing a better explanation of HT and its potential benefits ($n = 1$), offering longer or more frequent sessions ($n = 1$), and considering offering 30 minutes daily of “protected” quiet time for patients (not necessarily HT sessions) ($n = 1$).

Discussion

This study demonstrates that inpatient studies on HT for adult leukemia patients are feasible, provides guidance for recruitment and retention, begins to inform decisions about desirable treatment length, demonstrates the need for a control group, and provides effect sizes necessary for calculating sample size estimates for a larger study. The results from this study did not demonstrate significant differences between baseline and the 5-week follow-up for symptom frequency, symptom interference, sleep quality, or psychological distress. However, immediate pre-post session ratings of fatigue, nausea, distress, and pain revealed that HT may have short-term benefits. Even with this very small sample, fatigue and nausea demonstrated significant pre-post session decreases; trends toward significance were noted for distress and pain. These findings did not suggest evidence of the long-term effects of the HT intervention but rather suggest immediate relief of some cancer treatment-related side effects. A larger study may demonstrate that HT might also relieve distress and pain. Such findings suggest the importance of focusing on the immediate impact of an integrative therapy, such as HT.

Based on the variability of the preliminary data generated in this study ($SD = 1.15$), we would expect that a randomized trial of approximately double the size of this one (11 participants in each group) would have sufficient (80%) power to detect a difference between groups in the change in fatigue, nausea, or pain of 1.5 points on a 10-point scale. Perhaps owing to the thermometer format, responses for distress were more variable, with a higher estimated standard deviation (2.0); 29 participants per group would be required to detect a difference of this magnitude with 80% power. These projected sample sizes demonstrate that future HT studies in this population to confirm the benefits of HT should be feasible with a fairly small sample size.

In terms of study feasibility, in this very sick patient population, recruitment of patients into the prospective cohort went quickly. In fact, we recruited all 12 patients to receive the HT intervention long before we had completed all baseline surveys of HT knowledge. We retained 75% of patients in this prospective cohort to complete all HT sessions offered—a significant accomplishment in this patient population. No patients who received HT reported any side effects or adverse events related to the intervention or withdrew from the study for these reasons.

Although the majority of patients in the prospective cohort had never heard of HT prior to this study, they found it to be a very positive experience. The most commonly cited benefit was feeling relaxed and calm following HT sessions. Their biggest complaint was that each session was too short. This issue could be addressed in a future study by increasing session time and frequency and more carefully studying the optimal dose of the intervention. Most patients reported that they planned to continue HT therapy after the study was completed. Of note, one patient actually continued therapy while in the hospital after completing study requirements.

Clearly, this pilot study has a number of inherent limitations. First, our sample size was quite small. Second, there was no control group to use for comparison. Without a control group, it is not possible to know which changes might have occurred without the HT intervention. Also, some patients commented that having designated time in their room where it was quiet and peaceful was beneficial; without a control group, we are unable to determine if it was actually the HT or the quiet, uninterrupted time that was most useful to patients.

Future directions include more closely examining the optimal dosage of an HT intervention to understand better the minimum length and frequency of sessions that would offer greatest

benefit. This issue was apparent in patient comments requesting longer and more frequent HT sessions. Clearly, future research should include a control group to understand the impact of an HT intervention versus the natural history of mood- and treatment-related symptoms over time in this patient group. It also would be worth comparing HT with other means of eliciting a relaxation response to understand better which interventions are most effective for very ill patients. A third issue that was not examined in this study is to include the perspective of nursing staff for undertaking this type of research in the inpatient setting. It would be important to know if the intervention was helpful to nursing staff or interfered in some way with patient care.

The results from this pilot study add to the growing literature on the benefits of HT for cancer patients. Overall, HT seemed to have great potential as an intervention for patients with acute leukemia who normally lack supportive measures while in the hospital. Patients appeared to appreciate the quiet, relaxing intervention, and our preliminary data suggest decreased fatigue and nausea immediately following HT sessions. This pilot study has shown that a larger study is feasible and that HT can be incorporated in the hospital setting.

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Appendix 1

Standardized Sequence of Hand Positions for Healing Touch Sessions

The healing touch practitioner places his or her:

1. Right hand over the patient's right ankle and his or her left hand over the patient's right knee
2. Right hand over the patient's right knee and his or her left hand over the patient's right hip
3. Right hand over the patient's left ankle and his or her left hand over the patient's left knee
4. Right hand over the patient's left knee and his or her left hand over the patient's left hip
5. Right hand over the patient's right hip and his or her left hand over the patient's left hip
6. Right hand over the base of the patient's spine and his or her left hand over the patient's abdomen (just below the navel)

7. Right hand over the patient's abdomen (just below the navel) and his or her left hand over the patient's solar plexus
8. Right hand over the patient's spleen and his or her left hand over the patient's solar plexus
9. Right hand over the patient's solar plexus and his or her left hand over the center of the patient's chest
10. Right hand over the center of the patient's chest and his or her left hand over the center of the patient's upper chest
11. Right hand over the patient's right wrist and his or her left hand over the patient's right elbow
12. Right hand over the patient's right elbow and his or her left hand over the patient's right shoulder
13. Right hand over the patient's left wrist and his or her left hand over the patient's left elbow
14. Right hand over the patient's left elbow and his or her left hand over the patient's left shoulder
15. Right hand over the patient's right shoulder and his or her left hand over the patient's left shoulder
16. Right hand over the center of the patient's upper chest and his or her left hand over the patient's throat
17. Right hand over the patient's throat and his or her left hand over the patient's forehead
18. Right hand over the patient's forehead and his or her left hand over the vertex of the patient's head
19. Right hand over the vertex of the patient's head and his or her left hand directed 12 inches above, with the palm facing out

Table 1Description of Study Sample at Baseline ($N = 12$)

Demographic/Clinical Characteristics	Mean (SD)
Age (yr), Mean (SD)	59.8 (10.7)
Gender (%)	
Female	66.7
Male	33.3
Racial background (%)	
White	100.0
Diagnosis (%)	
AML	91.7
ALL	8.3
Leukemia status (%)	
Relapse	66.7
Initial diagnosis	33.3
Education level (%)	
High school diploma	25.0
Some college/college degree	50.0
Postgraduate school	25.0
Job status (%)	
Employed	50.0
Disabled or retired	33.3
Homemaker	16.7
Marital status (%)	
Married	83.3
Divorced/separated	16.7
Annual family income (%)	
< \$20,000	16.7
\$20,000–74,999	41.7
\$75,000 or more	41.7

ALL = acute lymphocytic leukemia; AML = acute myelogenous leukemia.

Table 2

Change between Baseline and 5-Week Postintervention Follow-Up

Self-Report Measure	Baseline (Week 1)	Follow-Up (Week 5)	Change Score	p Value
	Median (Interquartile Range)	Median (Interquartile Range)	Median (Interquartile Range)	
MDASI symptom interference	37 (22–42)	32 (3–45)	–6 (–21–15)	.35
MDASI symptom severity	38 (16–53)	56 (24–86)	4 (–11–48)	.27
WHIIRS (sleep)	9 (6–10)	10 (5–14)	0 (–2–4)	.29
POMS (distress)	45 (27–60)	53 (27–63)	4 (–14–16)	1.0

MDASI = M.D. Anderson Symptom Inventory; POMS = Profile of Mood States; WHIIRS = Women's Health Initiative Insomnia Rating Scale.

Possible range of scores for these measures is as follows: MDASI symptom interference 0 to 130, MDASI symptom severity 0 to 60, WHIIRS 0 to 20, and POMS 0 to 148. Higher scores indicate greater difficulty in each of these areas.

Table 3

Pre-Post Session Measures of Distress and Symptoms

Variable	Pre-session	Post-session	Change Score	p Value
	Median (Interquartile Range)	Median (Interquartile Range)	Median (Interquartile Range)	
Fatigue	3.5 (2.7–6.0)	1.5 (0.8–3.5)	–1.8 (–2.0– –1.3)	<.01
Nausea	1.2 (0.0–1.8)	0.0 (0.0–0.2)	–0.5 (–1.8–0.0)	<.01
Distress	3.0 (1.5–4.0)	1.0 (0.2–1.5)	–1.3 (–2.5–0.2)	.08
Pain	1.0 (0.0–1.5)	0.3 (0.0–0.8)	0.0 (–1.2–0.0)	.06

Each of these items was rated on a scale of 0 to 10, with higher numbers reflecting more severe symptoms or distress.