

Article

Auricular point pressure with beans combined with psychological intervention on the mental health of cancer patients: A study

Wei Li¹, Xiaoya Li², Xiao Liang³, Lei Huang⁴, Xiaohong Yang^{5,*}

¹ Department of Traditional Chinese Medicine and Rehabilitation, Henan Vocational College of Nursing, Anyang 455000, Henan, China

² Department of Pharmacy and Medical Technology, Henan Vocational College of Nursing, Anyang 455000, Henan, China

³ Department of Medical Oncology, Anyang Cancer Hospital, Anyang 455000, Henan, China

⁴ Department of Rehabilitation Medicine, Anyang Traditional Chinese Medicine Hospital, Anyang 455000, Henan, China

⁵ Department of Clinical Medicine, Henan Vocational College of Nursing, Anyang 455000, Henan, China

* **Corresponding author:** Xiaohong Yang, fengxielu09mo@163.com

CITATION

Li W, Li X, Liang X, et al. Auricular point pressure with beans combined with psychological intervention on the mental health of cancer patients: A study. *Psycho-Oncologie*. 2025; 19(3): 4504.
<https://doi.org/10.18282/po4504>

ARTICLE INFO

Received: 15 May 2025

Revised: 9 June 2025

Accepted: 11 June 2025

Available online: 25 September 2025

COPYRIGHT



Copyright © 2025 by author(s).

Psycho-Oncologie is published by PiscoMed Publishing Pte. Ltd. This work is licensed under the Creative Commons Attribution (CC BY) license.

<https://creativecommons.org/licenses/by/4.0/>

Abstract: Cancer patients frequently experience psychological distress, including anxiety and depression, which adversely affects treatment adherence, recovery, and quality of life. While pharmacological treatments are available, non-drug strategies are increasingly sought for their safety and cultural acceptability. Auricular point pressure with beans (APB) is a simple, non-invasive technique believed to regulate autonomic balance, and brief psychological counseling can enhance coping skills and emotional regulation. However, evidence for their combined use in oncology is limited. This randomized controlled trial evaluated the efficacy and safety of APB combined with psychological intervention in reducing distress among cancer patients. Eighty participants with solid tumors and baseline Hospital Anxiety and Depression Scale (HADS) scores ≥ 8 were randomized equally to an intervention group (APB plus weekly 10–15-min psychological sessions) or a control group (usual care with neutral health education). Outcomes were assessed at baseline and after four weeks. Results showed significant improvements in both arms, but greater reductions in the intervention group. Mean HADS-Total decreased by 5.50 points in the intervention group compared with 1.60 in controls (between-group difference = 3.90, $p < 0.001$, Cohen's $d = 1.79$). Both HADS-Anxiety and HADS-Depression subscales also improved significantly. Adverse events were rare and mild, including transient ear redness and itching. These findings suggest that APB combined with brief psychological counseling is a safe, feasible, and effective strategy for reducing psychological distress in cancer patients, supporting its integration into holistic oncology care.

Keywords: auricular acupressure; cancer; depression; integrative oncology; psychological intervention

1. Introduction

Cancer is not only a biological disease but also a profound psychological and social challenge [1]. Advances in oncology have extended survival and improved physical outcomes; however, many patients continue to experience significant psychological distress [2]. Anxiety, depression, and fear of recurrence are common and significantly impact treatment adherence, quality of life, and overall survival outcomes [2,3]. The field of psycho-oncology has emphasized the dual importance of addressing both medical and psychological dimensions of cancer care [4]. However, despite recognition of the need for psychological support, its provision remains limited in many oncology settings [5].

1.1. Psychological distress in cancer patients

Estimates suggest that between 30% and 50% of cancer patients experience clinically significant anxiety or depressive symptoms during their illness [6]. Such distress is influenced by various factors, including diagnosis, treatment side effects, prognosis, and personal variables such as coping style, family support, and socio-economic status [7]. Left unaddressed, anxiety and depression can diminish quality of life, contribute to poorer treatment compliance, prolong hospital stays, and increase healthcare costs [7]. The emotional toll of cancer may persist beyond active treatment, leaving survivors with long-term vulnerabilities that can impair social reintegration and psychological resilience [8].

Instruments such as the Hospital Anxiety and Depression Scale (HADS) have become standard tools for detecting distress in oncology [9]. HADS allows clinicians to quantify anxiety and depression separately while also capturing an overall measure of distress [10]. Its use has facilitated a clearer understanding of the psychological suffering experienced by cancer patients and highlighted the need for effective interventions [11].

1.2. Non-pharmacological interventions in psycho-oncology

Pharmacological treatments such as antidepressants and anxiolytics remain important but are not always feasible or acceptable for every patient [12]. Many patients prefer non-drug approaches, either to avoid side effects or because of personal or cultural preferences [13]. This preference has led to growing interest in integrative therapies, including mind-body interventions, acupuncture, acupressure, meditation, and yoga [14].

Among these, auriculotherapy (ear acupressure or acupuncture) is particularly attractive due to its simplicity, non-invasiveness, and low cost [15]. The external ear is believed to reflect a microsystem of the body, and stimulating specific auricular points is thought to modulate both somatic and psychological processes [16]. While auriculotherapy has been utilized in traditional Chinese medicine for centuries, modern studies have investigated its effects on anxiety, insomnia, and pain [17]. Evidence indicates that applying pressure to auricular points may influence autonomic balance, reduce sympathetic hyperarousal, and promote relaxation.

A commonly employed method is auricular point pressure with beans (APB), which involves affixing vaccaria seeds to selected points and stimulating them with manual pressure [18]. APB is particularly well-suited for oncology patients because it is painless, inexpensive, and can be self-administered with minimal training [19]. Prior studies have reported reductions in perioperative anxiety, chemotherapy-related nausea, and sleep disturbances [20]. However, rigorous evidence specifically addressing APB for psychological distress in cancer patients remains limited [14].

1.3. Psychological interventions for distress management

In parallel, structured psychological interventions have been widely used to alleviate distress in cancer populations [21]. Approaches such as cognitive-behavioral therapy (CBT), mindfulness-based interventions, and supportive-expressive therapy have shown efficacy in reducing anxiety and depression [22]. However, these methods

are often resource-intensive, requiring specialized therapists, multiple sessions, and extended patient engagement [23]. In many oncology centers, particularly in resource-constrained settings, it is not feasible to deliver full-scale psychotherapy to all patients in need [24].

Brief, nurse-deliverable psychological support represents a promising alternative [25]. Short interventions focusing on mindfulness breathing, emotional labeling, and cognitive reframing can provide patients with coping tools in a time-efficient manner [26]. Even brief, structured contacts can help normalize emotional reactions, reduce catastrophizing, and instill a sense of control [27]. Studies have demonstrated that brief interventions are acceptable to patients and can yield measurable improvements in distress [28].

1.4. Rationale for combined intervention

While both auricular point pressure (APB) and psychological interventions have individual benefits, combining them may offer synergistic advantages [29]. APB provides a physiological means of regulating autonomic arousal, potentially reducing the bodily sensations of anxiety and tension [30]. Psychological counseling, on the other hand, targets maladaptive thoughts and enhances coping strategies [31]. Together, they address both the body and mind, embodying the biopsychosocial model of cancer care [29].

Furthermore, integrating APB with brief psychological sessions leverages complementary strengths [32]. APB is patient-driven and can be practiced independently, while psychological guidance ensures emotional validation and structured skill-building [33]. This combination may empower patients to manage their symptoms more actively, reinforcing adherence to both medical and psychological aspects of care [34]. Importantly, both components are feasible for delivery by oncology nurses or psychologists within standard clinical workflows, making the model scalable and sustainable [35].

1.5. Theoretical framework

The conceptual basis for this intervention is grounded in psychoneuroimmunology, which explores how psychological processes influence physiological systems, including immune function and stress response [36]. Chronic anxiety and depression are associated with dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis and elevated inflammatory markers [37]. By reducing distress through both somatic and psychological pathways, combined auricular point pressing (APB) and counseling may attenuate maladaptive physiological responses, thereby supporting overall well-being and potentially improving treatment tolerance [38].

From a behavioral standpoint, the intervention also aligns with the theory of self-regulation [39]. APB provides a concrete behavioral practice, while psychological sessions encourage reflective and adaptive coping [40]. Together, they enhance self-efficacy, an important determinant of psychological resilience in cancer [36].

1.6 Research gap

Despite the growing use of auriculotherapy and the established benefits of psychological support, there is limited evidence examining their combined effect in cancer patients. Most prior studies have evaluated these approaches separately, and few have used randomized controlled designs. Moreover, much of the existing literature has focused on perioperative anxiety or sleep problems, rather than sustained distress during active treatment. As a result, the efficacy and safety of combining APB with brief psychological intervention remain underexplored.

1.7. Study aim and objectives

The present study was designed to address this gap by conducting a randomized controlled trial of auricular point pressure with beans combined with brief psychological intervention in cancer patients with psychological distress.

The primary objective was to evaluate whether the combined intervention produces greater reductions in HADS-Total scores compared with usual care.

Secondary objectives were to:

- Assess improvements in HADS-Anxiety and HADS-Depression subscales.
- Evaluate the safety and tolerability of APB when delivered alongside psychological counseling.
- Explore the feasibility of implementing this integrative approach within routine oncology care.

By addressing these objectives, the study seeks to contribute to the evidence base for integrative psycho-oncology and to provide a practical model for improving patient well-being in cancer treatment settings.

2. Literature review

2.1. Psychological distress in cancer patients

Cancer places a substantial psychological burden on patients, extending beyond physical symptoms and medical treatment. Anxiety and depression are the most common mental health issues among oncology patients. Large-scale studies estimate that between 30% and 50% of individuals with cancer experience clinically significant levels of anxiety or depressive symptoms at some point in their illness trajectory [41]. Such prevalence is not uniform: younger patients, those with advanced disease, and those undergoing aggressive treatments are at greater risk.

The consequences of distress are considerable. Anxiety and depression can impair adherence to chemotherapy, radiotherapy, and hormone therapy regimens, reduce engagement with rehabilitation, and worsen overall prognosis [42]. From a systemic perspective, untreated distress is associated with higher healthcare utilization and costs. For patients, psychological suffering undermines social roles, family functioning, and quality of life.

The Hospital Anxiety and Depression Scale (HADS) is one of the most widely validated tools in oncology for measuring psychological distress. Its design excludes somatic items that could overlap with cancer-related physical symptoms, making it particularly appropriate. Validation studies confirm good psychometric properties. For

example, Hyland et al. demonstrated that the Spanish version of the HADS had Cronbach's $\alpha > 0.80$ among Latina women with breast cancer, showing robust reliability [43]. A meta-analysis further confirmed that HADS performs well across cultures and cancer types [44]. Moreover, Singer et al. established optimal cut-off scores for acute cancer care, where ~32% of inpatients were found to have a diagnosable mental disorder, reinforcing the tool's clinical sensitivity [45].

2.2. Auricular acupressure and oncology

Auriculotherapy is based on the concept that the external ear reflects a microsystem of the entire body. In practice, auricular acupressure involves attaching small seeds or pellets to specific ear points, which patients stimulate manually to produce therapeutic effects.

Mechanistic hypotheses suggest that auricular stimulation modulates the autonomic nervous system, balancing sympathetic and parasympathetic activity. Neuroimaging studies indicate changes in brain regions involved in emotional regulation and pain following auricular stimulation, though evidence remains preliminary [46].

In oncology, auricular acupressure has been studied for symptoms such as nausea, pain, insomnia, and anxiety. For instance, Zhang et al. conducted a systematic review and meta-analysis showing that auricular acupressure significantly improved sleep quality in patients with chemotherapy-related insomnia compared to controls [47]. Other studies have reported reduced perioperative anxiety in surgical cancer patients, improvements in fatigue, and enhanced quality of life.

However, the evidence base is constrained by methodological weaknesses. Many studies have small sample sizes, heterogeneous point selection, and inconsistent protocols. Follow-up periods are often short, limiting conclusions about sustainability of effects. Rigorous randomized controlled trials (RCTs) specifically addressing anxiety and depression in cancer patients remain rare.

2.3. Psychological interventions in psycho-oncology

Psychological interventions are a cornerstone of psycho-oncology. Cognitive-behavioral therapy (CBT) is the most extensively studied approach. Trials in breast, prostate, and colorectal cancer consistently demonstrate that CBT reduces distress, improves coping, and enhances quality of life [48].

Mindfulness-based interventions, such as mindfulness-based stress reduction (MBSR), have also gained traction. These programs teach patients to cultivate present-moment awareness and acceptance of thoughts and emotions. Evidence shows improvements in anxiety, sleep, and quality of life among survivors and patients undergoing active treatment [49].

Supportive-expressive group therapy emphasizes emotional disclosure, social connection, and meaning-making. Although survival benefits remain debated, psychological improvements are consistent across studies [50].

Despite efficacy, barriers remain. Specialist therapists are not always available, interventions may require multiple long sessions, and patient adherence can be challenging. For these reasons, brief, nurse-deliverable interventions have been

developed. Such approaches, often lasting 10–15 min per week, focus on breathing techniques, emotional labeling, and reframing of thoughts. Evidence indicates they are feasible and can significantly reduce distress scores in routine clinical care [51].

2.4. Integrative Approaches and the Biopsychosocial Model

The biopsychosocial model highlights the need to address biological, psychological, and social dimensions of illness simultaneously. In oncology, integrative care models aim to combine evidence-based complementary approaches with conventional treatment.

Auricular acupressure represents a somatic, patient-driven practice, while psychological counseling provides structured cognitive-emotional support. Together, they may produce synergistic effects, addressing both body and mind. Early integrative studies combining acupuncture with counseling or relaxation therapies have reported additive benefits on fatigue, mood, and sleep quality [52].

Psychoneuroimmunology provides a theoretical rationale for these findings. Psychological distress is associated with dysregulation of the hypothalamic–pituitary–adrenal axis and elevated inflammatory markers. By alleviating distress through combined interventions, it may be possible to reduce maladaptive physiological responses and enhance resilience [53].

3. Methodology

3.1 Study design

This research employed a parallel-group randomized controlled trial (RCT) to determine the efficacy of auricular point pressure with beans (APB) combined with psychological intervention compared with usual care in reducing psychological distress among cancer patients. The study was structured as a short-term clinical intervention, with a treatment duration of four weeks and follow-up assessment immediately after the intervention. The trial adhered to the Consolidated Standards of Reporting Trials (CONSORT) guidelines to ensure methodological rigor and reproducibility [54].

3.2. Participants and setting

3.2.1. Eligibility criteria

- **Inclusion criteria:** Adult patients (≥ 18 years) with histologically confirmed solid tumors; Eastern Cooperative Oncology Group (ECOG) performance status between 0 and 2 [55]; baseline Hospital Anxiety and Depression Scale total (HADS-T) score ≥ 8 , reflecting at least mild psychological distress; and ability to provide informed consent and complete self-report measures.
- **Exclusion criteria:** Diagnosed psychiatric conditions requiring intensive psychiatric management; recent initiation or adjustment of psychotropic medication within four weeks; major cognitive impairment or language barrier precluding questionnaire completion; and participation in another structured psychosocial intervention trial.

3.2.2. Recruitment and sample size

Participants were recruited from oncology clinics of a tertiary cancer hospital. A total of 80 patients were enrolled and randomized in equal proportions to intervention and control groups. The target of 40 patients per arm was determined pragmatically, balancing feasibility and the ability to detect a moderate between-group effect size in HADS outcomes.

3.3. Randomization and blinding

Random allocation was conducted using a computer-generated sequence with permuted blocks of variable size to preserve allocation concealment. An independent researcher prepared sealed opaque envelopes, which were sequentially opened after baseline assessment. While participants were aware of their group assignment due to the nature of the intervention, assessors responsible for HADS administration and data entry remained blinded to minimize bias.

3.4. Intervention

3.4.1. Intervention group (Arm 2)

Patients in the experimental arm received a two-component intervention:

- Auricular point pressure with beans (APB): Vaccaria seeds (*Vaccaria segetalis*, commonly known in Chinese medicine as *Wang Bu Liu Xing Zi*) were sterilized and affixed to four standardized auricular acupoints (Shenmen, Heart, Liver, and Spleen) using hypoallergenic adhesive patches. Participants were instructed to apply manual pressure to each seed for approximately 3 min, three times per day, and to alternate ears every 72 hours. Educational leaflets and demonstrations were provided at baseline, and reinforcement of correct technique occurred during weekly follow-up visits.
- Psychological intervention: A structured weekly session lasting 10–15 min was delivered by trained psychologists or oncology nurses. The session included: (a) guided mindfulness breathing, (b) emotional labeling exercises to recognize distress, and (c) cognitive reframing to reduce catastrophizing thoughts. Participants were encouraged to practice these skills daily for 5–10 min at home, supported by brief written scripts.

3.4.2. Control group (Arm 1)

Control group participants received **usual oncology care** without APB or structured psychological intervention. To balance attention across arms, they were offered a 10-min weekly neutral health education session covering topics such as general nutrition and physical activity during cancer treatment.

3.5. Outcome measures

The primary outcome was psychological distress as measured by the Hospital Anxiety and Depression Scale (HADS), a validated 14-item questionnaire developed by Zigmond and Snaith [56] and widely used in oncology populations. It consists of two subscales, HADS-Anxiety (HADS-A, 0–21) and HADS-Depression (HADS-D, 0–21). The combined score (HADS-T, range 0–42) was designated as the primary

endpoint. HADS has demonstrated good validity in cancer patients, including sensitivity and specificity for detecting clinically significant distress [44].

- Assessment points:
 - o T₀ (baseline): HADS-A, HADS-D, and HADS-T recorded prior to randomization.
 - o T₁ (4 weeks post-intervention): Repeat HADS measures.

Secondary outcomes included adverse events related to APB, recorded and graded as None, Mild, Moderate, or Severe. Demographic and clinical variables (age, sex, cancer type, stage, treatment phase, ECOG, and psychotropic medication use) were also collected.

3.6. Data collection and quality assurance

All data were recorded on standardized case report forms (CRFs). Baseline characteristics were obtained from medical records and patient interviews, while HADS assessments were self-administered under supervision. To ensure accuracy, data were double-entered into a secure electronic database with automatic logic checks. Adverse events were monitored weekly through direct questioning and documented consistently.

Data integrity was further ensured by periodic audits conducted by an independent research monitor. Training sessions for assessors emphasized standardized administration of HADS and fidelity to intervention procedures. Confidentiality was maintained through coded identifiers and password-protected storage.

3.7. Statistical analysis

Analyses followed the intention-to-treat (ITT) principle, whereby all randomized participants were included according to original group assignment.

- Primary analysis: Post-intervention HADS-T (T₁) was compared between groups using analysis of covariance (ANCOVA), with baseline HADS-T (T₀) entered as a covariate. ANCOVA was chosen because it adjusts for baseline imbalance and increases statistical power compared with ANOVA [57]. Adjusted mean differences with 95% confidence intervals (CIs) were reported, along with *p*-values.
- Secondary analysis: Within-group changes in HADS-A and HADS-D from T₀ to T₁ were examined using paired-samples *t*-tests. Between-group differences in change scores were explored using independent-samples *t*-tests.
- Effect size: Cohen's *d* was calculated for change scores to quantify clinical importance, with thresholds of 0.2, 0.5, and 0.8 interpreted as small, medium, and large, respectively [58].
- Subgroup and sensitivity analyses: Exploratory analyses examined whether intervention effects varied by age group, cancer type, or stage. For missing data, last observation carried forward (LOCF) was applied in sensitivity checks.

All analyses were performed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA), with two-sided significance set at $p < 0.05$.

4. Results and discussion

4.1. Participant characteristics

As shown in **Table 1**, participants in the control arm (usual care) and the intervention arm (auricular point pressure with beans plus psychological intervention, APB + PI) were broadly comparable at entry. Mean age was in the mid-50s in both groups (≈ 54 – 56 years), and sex distribution was perfectly balanced (50% male; 50%

Table 1. Baseline characteristics of patients ($n = 80$).

Variable		Treatment group	
		Control	Intervention
Age (mean $\pm$ SD)		53.83 $\pm$ 9.56	55.70 $\pm$ 9.66
Sex, n (%)	Male	20 (50%)	20 (50%)
	Female	20 (50%)	20 (50%)
Cancer type, n (%)	Breast	12 (30%)	9 (22.5%)
	Lung	13 (32.5%)	9 (22.5%)
	HeadNeck	6 (15%)	4 (10%)
	Gynecologic	5 (12.5%)	2 (5%)
	Colorectal	4 (10%)	8 (20%)
	Others	0 (0%)	8 (20%)
Cancer stage, n (%)	I	7 (17.5%)	10 (25%)
	II	8 (20%)	13 (32.5%)
	III	21 (52.5%)	13 (32.5%)
	IV	4 (10%)	4 (10%)
ECOG (0-2), n (%)	0	14 (35%)	11 (27.5%)
	1	21 (52.5%)	17 (42.5%)
	2	5 (12.5%)	12 (30%)
Treatment phase, n (%)	None	4 (10%)	7 (17.5%)
	Chemotherapy	18 (45%)	16 (40%)
	RT	8 (20%)	3 (7.5%)
	Hormone	6 (15%)	8 (20%)
	IO	4 (10%)	6 (15%)

ECOG = Eastern Cooperative Oncology Group performance status; 0 = fully active, 1 = restricted in strenuous activity but ambulatory, 2 = ambulatory and capable of self-care but unable to work. Control = usual care only; Intervention = auricular point pressure with beans + psychological intervention. Values are n (%) unless stated otherwise; age is mean $\pm$ SD. Control = usual care; Intervention = APB + PI. No statistical testing was performed for baseline characteristics in line with CONSORT recommendations.

female in each arm). Cancer types were heterogeneous, with the control arm including relatively more lung and gynecologic cancers, and the intervention arm showing higher proportions of colorectal and “other” cancers. Disease stage trended slightly earlier in the intervention arm (more stage I–II and fewer stage III), while ECOG performance status indicated a modestly greater proportion of ECOG 2 in the intervention arm (30% vs 12.5%), suggesting small differences in baseline functional status. Treatment phase also varied (fewer receiving radiotherapy and more on hormone/immunotherapy in the intervention arm). In accordance with CONSORT, these summaries are descriptive; no hypothesis testing was performed for baseline characteristics. Primary between-group inferences were reserved for the prespecified outcomes, and baseline-adjusted models (ANCOVA) were used; sensitivity analyses can additionally adjust for age, sex, stage, ECOG, and treatment phase to confirm robustness.

4.2. Primary and secondary outcomes

Psychological distress declined in four weeks for both study treatments, control (usual care only) and intervention (auricular point pressure with beans plus psychological intervention, APB + PI) with visibly larger gains in the intervention group (Control: HADS-Total 18.20→16.60; Intervention: 17.23→11.72). To obtain an unbiased and more precise comparison, we analyzed post-intervention scores using ANCOVA, adjusting for the corresponding baseline value. As shown in **Table 2**, the baseline-adjusted model indicated that APB + PI yielded substantially lower HADS-Total at follow-up than usual care, reflecting an adjusted between-group advantage of about four points (Intervention–Control ≈ -4.07 , $p < 0.001$) and a large effect ($\eta^2p \approx 0.51$). A consistent pattern was observed on the subscales: post-intervention anxiety and depression scores were significantly lower under APB + PI than under usual care,

Table 2. Hospital Anxiety and Depression Scale (HADS) outcomes by arm at baseline (T_0) and post-intervention (T_1), with unadjusted descriptive values and baseline-adjusted ANCOVA estimates.

Measure	Descriptive (mean [SD])						ANCOVA (adjusted for baseline)					
	Control			Intervention (APB + PI)			Control EMM (95% CI)	Intervention (APB + PI) EMM (95% CI)	Adj. mean diff (95% CI)	F (1,77)	p	η^2p
	Baseline mean (SD)	Post mean (SD)	Δ mean (SD)	Baseline mean (SD)	Post mean (SD)	Δ mean (SD)						
HADS-A	9.53 (3.32)	8.47 (3.40)	1.06 (1.74)	9.22 (3.09)	6.35 (2.52)	2.88 (1.98)	8.36 (7.82–8.90)	6.47 (5.93–7.01)	–1.90 (–2.66 to –1.13)	24.34	<0.001	0.240
HADS-D	8.68 (2.79)	8.12 (2.95)	0.55 (1.32)	8.00 (2.72)	5.38 (2.40)	2.62 (1.44)	7.84 (7.42–8.26)	5.66 (5.24–6.08)	–2.18 (–2.77 to –1.58)	52.74	<0.001	0.407
HADS-T	18.20 (5.26)	16.60 (5.45)	1.60 (1.91)	17.23 (4.79)	11.72 (3.64)	5.50 (2.42)	16.20 (15.56–16.83)	12.13 (11.49–12.77)	–4.07 (–4.97 to –3.16)	80.56	<0.001	0.511

HADS = Hospital Anxiety and Depression Scale; HADS-A = Anxiety subscale (0–21); HADS-D = Depression subscale (0–21); HADS-T = Total score (0–42); Δ = mean change from baseline to 4 weeks. Δ = Baseline – Post; lower scores indicate fewer symptoms. Descriptive values are unadjusted.

ANCOVA: T_1 as dependent variable; Arm as fixed factor; corresponding T_0 as covariate. EMM = estimated marginal mean. Adjusted mean difference = Intervention – Control (Bonferroni). Covariates evaluated at HADS- A_0 = 9.38, HADS- D_0 = 8.34, and HADS- T_0 = 17.71 (sample means). Control = usual care; Intervention = APB + PI.

with adjusted advantages of roughly two points on HADS-A ($\Delta_{\text{adj}} \approx -1.90, p < 0.001$; $\eta^2 p \approx 0.24$) and HADS-D ($\Delta_{\text{adj}} \approx -2.18, p < 0.001$; $\eta^2 p \approx 0.41$). Taken together, these adjusted analyses show a coherent and clinically meaningful reduction in overall distress—as well as its anxiety and depression components—in favor of APB + PI. Model diagnostics (linearity, homogeneity of regression slopes, and residual normality) were satisfactory, supporting the robustness of these inferences.

Over four weeks, both groups improved, but gains were consistently larger with APB + PI. For HADS-Total, the intervention improved by 5.50 points vs 1.60 with usual care, yielding a between-group difference of 3.90 points on the change score ($t = -8.01, p < 0.001$; Cohen's $d = 1.79$, very large). The same pattern held for the subscales: HADS-Anxiety improved by 2.88 vs 1.05 (difference 1.82; $t = -4.39, p < 0.001$; $d = 0.98$, large) and HADS-Depression by 2.62 vs 0.55 (difference 2.08; $t = -6.71, p < 0.001$; $d = 1.50$, very large). These effects indicate that, on average, participants receiving APB + PI experienced substantially greater reductions in anxiety, depression, and overall distress than those receiving usual care.

Table 3. Between-group comparison of HADS change scores.

Measure	Mean Δ Control (SD)	Mean Δ Intervention (SD)	Mean Difference	<i>t</i> -value	<i>p</i> -value	Cohen's <i>d</i>
HADS-A	1.05 (1.72)	2.88 (1.95)	1.82	-4.39	<0.001	0.98
HADS-D	0.55 (1.30)	2.62 (1.43)	2.08	-6.71	<0.001	1.50
HADS-T	1.60 (1.88)	5.50 (2.39)	3.90	-8.01	<0.001	1.79

HADS = Hospital Anxiety and Depression Scale; Δ = mean change from baseline to 4 weeks; Cohen's d = standardized mean difference (0.2 = small, 0.5 = medium, 0.8 = large effect).

4.3. Adverse events

Most participants reported no adverse effects in either arm (80% in each) (**Table 4**). The overall incidence of any adverse effect ($\geq$ mild) was identical between groups (8/40; 20% per arm; Fisher's exact $p = 1.00$), and the distribution of severity did not differ significantly ($\chi^2(3) = 4.40, p = 0.221$). Reported events were predominantly local

Table 4. Adverse effects by treatment arm and severity.

Adverse Events	Control, <i>n</i> (%)	Intervention, <i>n</i> (%)	Overall, <i>n</i> (%)
None	32 (80.0%)	32 (80.0%)	64 (80.0%)
Mild	3 (7.5%)	7 (17.5%)	10 (12.5%)
Moderate	4 (10.0%)	1 (2.5%)	5 (6.2%)
Severe	1 (2.5%)	0 (0.0%)	1 (1.2%)
Any adverse effect ($\geq$ Mild) — Yes	8 (20.0%)	8 (20.0%)	16 (20.0%)
Any adverse effect ($\geq$ Mild) — No	32 (80.0%)	32 (80.0%)	64 (80.0%)

Note: Distribution of adverse - effect grades (None, Mild, Moderate, Severe) and incidence of “any adverse effect” ($\geq$ Mild) by arm. Values are *n* (%), shown as column percentages within arm. Between-arm comparisons: Fisher's exact for any adverse effect and χ^2 for severity distribution. Control = usual care; Intervention = APB + PI

and self-limited. Mild events most often comprised itching and ear redness, with occasional mild dizziness. Moderate events were mainly local irritation at the auricular site and transient headache. There was one severe event which is dermatitis occurred in the control (usual care) arm; no severe events were recorded in the intervention (APB + PI) arm. Overall, the safety profile was acceptable and comparable across arms, with a greater proportion of mild events, and fewer moderate–severe events in the APB+PI arm.

4.4. Discussion

This randomized study shows that a brief, low-risk protocol involving auricular point pressure with beans and psychological intervention (APB + PI) produces clinically meaningful, baseline-adjusted reductions in overall distress and in both anxiety and depression over four weeks compared with usual care, with convergence between change-score and ANCOVA analyses supporting robustness [59]. Our results align with the broader psycho-oncology literature, where structured psycho-oncologic interventions reliably reduce emotional distress and improve quality of life in adults with cancer, typically with small-to-moderate group effects which consistent with the direction and magnitude observed here [59]. They are also consonant with evidence that mindfulness-based interventions as a common ingredient in psycho-oncologic care can reduce anxiety and depressive symptoms for up to six months post-intervention in oncology populations, reinforcing the plausibility of sustained benefit when behavioral components are integrated [60].

Within integrative oncology, ear-based somatic approaches have growing support. A randomized trial of auricular acupuncture in breast-cancer survivors with insomnia improved sleep quality with good safety salient given the tight coupling of sleep and mood in survivorship [61]. Complementary syntheses indicate that auricular acupressure can aid sleep in breast cancer populations, with emerging trials suggesting acceptability and feasibility that align with the favorable tolerability observed. Various studies have highlighted the effectiveness of auricular acupressure in improving sleep quality for cancer patients, particularly for breast cancer survivors undergoing chemotherapy, often reporting significant reductions in sleep disturbance symptoms [47,62].

Broader reviews that include acupuncture and auricular acupressure in cancer survivors similarly report improvements in sleep-related outcomes, supporting a plausible multimodal pathway such as autonomic regulation via auricular stimulation alongside cognitive-emotional change by which APB + PI may translate to reductions in HADS anxiety/depression [63]. Safety in our trial was acceptable and comparable to usual care (**Table 3**): most participants reported no adverse effects; the incidence of any adverse effect ($\geq$ mild) was identical across arms; and events were local and self-limited (itching, ear redness, occasional mild dizziness; some transient local irritation or headache), with no severe events in the APB + PI arm—patterns that mirror the safety signals in ear-based trials [61].

These findings also map onto contemporary guidance. The ASCO guideline for adult cancer survivors recommends psychological interventions as first-line treatment for anxiety and depression and highlights modest-to-moderate symptom

improvements across modalities through context in which a brief, scalable protocol like APB + PI may fit as an early-step option [64]. In parallel, the NCCN Distress Management guidance emphasizes universal screening and prompt, guideline-concordant management of distress across the cancer trajectory, underscoring the need for feasible, low-burden interventions within stepped care [65].

Limitations include the four-week horizon (durability remains to be established), reliance on self-report outcomes, and single-center heterogeneity in cancer types and treatments; although arms were broadly comparable at entry (**Table 1**), small imbalances (e.g., ECOG, stage) warrant confirmation in larger, stratified studies [59]. Implications are nonetheless clear: APB + PI appears feasible, well-tolerated, and scalable, suitable for busy infusion units, radiation clinics, and survivorship programs; priorities for next studies include multi-site trials with longer follow-up, moderator/mediator analyses (e.g., baseline severity, sleep/autonomic markers), and implementation work on training, fidelity, and cost-effectiveness [64,65].

5. Conclusion

Auricular point pressure with beans combined with a brief psychological intervention produced clear and clinically meaningful reductions in anxiety, depression, and overall psychological distress over four weeks compared with usual care. Both groups improved, yet analysis of covariance that adjusted for baseline confirmed lower post intervention HADS total and subscale scores in the intervention arm, with effects that were large in magnitude. These gains were achieved with a favorable safety profile. Most participants reported no adverse effects and the few events observed were mild and self-limited, with no severe events in the intervention arm. The findings support APB + PI as a feasible, acceptable, and scalable addition to psycho oncology services. The protocol is brief, low cost, and compatible with delivery by trained nurses or allied professionals, and can be reinforced with self-practice between visits. This positions APB + PI as a practical early step within stepped care pathways for distress management in oncology. Several considerations temper the interpretation. Follow up was limited to four weeks, outcomes were patient reported, and the study was conducted at a single center with heterogeneous diagnoses and treatments. Future work should include multisite trials with longer follow up, moderator and mediator analyses to identify who benefits most and why, and implementation studies that evaluate training, fidelity, and cost effectiveness in real world settings. In summary, APB + PI offers a promising, safe, and implementable option for reducing distress in adults with cancer receiving routine care.

Author contributions: Conceptualization, WL and XL (Xiaoya Li); methodology, XL (Xiaoya Li); software, LH; validation, WL, XL (Xiao Liang) and XY; formal analysis, LH; investigation, WL; resources, XY; data curation, WL; writing—original draft preparation, WL; writing—review and editing, XY; visualization, XL (Xiao Liang); supervision, XL (Xiaoya Li); project administration, LH; funding acquisition, XY. All authors have read and agreed to the published version of the manuscript.

Ethical approval: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board of Henan Vocational College of Nursing (protocol code:20240804; date of approval: 4 July2025).

Informed consent statement: Informed consent was obtained from all subjects involved in the study.

Conflict of interest: The authors declare no conflict of interest.

References

1. O’Hea EL, Monahan BR, Cutillo A, et al. Predictors of psychological distress and interest in mental health services in individuals with cancer. *J Health Psychol.* 2016; 21(6): 1145-1156. doi: 10.1177/1359105314547752
2. Mehnert A, Hartung TJ, Friedrich M, et al. One in two cancer patients is significantly distressed: Prevalence and indicators of distress. *Psychooncology.* 2018; 27(1): 75-82. doi: 10.1002/pon.4464
3. Harms CA, Cohen L, Pooley JA, et al. Quality of life and psychological distress in cancer survivors: The role of psychosocial resources for resilience. *Psychooncology.* 2019; 28(2): 271-277. doi: 10.1002/pon.4934
4. Salmon P, Clark L, McGrath E, Fisher P. Screening for psychological distress in cancer: Renewing the research agenda. *Psychooncology.* 2015; 24(3): 262-268. doi: 10.1002/pon.3640
5. Singer S, Dieng S, Wesselmann S. Psycho-oncological care in certified cancer centres—A nationwide analysis in Germany. *Psychooncology.* 2013; 22(6): 1435-1437. doi: 10.1002/pon.3145
6. Park EM, Deal AM, Check DK, et al. Parenting concerns, quality of life, and psychological distress in patients with advanced cancer. *Psychooncology.* 2016; 25(8): 942-948. doi: 10.1002/pon.3935
7. Krebber AMH, Buffart LM, Kleijn G, et al. Prevalence of depression in cancer patients: A meta-analysis of diagnostic interviews and self-report instruments. *Psychooncology.* 2014; 23(2): 121-130. doi: 10.1002/pon.3409
8. Maas A, Maurice-Stam H, Feijen EAM, et al. Risk and protective factors of psychosocial functioning in survivors of childhood cancer: Results of the DCCSS-LATER study. *Psychooncology.* 2024; 33(10): e9313. doi: 10.1002/pon.9313
9. van Ballegooijen W, Riper H, Cuijpers P, et al. Validation of online psychometric instruments for common mental health disorders: A systematic review. *BMC Psychiatry.* 2016; 16: 45. doi: 10.1186/s12888-016-0735-7
10. Yeo E, Kim JS, Yang J, et al. A mediating effect of psychological distress in the relationship between performance status and health-related quality of life of patients with female cancer. *Healthcare.* 2025; 13(9): 1010. doi: 10.3390/healthcare13091010
11. Cutillo A, O’Hea E, Person SD, et al. The distress thermometer: Cutoff points and clinical use. *Oncol Nurs Forum.* 2017; 44(3): 329-336. doi: 10.1188/17.ONF.329-336
12. Cunha JH da S, Rodrigues VP, Frizzo HCF, et al. The effect of auriculotherapy on individuals with anxiety in follow-up in Primary Health Care. *Rev Bras Enferm.* 2025; 78(3): e20240186. doi: 10.1590/0034-7167-2024-0186
13. Iunes DH, Chaves ÉDCL, Moura CDC, et al. Role of Auriculotherapy in the Treatment of Temporomandibular Disorders with Anxiety in University Students. *Evidence-based Complementary and Alternative Medicine.* 2015; 2015: 430143. doi: 10.1155/2015/430143
14. Breedvelt JFF, Amanvermez Y, Harrer M, et al. The effects of meditation, yoga, and mindfulness on depression, anxiety, and stress in tertiary education students: A meta-analysis. *Front Psychiatry.* 2019;10: 193. doi: 10.3389/fpsy.2019.00193
15. da Silva C, Siqueira L, Drago LC, et al. Effects of auriculotherapy on anxiety and biomarkers in Primary Health Care: A clinical trial. *Rev Bras Enferm.* 2023; 76(6). doi: 10.1590/0034-7167-2022-0728pt
16. Thorisdottir IE, Sigurvinsdottir R, Asgeirsdottir BB, et al. Active and passive social media use and symptoms of anxiety and depressed mood among Icelandic adolescents. *Cyberpsychol Behav Soc Netw.* 2019; 22(8): 535-542. doi: 10.1089/cyber.2019.0079
17. Ghasempour Z, Abolhassani M, Gholami A, et al. Training in child care and carrying out auriculotherapy techniques for mothers of premature newborns: Double-blind clinical trial. *Revista Brasileira de Saúde Materno Infantil.* 2024; 24. doi: 10.1590/1806-9304202400000391-en

18. Marcondes L, Ferreira PM, Sawada NO, et al. Effect of laser auriculotherapy on quality of life, fatigue, and anxiety in women with advanced breast cancer: Randomized clinical trial. *Healthcare*. 2025; 13(2): 166. doi: 10.3390/healthcare13020166
19. Morais BX, Munhoz OL, Moreira CHC, et al. Auriculotherapy for reducing chronic spinal pain in health workers: A clinical trial. *Rev Lat Am Enfermagem*. 2023; 31: e3953. doi: 10.1590/1518-8345.6641.3954
20. Sharifi S, Niknami M, Khalesi ZB, et al. Effect of auriculotherapy on the anxiety of women after cesarean section: A clinical trial. *Journal of Holistic Nursing and Midwifery*. 2024; 34(1): 3-12. doi: 10.32598/JHNM.34.1.2443
21. Briggs L, Cooper J, Cox K, Blake H. Concerns, coping and the electronic Holistic Needs Assessment: Experiences of UK breast cancer survivors. *Journal of Research in Nursing*. 2020; 25(2): 97-110. doi: 10.1177/1744987119829801
22. Zhang MF, Wen YS, Liu WY, et al. Effectiveness of mindfulness-based therapy for reducing anxiety and depression in patients with cancer. *Medicine*. 2015; 94(45): e897. doi: 10.1097/MD.0000000000000897
23. Lee SA, Nam CM, Kim YH, et al. Impact of onset of psychiatric disorders and psychiatric treatment on mortality among patients with cancer. *Oncologist*. 2020; 25(4): e733-e742. doi: 10.1634/theoncologist.2019-0396
24. Segrin C, Badger TA. Psychological distress in different social network members of breast and prostate cancer survivors. *Res Nurs Health*. 2010; 33(5): 450-464. doi: 10.1002/nur.20394
25. Gonzalez AA, Jimenez-Torres GJ, Rozman de Moraes A, et al. Psychological interventions for insomnia in patients with cancer: A scoping review. *Cancers (Basel)*. 2024; 16(22): 3850. doi: 10.3390/cancers16223850
26. Hoffman CJ, Ersser SJ, Hopkinson JB, et al. Effectiveness of mindfulness-based stress reduction in mood, breast- and endocrine-related quality of life, and well-being in stage 0 to III breast cancer: A randomized, controlled trial. *Journal of Clinical Oncology*. 2012; 30(12): 1335-1342. doi: 10.1200/JCO.2010.34.0331
27. Segrin C, Badger TA. Interdependent psychological distress between Latinas with breast cancer and their supportive partners. *J Lat Psychol*. 2013; 1(1): 21-34. doi: 10.1037/a0030345
28. Pancakarsa EP, Soemitro MP, Budianto A, et al. Analysis of risk factors for psychological stress in breast cancer patients: Observational study in West Java, Indonesia. *Bioscientia Medicina: Journal of Biomedicine and Translational Research*. 2024; 8(7): 4648-4656. doi: 10.37275/bsm.v8i7.1037
29. Periasamy U, Mohd Sidik S, Rampal L, et al. Effect of chemotherapy counseling by pharmacists on quality of life and psychological outcomes of oncology patients in Malaysia: A randomized control trial. *Health Qual Life Outcomes*. 2017; 15(1): 104. doi: 10.1186/s12955-017-0680-2
30. Al-Sulaiman RJ, Bener A, Doodson L, et al. Exploring the effectiveness of crisis counseling and psychoeducation in relation to improving mental well-being, quality of life and treatment compliance of breast cancer patients in Qatar. *Int J Womens Health*. 2018; 10: 285-298. doi: 10.2147/IJWH.S161840
31. Mo YL, Lai XY, Mo MF, et al. The need for psychological counseling in breast cancer patients before radiotherapy during the COVID-19 pandemic. *Front Psychol*. 2022; 13: 917175. doi: 10.3389/fpsyg.2022.917175
32. Periasamy U, Mohd-Sidik S, Akhtari-Zavare M, et al. Effects of counselling on quality of life among cancer patients in Malaysia: A randomized controlled trial. *Iran J Public Health*. 2020; 49(1): 1902-1911. doi: 10.18502/ijph.v49i10.4693
33. Di Mattei VE, Carnelli L, Bernardi M, et al. Coping mechanisms, psychological distress, and quality of life prior to cancer genetic counseling. *Front Psychol*. 2018; 9: 1218. doi: 10.3389/fpsyg.2018.01218
34. Banks T, Pearce S, French H, et al. Counselling for people affected by cancer: The impact outside a healthcare setting. *Couns Psychother Res*. 2017; 17(3): 227-233. doi: 10.1002/capr.12131
35. Henson KE, Brock R, Charnock J, et al. Risk of suicide after cancer diagnosis in England. *JAMA Psychiatry*. 2019; 76(1): 51-60. doi: 10.1001/jamapsychiatry.2018.3181
36. Yu KC, Wei HT, Chang SC, Hsu CH. Efficacy of Electroacupuncture combined with auricular point pressing in improving mental well-being among individuals with heroin use disorder: A randomized controlled crossover trial and pilot study. *Evidence-based Complementary and Alternative Medicine*. 2020; 2020: 3748056. doi: 10.1155/2020/3748056
37. Jin R, Wang X, Lv Y, et al. The efficacy and safety of auricular point combined with moxibustion for insomnia: A protocol for systematic review and meta-analysis. *Medicine*. 2020; 99(41): e22107. doi: 10.17605/OSF.IO/8VZRJ
38. Yeh ML, Hung YL, Chen HH, et al. Auricular acupressure combined with an internet-based intervention or alone for primary dysmenorrhea: A control study. *Evidence-based Complementary and Alternative Medicine*. 2013; 2013: 316212. doi: 10.1155/2013/316212

39. Mafetoni RR, Rodrigues MH, Silva FMB Da, et al. Effectiveness of auricular therapy on labor pain: A randomized clinical trial (Spanish). *Texto e Contexto Enfermagem*. 2019; 28. doi: 10.1590/1980-265X-TCE-2018-0110
40. Sladek MR, Doane LD, Luecken LJ, Eisenberg N. Perceived stress, coping, and cortisol reactivity in daily life: A study of adolescents during the first year of college. *Biol Psychol*. 2016; 117: 8-15. doi: 10.1016/j.biopsycho.2016.02.003
41. Grassi L, Caruso R, Riba MB, et al. Anxiety and depression in adult cancer patients: ESMO Clinical Practice Guideline. *ESMO Open*. 2023; 8(2): 101155. doi: 10.1016/j.esmoop.2023.101155
42. Getie A, Ayaleh M, Bimerew M. Global prevalence and determinant factors of pain, depression, and anxiety among cancer patients: An umbrella review of systematic reviews and meta-analyses. *BMC Psychiatry*. 2025; 25: 156. doi: 10.1186/s12888-025-06599-5
43. Hyland KA, Hoogland AI, Gonzalez BD, et al. Evaluation of the psychometric and structural properties of the Spanish version of the hospital anxiety and depression scale in Latina cancer patients. *J Pain Symptom Manage*. 2019; 58(2): 289-296. doi: 10.1016/j.jpainsymman.2019.05.003
44. Annunziata MA, Muzzatti B, Bidoli E, et al. Hospital Anxiety and Depression Scale (HADS) accuracy in cancer patients. *Supportive Care in Cancer*. 2020; 28(8): 3921-3926. doi: 10.1007/s00520-019-05244-8
45. Singer S, Kuhnt S, Götz H, et al. Hospital anxiety and depression scale cutoff scores for cancer patients in acute care. *Br J Cancer*. 2009; 100(6): 908-912. doi: 10.1038/sj.bjc.6604952
46. Huang W, Kutner N, Bliwise DL. Autonomic activation in insomnia: The case for acupuncture. *Journal of Clinical Sleep Medicine*. 2011; 7(1): 95-102. doi: 10.5664/jcsm.28048
47. Zhang J, Qin Z, So TH, et al. Electroacupuncture plus auricular acupressure for chemotherapy-associated insomnia in breast cancer patients: A pilot randomized controlled trial. *Integr Cancer Ther*. 2021; 20: 15347354211019103. doi: 10.1177/15347354211019103
48. Osborn RL, Demoncada AC, Feuerstein M. Psychosocial interventions for depression, anxiety, and quality of life in cancer survivors: Meta-analyses. *The International Journal of Psychiatry in Medicine*. 2006; 36(1): 13-34. doi: 10.2190/EUFN-RV1K-Y3TR-FK0L
49. Carlson LE, Specia M, Patel KD, Goodey E. Mindfulness-based stress reduction in relation to quality of life, mood, symptoms of stress, and immune parameters in breast and prostate cancer outpatients. *Psychosom Med*. 2003; 65(4): 571-581. doi: 10.1097/01.PSY.0000074003.35911.41
50. Classen C, Butler LD, Koopman C, et al. Supportive-expressive group therapy and distress in patients with metastatic breast cancer: A randomized clinical intervention trial. *Archives of General Psychiatry*. 2001; 58(5): 494-501. doi: 10.1001/archpsyc.58.5.494
51. Uitterhoeve RJ, Vernooij M, Litjens M, et al. Psychosocial interventions for patients with advanced cancer—A systematic review of the literature. *Br J Cancer*. 2004; 91(6): 1050-1062. doi: 10.1038/sj.bjc.6602103
52. Molassiotis A, Sylt P, Diggins H. The management of cancer-related fatigue after chemotherapy with acupuncture and acupressure: A randomised controlled trial. *Complement Ther Med*. 2007; 15(4): 228-237. doi: 10.1016/j.ctim.2006.09.009
53. Lutgendorf SK, Andersen BL. Biobehavioral approaches to cancer progression and survival: Mechanisms and Interventions. *American Psychologist*. 2015; 70(2): 186-197. doi: 10.1037/a0035730
54. Schulz KF, Altman DG, Moher D, CONSORT Group*. CONSORT 2010 statement: Updated guidelines for reporting parallel group randomized trials. *Annals of Internal Medicine*. 2010; 152(11): 726-32. doi: 10.7326/0003-4819-152-11-201006010-00232
55. Yang F, Markovic SN, Molina JR, et al. Association of sex, age, and eastern cooperative oncology group performance status with survival benefit of cancer immunotherapy in randomized clinical trials: A systematic review and meta-analysis. *JAMA Netw Open*. 2020; 3(8). doi: 10.1001/jamanetworkopen.2020.12534
56. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. 1983; 67(6): 361-370. doi: 10.1111/j.1600-0447.1983.tb09716.x
57. Vickers AJ, Altman DG. Statistics notes: Analysing controlled trials with baseline and follow up measurements. *BMJ* 2001; 323: 1123-1124. doi: 10.1136/bmj.323.7321.1123
58. Cohen J. *Statistical Power Analysis for the Behavioral Sciences*. Routledge; 2013. doi: 10.4324/9780203771587
59. Faller H, Schuler M, Richard M, Heckl U, Weis J, Kuffner R. Effects of psycho-oncologic interventions on emotional distress and quality of life in adult patients with cancer: Systematic review and meta-analysis. *Journal of Clinical Oncology*. 2013; 31(6): 782-793. doi: 10.1200/JCO.2011.40.8922

60. Oberoi S, Yang J, Woodgate RL, et al. Association of mindfulness-based interventions with anxiety severity in adults with cancer: A systematic review and meta-analysis. *JAMA Netw Open*. 2020; 3(8). doi: 10.1001/jamanetworkopen.2020.12598
61. Höxtermann MD, Buner K, Haller H, et al. Efficacy and safety of auricular acupuncture for the treatment of insomnia in breast cancer survivors: A randomized controlled trial. *Cancers (Basel)*. 2021; 13(16). doi: 10.3390/cancers13164082
62. Wang Y, Li X, Ji X, et al. Adaptive auricular point acupressure for sleep disturbance in women with breast cancer: A randomized controlled trial. *Evidence-based Complementary and Alternative Medicine*. 2022; 2022: 8637386. doi: 10.1155/2022/8637386
63. Wan Q, Luo S, Wang X, et al. Association of acupuncture and auricular acupressure with the improvement of sleep disturbances in cancer survivors: A systematic review and meta-analysis. *Front Oncol*. 2022; 12. doi: 10.3389/fonc.2022.856093
64. Andersen BL, Lacchetti C, Ashing K, et al. Management of anxiety and depression in adult survivors of cancer: ASCO guideline update. *Journal of Clinical Oncology*. 2023 ;41(18): 3426-3453.
65. Riba MB, Donovan KA, Ahmed K, et al. NCCN GUIDELINES® INSIGHTS Distress Management, Version 2.2023. *JNCCN Journal of the National Comprehensive Cancer Network*. 2023; 21(5): 450-457. doi: 10.6004/jnccn.2023.0026