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Cancer-Related Insomnia

Insomnies chez le patient cancéreux : évaluation de l'acupuncture

1. Systematic Reviews and Meta-Analysis

1.1. Generic acupuncture

1.1.1. Liu 2024

Liu P, Li L, Xu D, Xin S, Hu N, Li C. Acupuncture for cancer-related insomnia: systematic review and meta-analysis of randomised controlled trials. *BMJ Support Palliat Care*. 2024 Nov 20;14(4):378-391. <https://doi.org/10.1136/spcare-2024-005051>

Background	Acupuncture has been demonstrated to be a safe and effective treatment for insomnia in patients without cancer. A lack of evidence, however, supports its application in the treatment of cancer-related insomnia (CRI).
Objective	To conduct a systematic review and meta-analysis to assess the efficacy as well as safety of acupuncture for alleviating insomnia in patients with cancer.
Methods	A systematic search was conducted using four electronic databases (PubMed, EMBASE, Scopus and the Cochrane Library) to select publications published in peer-reviewed journals written in English. The OR was calculated, along with their 95% CIs. We assessed heterogeneity using Cochrane Q, I2 statistics and the appropriate p value. The analysis used RevMan V.5.3.
Findings	The present meta-analysis comprised 561 individuals from 10 randomised controlled trials (RCTs) across age cohorts. Acupuncture intervention improves Pittsburgh Sleep Quality Index (PSQI) scores and CRI more than control, with a pooled OR of 1.66 (95% CI 1.12 to 2.46), OR of 5.90 (95% CI 2.64 to 13.23) for electroacupuncture, OR of 2.30 (95% CI 1.48 to 3.58) for auricular-acupuncture and 2.72. Acupuncture improved the Insomnia Severity Index (ISI) and CRI more than control approaches, with ORs of 1.31 (95% CI 0.69 to 2.48), 5.29 (95% CI 2.18 to 12.84), 3.17 (95% CI 1.35 to 7.44) and 1.64 (95% CI 1.00 to 2.68).
Conclusion	The change in PSQI and ISI scores showed that acupuncture moderately improved insomnia in patients with cancer. Acupuncture is safe and effective, enabling subsequent clinical treatments.

1.1.2. Weng 2024 (breast cancer)

Weng Y, Ren X, Zu Z, Xiao L, Chen M. Efficacy and safety of acupuncture for the treatment of insomnia in breast cancer patients: A systematic review and meta-analysis. *Complement Ther Med*. 2024 Nov;86:103087. <https://doi.org/10.1016/j.ctim.2024.103087>

Background	Breast cancer-related insomnia is one of the most common symptoms in patients with breast cancer, and acupuncture has been increasingly used in the treatment. However, there has been no meta-analysis that specifically explores the efficacy and safety of acupuncture in treating insomnia related to breast cancer.
Objective	The aim of this review was to systematically analyze the existing literature through a meta-analysis to evaluate the effectiveness and safety of acupuncture for breast cancer-related insomnia.
Methods	Six medical databases were comprehensively searched for previous randomized controlled trials (RCTs) up to April 2024. The Pittsburgh Sleep Quality Index (PSQI) score was the primary outcome. The secondary outcomes include the Insomnia Severity Index (ISI), Sleep Onset Latency (SOL), Wake After Sleep Onset (WASO), Total Sleep Time (TST), and Sleep Efficiency (SE), and the later four outcomes were measured by Actiwatch and sleep diary, respectively.
Results	A total of seven articles with 434 participants were included. The meta-analysis revealed that acupuncture produced a significant improvement in the total PSQI score (MD 95 %CI = -2.16[-2.88, -1.45], $P < 0.001$), but had no statistical significance on ISI scores compared with controls (MD 95 %CI = -1.53[-3.97, 0.91], $P = 0.22$). From the Actiwatch, there was no substantial disparity observed in the enhancement of Sleep Onset Latency (SOL) (MD 95 %CI = -6.40[-13.19, 0.39], $P = 0.06$), Wake After Sleep Onset (WASO) (MD 95 %CI = -1.45[-7.09, 4.20], $P = 0.62$), or Total Sleep Time (TST) (MD 95 %CI = 3.54 [-4.71, 11.79], $P = 0.40$) between the experimental group and the control group. However, a significant distinction was observed in Sleep Efficiency (SE) improvement (MD 95 %CI = 2.43 [0.14, 4.72], $P = 0.04$). From the sleep diary, there was a significant difference in the amelioration of SOL (MD 95 %CI = -9.15[-16.48, -1.81], $P = 0.01$), TST (MD 95 %CI = 29.92 [16.74, 43.10], $P < 0.001$), and SE (MD 95 %CI = 4.57 [1.92, 7.23], $P = 0.0007$) between the experimental group and the control group. However, no significant divergence was observed in the improvement of WASO (MD 95 %CI = 4.53[-4.81, 13.87], $P = 0.34$). All reported acupuncture-related adverse events were mild in severity.
Conclusions	Acupuncture can partially alleviate insomnia symptoms in breast cancer patients. Moreover, acupuncture is safe and may serve as a dependable alternative therapy in clinical settings. Owing to the limited number of studies included, potential biases of heterogeneous interventions, and methodological weaknesses of long-term follow-up, more high-quality RCTs with large sample sizes should be conducted to evaluate acupuncture treatment.

1.1.3. Fangfang 2023

Fangfang MA, Hewei Z, Bingxue LI, Peiyu C, Mingwei YU, Xiaomin W. Acupuncture and moxibustion for malignant tumor patients with psychological symptoms of insomnia, anxiety and depression: a systematic review and Meta-analysis. J Tradit Chin Med. 2023 Jun;43(3):441-456.

<https://doi.org/10.19852/j.cnki.jtcm.20230313.001>

Objective	To evaluate the efficacy and safety of acupuncture and moxibustion therapy (AMT) for cancer-related psychological symptoms (CRPS) of insomnia, depression and anxiety.
Methods	Seven databases were searched for randomized controlled trials (RCT) comparing AMT to routine care or conventional drug for alleviating CRPS of insomnia, depression, and anxiety before April 2020. Two independent reviewers performed the data extraction and assessed the risk of bias.

Results	A total of 30 RCTs involving 2483 cancer patients were enrolled. The pooled analysis indicated that the treatment group was significantly better than the control group in improving the depression effective rate [= 1.29, 95% (1.12, 1.49), 0.0004], the quality of life (QOL) [1.11, 95% (0.80, 1.42), 0.000 01], and reducing Self-rating Anxiety Scale (SAS) [□7.75, 95% (□10.44, □5.05), 0.000 01]. But there was no statistically significant difference between two groups in improving the insomnia effective rate [= 1.18, 95% (0.93, 1.51), 0.18]. The subgroup analysis showed the effectiveness of different intervention on CRPS. Compared with routine care, AMT helps relieve CRPS better evaluated by Pittsburgh Sleep Quality Index (PSQI), Hamilton Depression Scale (HAMD), and Self-rating Depression Scale (SDS), and depression effective rate. Compared with conventional drug, AMT performs better evaluated by SDS, depression effective rate and QOL. Moreover, the conventional drug showed higher treatment efficacy on improving insomnia effective rate compared with AMT. Compared to conventional drug, AMT plus conventional drug resulted in a significant reduction on CRPS such as PSQI, HAMD, SDS, and SAS, and also had a meaningful improvement on insomnia effective rate, depression effective rate and QOL. Fewer published reports were found on the adverse events of AMT than the conventional drug.
Conclusion	The results suggested that AMT might be effective in improving CPRI; however, a definite conclusion could not be drawn because the quality of trials are low. Further large-scale and high-quality RCTs to verify the efficacy and safety of AMT on CRPS are still warranted.

1.1.4. Wan 2022 Ø

Wan Q, Luo S, Wang X, Tian Q, Xi H, Zheng S, Fang Q, Chen H, Wu W, Pan R. Association of Acupuncture and Auricular Acupressure With the Improvement of Sleep Disturbances in Cancer Survivors: A Systematic Review and Meta-Analysis. *Front Oncol.* 2022 May 18;12:856093.

<https://doi.org/10.3389/fonc.2022.856093>.

Background	Studies on the efficacy of acupuncture and auricular acupressure on sleep disturbances in cancer patients have been growing, but there is no specific and comprehensive systematic review and meta-analysis. This review aims to evaluate the efficacy and safety of acupuncture and auricular acupressure on sleep disturbances in cancer survivors based on existing randomized clinical trials (RCTs).
Methods	Four English-language and four Chinese-language biomedical databases were searched for RCTs published from database inception to July 30, 2021. RCTs comparing acupuncture and auricular acupressure with sham control, drug therapy, behavior therapy, or usual care for managing cancer were included. The quality of RCTs was appraised with the Cochrane Collaboration risk of bias (ROB) tool. Mean differences (MDs) and 95% confidence intervals (CIs) were calculated for the effect sizes.
Results	Thirteen RCTs with 961 patients were included. The risk of performance bias or reporting bias for most of the included trials was high or unclear. Evidence was not found for short-term effects on sleep scales compared to sham control (MD, 1.98; 95% CI, 0.33-3.64; p = 0.02; I ² = 36%), wait list control (MD, 0.40; 95% CI, -0.87-1.68; p = 0.54; I ² = 49%), drug therapy (MD, 1.18; 95% CI, -3.09-5.46; p = 0.59; I ² = 98%). For long-term effect, two sham-controlled RCTs showed no significance of acupuncture on insomnia scale scores (MD, 1.71; 95% CI, -2.38-5.81; p = 0.41; I ² = 89%). Subgroup analyses suggested no evidence that auricular acupressure (MD, 3.14; 95% CI=1.52, 4.76; p = 0.0001; I ² = 0%) or acupuncture (MD, 0.54; 95% CI=-1.27, 2.34; p = 0.56; I ² = 0%) was associated with the reduction in insomnia scale scores.

Conclusions	This systematic review and meta-analysis found no evidence about acupuncture or auricular acupressure in the improvement of sleep disturbances in cancer survivors in terms of short- or long-term effect. Adverse events were minor. The finding was inconsistent with previous research and suggested that more well-designed and large-scale randomized controlled trials are needed to identify the efficacy of acupuncture and auricular acupressure for sleep disturbances in cancer survivors.
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1.1.5. Wang 2022 ☆

Wang CC, Han EY, Jenkins M, Hong X, Pang S, Whitehead L, Kirk DL, Williams A. The safety and efficacy of using moxibustion and or acupuncture for cancer-related insomnia: a systematic review and meta-analysis of randomised controlled trials. Palliat Care Soc Pract. 2022 Jan 10;16:26323524211070569. <https://doi.org/10.1177/26323524211070569>

Introduction	This study aimed to synthesise the best available evidence on the safety and efficacy of using moxibustion and/or acupuncture to manage cancer-related insomnia (CRI).
Methods	The PRISMA framework guided the review. Nine databases were searched from its inception to July 2020, published in English or Chinese. Randomised clinical trials (RCTs) of moxibustion and or acupuncture for the treatment of CRI were selected for inclusion. Methodological quality was assessed using the method suggested by the Cochrane collaboration. The Cochrane Review Manager was used to conduct a meta-analysis.
Results	Fourteen RCTs met the eligibility criteria. Twelve RCTs used the Pittsburgh Sleep Quality Index (PSQI) score as continuous data and a meta-analysis showed positive effects of moxibustion and or acupuncture ($n = 997$, mean difference (MD) = -1.84, 95% confidence interval (CI) = -2.75 to -0.94, $p < 0.01$). Five RCTs using continuous data and a meta-analysis in these studies also showed significant difference between two groups ($n = 358$, risk ratio (RR) = 0.45, 95% CI = 0.26-0.80, $I^2 = 39\%$).
Conclusion	The meta-analyses demonstrated that moxibustion and or acupuncture showed a positive effect in managing CRI. Such modalities could be considered an add-on option in the current CRI management regimen.

1.1.6. Yu 2022 ☆

Yu H, Liu C, Chen B, Zhai J, Ba D, Zhu Z, Li N, Loh P, Chen A, Wang B, Guo Y, Liu Y, Chen Z. The clinical efficacy and safety of acupuncture intervention on cancer-related insomnia: A systematic review and meta-analysis. Front Neurosci. 2022 Dec 15;16:1026759. <https://doi.org/10.3389/fnins.2022.1026759>

Objective	To evaluate the efficacy and safety of acupuncture in treating symptoms for Cancer-related Insomnia(CRI) patients.
Methods	Seven databases were searched from the time of database establishment to 31 March 2022. Randomized Controlled Trials (RCTs) on acupuncture intervention for CRI were collected. Literature screening and data extraction were performed independently by two researchers. Meta-analysis was performed using RevMan 5.4 software.

Results	A total of 13 articles with 1,109 participants were included. Five hundred and seventeen in the treatment group and 592 in the control group. Ten of the RCTs used the PSQI rating scale and four randomized controlled trials used the ISI rating scale, and the PSQI and ISI were analyzed together as continuous data. The results of the meta-analysis were: MD = -1.83, 95%CI = [-2.71, -0.94], $P < 0.0001$, indicating a significant improvement in PSQI scores in patients with CRI by acupuncture intervention; MD = 0.79, 95%CI = [-0.46, 2.03], $P = 0.22$. Acupuncture was not statistically significant on ISI scores for patients with CRI compared to controls, which does not yet indicate that acupuncture is effective for symptoms in patients with CRI. The results of the meta-analysis of the other 4 items using sleep disorder logs as efficacy analysis data were as follow, relative risk RR = 0.47, 95%CI = [0.33, 0.66], $P < 0.0001$. The difference was statistically significant, indicating that acupuncture can improve the symptoms of CRI patients compared to control group.
Conclusion	Acupuncture can improve the symptoms of patients with CRI to some extent, but due to the relatively small number and low quality of the included literature in this study, more high-quality clinical trials are needed as supplement the evidences in future.

1.1.7. Zhang 2022 ☆

Zhang J, Zhang Z, Huang S, Qiu X, Lao L, Huang Y, Zhang ZJ. Acupuncture for cancer-related insomnia: A systematic review and meta-analysis. *Phytomedicine*. 2022 Jul 20;102:154160. <https://doi.org/10.1016/j.phymed.2022.154160>

Background	Cancer-related insomnia is a highly prevalent complaint in cancer patients. However, there is no meta-analytic synthesis explored the efficacy of acupuncture for cancer-related insomnia among cancer patients undergoing active cancer treatments.
Objective	This systematic review and meta-analysis were performed to explore the efficacy and safety of acupuncture for insomnia in people diagnosed with cancer.
Study design	Systematic review and meta-analysis of existing randomized controlled trials on acupuncture in the treatment of cancer-related insomnia.
Methods	According to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Statement, we identified and extracted the trials through November 2021 from ten databases and two trials record platforms (Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, PUBMED, Web of Science, PsycINFO, Allied and Complementary Medicine, Cumulative Index to Nursing and Allied Health Literature, China National Knowledge Infrastructure, Wanfang Digital Journals, ClinicalTrials, World Health Organization International Clinical Trials Registry Platform). The quality of the trials was assessed using Jadad score and Risk of Bias (2.0). A meta-analysis was synthesized using the random-effects model if the included studies were in high methodological quality.

Results	A total of 690 studies were identified, with 22 were included in the review , and 6 of them were included in the quantitative synthesis. Studies were highly heterogeneous in terms of participant characteristics and study methodologies. Most studies recruited patients diagnosed with a specific cancer type, and breast cancer patients were the subgroup most represented. The qualitative review of available evidence suggested a beneficial efficacy of acupuncture on sleep without serious adverse events in several studies (55%). The meta-analysis revealed that acupuncture produced a significant improvement in the total Pittsburgh Sleep Quality Index (PSQI) score relative to the wait-list control among breast cancer patients undergoing active cancer treatments (MD -1.92, 95% CI -3.25 to -0.59, $p = 0.005$). Similar improvement of real and sham acupuncture on PSQI score change post-intervention was found (MD: -0.68, 95% CI: -2.44 to 1.07, $p = 0.44$). Manual acupuncture had similar effective rate as compared to estazolam immediately post-intervention (RR: 0.94, 95% CI: 0.87 to 1.01, $p = 0.09$), and had significantly better effective rate than estazolam at 1-week post-intervention follow-up (RR: 1.25, 95% CI: 1.10 to 1.43, $p = 0.0009$). All reported acupuncture related adverse events were mild or moderate in severity.
Conclusion	Acupuncture has great potential to be used to manage cancer-related insomnia for cancer patients or survivors. More studies with rigorous designs and larger sample size are warranted to verify the efficacy and safety of acupuncture for insomnia among people diagnosed with cancer, in particular among those with clinically significant insomnia.

1.1.8. Liu 2020 ☆

Liu XL, Cheng HL, Moss S, Wang CC, Turner C, Tan JY. Somatic Acupoint Stimulation for Cancer-Related Sleep Disturbance: A Systematic Review of Randomized Controlled Trials. Evid Based Complement Alternat Med. 2020. [209255]. [doi](#)

Aim	The aim of this systematic review was to analyze and synthesize available evidence for the effects of somatic acupoint stimulation (SAS) on cancer-related sleep disturbance in adults with cancer.
Methods	Nine databases and four clinical trial registries were searched from their inception to July 2019 to identify potential articles and registered trials. Two authors independently extracted data and appraised the methodological quality of the included studies. The included studies could not be subjected to meta-analysis due to the significant variations in SAS intervention protocols and outcome measurement instruments. This systematic review therefore reported the results of the included trials narratively.
Results	Seven studies were identified, which involved 906 cancer patients . SAS protocols varied across trials without an optimal evidence-based standard intervention protocol to manage cancer-related sleep disturbance. Sanyinjiao (SP6) was the most commonly selected acupoint. Manual acupuncture was typically 15-30 min in duration and was conducted once a day or once a week for a period of 1-5 weeks, whereas self-administered acupressure was typically 1-3 min in duration per point and was conducted once a day, such as during night time before going to bed, for a period of 1-5 months. The results indicated that SAS could potentially relieve cancer-related sleep disturbance and improve quality of life. Mild adverse effects were reported in three of the included studies, but none of them performed a causality analysis to clarify the association between the reported adverse events and the intervention.

Conclusions	This systematic review showed that SAS is a useful approach to relieving cancer-related sleep disturbance. However, research evidence on SAS for managing cancer-related sleep disturbance has not been fully conclusive due to the limited number of existing clinical studies with relatively small sample size and suboptimal methodological quality. Clinical trials with large sample size and robust methodology are warranted in future research.
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1.1.9. Matthews 2018 Ø

Matthews E, Carter P, Page M, Dean G, Berger A. Sleep-Wake Disturbance: A Systematic Review of Evidence-Based Interventions for Management in Patients with Cancer. Clin J Oncol Nurs. 2018;22(1):37-52. [99669].

Background	New or worsening sleep-wake disturbance (SWD) can occur throughout the cancer trajectory..
Objectives	The purpose of this article is to critically review available empirical evidence supporting the efficacy of interventions for SWD, highlighting new evidence since the 2006 and 2009 Putting Evidence Into Practice (PEP) SWD publications.
Methods	A systematic review of studies published from 2009-2017 was conducted to identify effective interventions for cancer-related SWD. The PEP weight of evidence classification schema was used to categorize the strength of evidence.
Findings	Cognitive behavioral intervention/approach is the only intervention that is recommended for practice. Mindfulness-based stress reduction and exercise interventions are likely to be effective but require more evidence. Pharmacologic interventions, relaxation, imagery, meditation, acupuncture , yoga, massage, and psychoeducation have insufficient evidence .

1.1.10. Choi 2016 ☆

Choi TY, Kim JI, Lim HJ, Lee MS. Acupuncture for Managing Cancer-Related Insomnia: A Systematic Review of Randomized Clinical Trials. Integr Cancer Ther. 2016. [187756].

Background	Insomnia is a prominent complaint of cancer patients that can significantly affect their quality of life and symptoms related to sleep quality. Conventional drug approaches have a low rate of success in alleviating those suffering insomnia.
Objective	The aim of this systematic review was to assess the efficacy of acupuncture in the management of cancer-related insomnia.
Methods	A total of 12 databases were searched from their inception through January 2016 without language restriction. Randomized controlled trials (RCTs) and quasi-RCTs were included if acupuncture was used as the sole intervention or as an adjunct to another standard treatment for any cancer-related insomnia. The data extraction and the risk of bias assessments were performed by 2 independent reviewers.
Results	Of the 90 studies screened, 6 RCTs were included . The risk of bias was generally unclear or low. Three RCTs showed equivalent effects on the Pittsburgh Sleep Quality Index and 2 RCTs showed the similar effects on response rate to those of conventional drugs at the end of treatment. The other RCT showed acupuncture was better than hormone therapy in the numbers of hours slept each night and number of times woken up each night. The 3 weeks of follow-up in 2 RCTs showed superior effects of acupuncture compared with conventional drugs, and a meta-analysis showed significant effects of acupuncture. Two RCTs tested the effects of acupuncture on cancer-related insomnia compared with sham acupuncture. One RCT showed favourable effects, while the other trial failed to do so.

Conclusion	There is a low level of evidence that acupuncture may be superior to sham acupuncture, drugs or hormones therapy. However, the number of studies and effect size are small for clinical significance. Further clinical trials are warranted.
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1.1.11. Lau 2016 Ø

Lau CH, Wu X, Chung VC, Liu X, Hui EP, Cramer H, Lauche R, Wong SY, Lau AY, Sit RS, Ziea ET, Ng BF, Wu JC. Acupuncture and related therapies for symptom management in palliative cancer care: systematic review and meta-analysis. *Medicine (Baltimore)*. 2016;95(9):e2901. [160606].

Purpose	The aim of this systematic review and meta-analysis was to summarize current best evidence on acupuncture and related therapies for palliative cancer care.
Methods	Five international and 3 Chinese databases were searched. Randomized controlled trials (RCTs) comparing acupuncture and related therapies with conventional or sham treatments were considered. Primary outcomes included fatigue, paresthesia and dysesthesias, chronic pain, anorexia, insomnia, limb edema, constipation, and health-related quality of life, of which effective conventional interventions are limited.
Results	Thirteen RCTs were included. Compared with conventional interventions, meta-analysis demonstrated that acupuncture and related therapies significantly reduced pain (2 studies, n=175, pooled weighted mean difference -0.76, 95% confidence interval: -0.14 to -0.39) among patients with liver or gastric cancer. Combined use of acupuncture and related therapies and Chinese herbal medicine improved quality of life in patients with gastrointestinal cancer (2 studies, n=111, pooled standard mean difference: 0.75, 95% confidence interval: 0.36-1.13). Acupressure showed significant efficacy in reducing fatigue in lung cancer patients when compared with sham acupressure. Adverse events for acupuncture and related therapies were infrequent and mild.
Conclusion	Acupuncture and related therapies are effective in reducing pain, fatigue, and in improving quality of life when compared with conventional intervention alone among cancer patients. Limitations on current evidence body imply that they should be used as a complement, rather than an alternative, to conventional care. Effectiveness of acupuncture and related therapies for managing anorexia, reducing constipation, paresthesia and dysesthesia, insomnia , and limb edema in cancer patients is uncertain, warranting future RCTs in these areas.

1.2. Special acupuncture techniques

1.2.1. Electroacupuncture

1.2.1.1. Li 2025

Li K, Luo Y. Efficacy of electroacupuncture in the treatment of insomnia in cancer patients: A meta-analysis. *Medicine (Baltimore)*. 2025 Jan 3;104(1):e41123.

<https://doi.org/10.1097/MD.00000000000041123>

Background	The purpose of this meta-analysis of current studies was to assess the efficacy of electroacupuncture for cancer-related insomnia.
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Methods	A comprehensive search was conducted encompassing randomized controlled trials examining the efficacy of electroacupuncture in treating cancer-related insomnia across CNKI, VIP, Wang Fang, PubMed, Embase, Cochrane library, and Web of Science, with a search deadline of December 26, 2023. The Cochrane manual's risk-of-bias evaluation was used for quality assessment, while Stata 15.0 was used for the data analysis.
Results	Eight randomized controlled studies involving 537 individuals were finally included. Meta-analysis results suggested that electroacupuncture improved total sleep time [SMD = 0.68, 95% CI (0.31, 1.06)], sleep efficiency [SMD = 1.26, 95% CI (0.02, 2.50)], and reduced Pittsburgh sleep quality index [SMD = -0.44, 95% CI (-0.63, -0.25)], insomnia severity index [SMD = -1.23, 95% CI (-1.88, -0.58)], and sleep onset latency [SMD = -0.76, 95% CI (-1.36, -0.15)] in cancer patients.
Conclusion	Based on the current study, we found that electroacupuncture may have a better effect on insomnia in cancer patients.

1.2.1.2. Liu 2025

Liu X, Xu N, Wang S, Jia Q. Efficacy of electroacupuncture for insomnia in cancer patients: a systematic review and meta-analysis. *Front Neurol.* 2025 Feb 10;16:1512052.

<https://doi.org/10.3389/fneur.2025.1512052>

Background	Insomnia is a prevalent symptom among cancer patients. Electroacupuncture (EA) has been widely applied in managing sleep disorders, particularly in cancer patients or those experiencing insomnia.
Objectives	This meta-analysis aims to evaluate the efficacy and safety of electroacupuncture for treating cancer-related insomnia.
Methods	Two independent reviewers conducted comprehensive searches across multiple databases, including EMBASE, Web of Science, PubMed, the Cochrane Library, Wanfang Digital Journals, China National Knowledge Infrastructure (CNKI), and the VIP Database for Chinese Technical Periodicals. The search was completed on April 28, 2024. The reviewers independently performed literature screening, data extraction, and risk of bias (ROB) assessment using the revised Cochrane ROB tool. Data were analyzed using RevMan 5.4 and Stata 15.0 software.
Results	Eight randomized controlled trials (RCTs) involving 550 patients (305 in the experimental group and 245 in the control group) were included. EA significantly reduced Pittsburgh Sleep Quality Index (PSQI) scores (SMD = -0.86, 95% CI [-1.24, -0.49], $p < 0.001$), Insomnia Severity Index (ISI) scores (SMD = -1.14, 95% CI [-1.59, -0.69], $p < 0.001$), sleep latency (SL) (SMD = -0.48, 95% CI [-0.73, -0.23], $p < 0.001$), and sleep disturbance (SDB) (SMD = -0.44, 95% CI [-0.73, -0.16], $p = 0.002$). EA also significantly lowered Hospital Anxiety and Depression Scale-Anxiety (HADS-Anxiety) scores (SMD = -0.59, 95% CI [-0.91, -0.26], $p < 0.001$) and Hospital Anxiety and Depression Scale-Depression (HADS-Depression) scores (SMD = -0.73, 95% CI [-1.06, -0.40], $p < 0.001$), while increasing total sleep time (TST) (SMD = 0.65, 95% CI [0.14, 1.17], $p = 0.013$). No significant differences were observed in the Athens Insomnia Scale (AIS), sleep duration (SD), sleep efficiency (SE), or sleep quality (SQ) scores between the EA and control groups.
Conclusion	Electroacupuncture has shown promising potential in treating cancer-related insomnia by increasing total sleep time and reducing sleep disturbances. However, additional high-quality studies are necessary to validate these findings.

1.2.2. Auricular acupuncture

Xin D, Cui L, Wang L, Zhang Q, Chen X, Shi Y, Zhu W, Xu N, Li W, Wang Y. Effect of auricular

acupressure on sleep quality in breast cancer patients: A systematic review and meta-analysis of randomized controlled trials. Complement Ther Clin Pract. 2024 Nov;57:101876.
<https://doi.org/10.1016/j.ctcp.2024.101876>

Background and purpose	Sleep disturbance is a very common problem among breast cancer patients, and auricular acupressure is a non-pharmacologic intervention to improve the sleep quality. This study aimed to investigate the effectiveness and safety of auricular acupressure to improve sleep quality in breast cancer patients.
Methods	Overall, 8 electronic databases in English and Chinese were systematically searched from inception to August 12, 2023 to identify eligible randomized controlled trials (RCTs). The risk of bias was assessed by version 2 of the Cochrane risk-of-bias tool for randomized trials (RoB 2.0).
Results	A total of 16 studies with 1199 participants were included. The synthesized results showed that compared with the control group, auricular acupressure had a significant effect on improving the effective rate of sleep quality improvement in patients with breast cancer (risk ratio [RR] 1.56, 95 % confidence interval [CI] 1.14 to 2.14; P < 0.001), and that significantly reduced the Pittsburgh Sleep Quality Index (PSQI) global score (mean difference [MD] -3.47, 95 % CI -4.37 to -2.58; P < 0.001). Subgroup analysis of effective rate and PSQI score showed similar significant effects. Additionally, the improvement of sleep quality was better when auricular acupressure was performed by nurses using Vaccaria seeds. Furthermore, the optimal intervention program was performed 1-2 times a day, 3-5 min each time, and lasted for 2-4 weeks.
Conclusion	Auricular acupressure may effectively improve the sleep quality of patients with breast cancer. However, more rigorously designed, large-sample, multi-center RCTs are required to further validate the results.

1.2.3. Comparison of acupuncture techniques

1.2.3.1. Chen 2024

Chen L, Li J, Xu S, Liu Z, Jiao Y, Zhou Z. Efficacy of acupuncture therapy on cancer-related insomnia: a systematic review and network meta-analysis. Front Neurol. 2024 Feb 13;15:1342383. doi: 10.3389/fneur.2024.1342383

Objectives	Cancer-related insomnia (CRI) takes a toll on many cancer survivors, causing distressing symptoms and deteriorating the quality of life. Acupuncture therapy has been used for CRI already. However, it is still uncertain which acupuncture regime is best for CRI. The primary objective of this review is to conduct a comparative evaluation and ranking of the effectiveness of different acupuncture therapies for CRI.
Methods	Randomized controlled trials (RCTs) that were published up to July 31, 2023, from 8 databases (PubMed, Embase, Cochrane library, Web of Science, China National Knowledge Infrastructure, Wanfang Database, VIP Database, and China Biology Medicine disc) were integrated in this study. Trials that met the inclusion criteria were evaluated the risk of bias. Pittsburgh sleep quality index (PSQI) was used to assess the efficacy of different acupuncture therapies as the primary outcome. Then, STATA 15, R, and OpenBUGS were applied to perform the network meta-analysis. PRISMA statements were followed in this network meta-analysis.

Results	A total of 37 studies were included in this review, involving 16 interventions with 3,246 CRI participants. Auriculotherapy + moxibustion [surface under the cumulative ranking curve (SUCRA) 98.98%] and auriculotherapy (SUCRA 77.47%) came out top of the ranking, which were more effective than control, medicine, usual care and sham acupuncture.
Conclusion	Auriculotherapy + moxibustion and auriculotherapy + acupuncture emerged as the top two acupuncture regimes for CRI and future studies should pay more attention to CRI.

1.2.3.2. Chuang 2024

Chuang CW, Tsai MY, Wu SC, Liao WC. Chinese Medicines Treatment for Sleep Disturbance in Breast Cancer Survivors: A Network Meta-Analysis. Integr Cancer Ther. 2024 Jan-Dec;23:15347354241308857. <https://doi.org/10.1177/15347354241308857>

Background	Sleep disturbance and insomnia are common adverse events in patients with breast cancer (BC). Traditional Chinese Medicine (TCM) treatment for sleep disturbance includes acupuncture, acupressure, auricular acupressure/auricular acupuncture, and Qigong. However, the specific efficacy of these TCM treatment remains unclear.
Materials and methods	This systematic review and network meta-analysis (NMA) investigated the effects of various TCM treatment on improving sleep quality in BC survivors. Only randomized controlled trials (RCTs) reporting the results of TCM treatments were included. The main NMA included 12 RCTs involving 1011 participants. The risk of bias was assessed using the RoB 2 tool for randomized controlled trials. The certainty of evidence of the NMA was assessed in accordance with GRADE (the Grading of Recommendations, Assessment, Development, and Evaluations).
Results	Acupressure, acupuncture, auricular acupuncture/auricular acupressure , and qigong were identified as optimal TCM treatment ($P < .05$) for enhancing sleep quality in BC survivors.
Conclusion	Our results provide some evidence that TCM treatment, particularly acupressure, can be beneficial in improving sleep quality in BC survivors. However, larger-scale clinical trials with robust methodological designs are required to validate and extend our findings.

1.2.3.3. Bi 2023

Bi L, Gao W, Zhang X, Li N, Han J, Shi M. Efficacy of traditional Chinese medicine external therapy on sleep quality in patients with cancer: A systematic review and network meta-analysis. Asia Pac J Oncol Nurs. 2023 Sep 18;10(11):100308. <https://doi.org/10.1016/j.apjon.2023.100308>

Objective	This network meta-analysis aims to assess and compare the effectiveness of various external therapies from traditional Chinese medicine (TCM) in enhancing sleep quality among patients with cancer.
Methods	We systematically searched nine electronic databases, encompassing five English and four Chinese databases, for randomized controlled trials (RCTs) from their inception up to August 10, 2023. The random effects model was utilized for effect size analysis, and the standardized mean difference (SMD) along with its corresponding 95% confidence interval (CI) were computed. Network meta-analysis and comparative effects ranking were executed utilizing STATA 14.0.

Results	We included thirty-four RCTs involving seven distinct external TCM therapies. Among these, Chinese medicine pillow (SMD = -3.27; 95% CI: -6.03 to -0.51), auricular acupressure (SMD = -2.33; 95% CI: -3.36 to -1.29), moxibustion (SMD = -2.28; 95% CI: -3.63 to -0.94), acupressure (SMD = -1.67; 95% CI: -2.64 to -0.70), and acupuncture (SMD = -1.43; 95% CI: -2.65 to -0.21) demonstrated significant effects in improving sleep quality when compared to usual care or waitlist. The cumulative ranking curve values revealed that the Chinese medicine pillow exhibited the highest potential for effectively enhancing sleep quality in patients with cancer, followed by auricular acupressure, moxibustion, acupressure, acupuncture, Tuina, and electroacupuncture.
Conclusions	Our study highlights the Chinese medicine pillow as an optimal external TCM therapy for ameliorating sleep quality in cancer patients, but more RCTs are needed to validate this

1.2.3.4. Cheung 2023

Cheung DST, Xu X, Smith R, Takemura N, Yeung WF, Chan WL, Lao L, Lin CC. Invasive or noninvasive? A systematic review and network meta-analysis of acupuncture and acupressure to treat sleep disturbance in cancer patients. Worldviews Evid Based Nurs. 2023 Jun;20(3):202-211.

<https://doi.org/10.1111/wvn.12617>.

Background	Both acupuncture and acupressure have been suggested beneficial for reducing sleep disturbance in cancer patients. While acupuncture is invasive involving needle insertion, acupressure is noninvasive. Their comparative effectiveness is unclear, hindering clinical recommendations.
Aims	This study aimed to explore the comparative effectiveness of acupuncture and acupressure on sleep in cancer patients.
Methods	This is a systematic review and Bayesian network meta-analysis. Eight key English and Chinese databases were searched. Twenty-four randomized controlled trials involving 2002 cancer patients comparing the effects of six treatments (manual acupuncture, electroacupuncture, acupressure, sham, enhanced usual care, and no treatment) on sleep were found.
Results	Compared with enhanced supportive care, acupressure demonstrated the largest effect size for reducing self-reported sleep disturbance (standardized mean difference [SMD] = -2.67, 95% CrI: -3.46 to -1.90; GRADE = moderate), followed by acupuncture (SMD = -1.87, 95% CrI: -2.94 to -0.81, GRADE = moderate) and electroacupuncture (SMD = -1.60, 95% CrI: -3 to -0.21; GRADE = low). The surface under the cumulative ranking curve indicates that acupressure is most likely to rank highest.
Linking evidence to action	Based on available evidence, acupressure can be recommended as the optimal treatment for reducing sleep disturbance in cancer patients. More rigorous trials are warranted to confirm whether different forms of acupuncture or acupressure have different effects on sleep in cancer patients. Particularly, studies examining acupuncture interventions alone instead of in combination with other therapies are needed.

1.2.3.5. Ou 2023

Ou Y, Lin D, Ni X, Li S, Wu K, Yuan L, Rong J, Feng C, Liu J, Yu Y, Wang X, Wang L, Tang Z, Zhao L. Acupuncture and moxibustion in patients with cancer-related insomnia: A systematic review and network meta-analysis. Front Psychiatry. 2023 Feb 16;14:1108686.

<https://doi.org/10.3389/fpsy.2023.1108686>. <https://pubmed.ncbi.nlm.nih.gov/36873228>

Objectives	Cancer-related insomnia (CRI) is one of the most common and serious symptoms in patients with cancer. Acupuncture and moxibustion have been widely applied in the treatment of CRI. Nevertheless, the comparative efficacy and safety of different acupuncture and moxibustion techniques remain unclear. This study aimed to evaluate and compare the efficacy and safety of different acupuncture and moxibustion techniques in the treatment of CRI.
Methods	Eight medical databases were comprehensively searched for relevant randomized controlled trials (RCTs) as of June 2022. Two independent reviewers assessed the risk of bias and conducted the research selection, data extraction, and quality assessment of the included RCTs. A network meta-analysis (NMA) was performed using frequency models, combining all available direct and indirect evidence from RCTs. The Pittsburgh Sleep Quality Index (PSQI) was set as the primary outcome, and adverse events and effective rates were set as the secondary outcomes. The efficacy rate was calculated as the ratio of patients with insomnia symptom relief to the total number of patients.
Results	Thirty-one RCTs with 3,046 participants were included, including 16 acupuncture- and moxibustion-related therapies. Transcutaneous electrical acupoint stimulation [surface under the cumulative ranking curve (SUCRA) 85.7%] and acupuncture and moxibustion (SUCRA 79.1%) were more effective than Western medicine, routine care, and placebo-sham acupuncture. Furthermore, Western medicine showed significantly better effects than placebo-sham acupuncture. In the NMA, the acupuncture and moxibustion treatments with the best therapeutic effects for CRI were transcutaneous electrical acupoint stimulation (SUCRA 85.7%), acupuncture and moxibustion (SUCRA 79.1%), auricular acupuncture (SUCRA 62.9%), routine care combined with intradermal needling (SUCRA 55.0%), and intradermal needling alone (SUCRA 53.3%). No serious acupuncture- or moxibustion-related adverse events were reported in the included studies.
Conclusion	Acupuncture and moxibustion are effective and relatively safe in treating CRI. The relatively conservative recommended order of acupuncture- and moxibustion-related therapies for CRI is as follows: transcutaneous electrical acupoint stimulation, acupuncture and moxibustion, and auricular acupuncture. However, the methodological quality of the included studies was generally poor, and further high-quality RCTs are needed to strengthen the evidence base

2. Overviews of systematic reviews

2.1. Guo 2024

Guo Z, Wang Y, Liu W, Huang H, Tang X, Wu Z, Lu L, Fan B, Cui S, Xu N. Acupuncture-related therapy for cancer-related insomnia: An overview of systematic reviews and meta-analysis. Complement Ther Med. 2024 Oct;85:103074. <https://doi.org/10.1016/j.ctim.2024.103074>

Background	The number of systematic reviews and meta-analyses (SRs/MAs) on acupuncture therapy for CRI is increasing; however, the credibility of the evidence remains unclear with controversial results, necessitating a comprehensive evaluation.
Objective	We aimed to critically assess the evidence in SRs/MAs regarding the effectiveness of acupuncture therapy for CRI from various aspects and conduct an exploratory analysis to identify potential issues.

Method	Two reviewers conducted comprehensive searches in eight databases. SRs/MAs of randomized controlled trials are included. After screening according to inclusion and exclusion criteria, two reviewers extracted data from eligible SRs/MAs and conducted a detailed assessment of methodological quality, risk of bias, and quality of evidence using AMSTAR-2, ROBIS, and GRADE tools. Meanwhile, we calculated the Corrected Covered Area (CCA) leveraging the GROOVE tool. After manually excluding duplicate studies, we assess the risk of bias of primary studies extracted from SRs/MAs and conducted exploratory meta-analysis.
Result	The comprehensive analysis included 10 SRs/MAs . The AMSRAT-2 results indicate significant methodological flaws in SRs/MAs, with the main issues focusing on the lack of provision of exclusion checklist for the studies. Furthermore, over half of the SRs/MAs have a high risk of bias due to incomplete retrieval and failure to follow the protocol. Most SRs/MAs demonstrated considerable completeness in reporting quality. Notably, the overall level of evidence is low. High overlap indicates redundant SRs/MAs. Exploratory analysis suggests that acupuncture therapy may be effective for CRI; however, with a high risk of bias, caution is needed in interpreting the results. Sensitivity analysis results are stable, and the funnel plot indicates no publication bias. Most SRs/MAs acknowledge the safety of acupuncture.
Conclusion	Currently, the credibility of acupuncture therapy for treating CRI is low and improvements are needed in methodology, risk of bias, and quality of reporting. Acupuncture therapy shows potential but lacks sufficient support; high-level evidence is warranted to elucidate the effectiveness of acupuncture in treating CRI.

3. Clinical Practice Guidelines

⊕ positive recommendation (regardless of the level of evidence reported)
 ∅ negative recommendation (or lack of evidence)

3.1. Association of the Scientific Medical Societies, German Cancer Society, German Cancer Aid, (AWMF, DKG, DK, Germany) 2021 ⊕

S3-Leitlinie Komplementärmedizin in der Behandlung von onkologischen PatientInnen. September 2021.

https://www.leitlinienprogramm-onkologie.de/fileadmin/user_upload/Downloads/Leitlinien/Komplement%C3%A4r/Version_1/LL_Komplement%C3%A4r_Langversion_1.1.pdf

https://www.leitlinienprogramm-onkologie.de/fileadmin/user_upload/Downloads/Leitlinien/Komplement%C3%A4r/Version_1/LL_Komplement%C3%A4r_Evidenztabellen_1.0.pdf

11.3.1.5. *Sleep disorder*. Acupuncture. Recommendation strength: Can. Patient context: Oncological patients.

3.2. Arbeitsgemeinschaft Gynäkologische Onkologie (AGO, Germany) 2018 ⊕

Diagnosis and Treatment of Patients with Primary and Metastatic Breast Cancer. Complementary Therapy Survivorship. Arbeitsgemeinschaft Gynäkologische Onkologie (AGO). 2018.35P. [182073].

Electro-acupuncture to improve on sleep and hot flashes : Level of evidence 2a (systematic review of cohort studies), grade of evidence (B), AGO recommendation grade (+) This examination or therapeutic intervention is for the patient of limited benefit and can be performed.

3.3. Cancer Australia (CA, Australia) 2016 ⊕

Management of menopausal symptoms in women with a history of breast cancer. Cancer Australia. 2016. [115384].

Acupuncture can be considered for the management of *sleep disturbance* in women with a history of breast cancer (grade C) ; Limited evidence that acupuncture improves sleep.

3.4. Association Francophone des Soins Oncologiques de Support (AFSOS) 2014 ⊕

Association Francophone des Soins Oncologiques de Support (AFSOS). Fiches Référentiels : L'acupuncture en onco-hématologie MAJ 2014 ([online](#))

Insomnies. Acupuncture (Niveau de preuve HAS : B)

3.5. Canadian Association of Psychosocial Oncology (CAPO, Canada) 2012 ∅

A Pan-Canadian Practice Guideline: Prevention, Screening, Assessment and Treatment of Sleep Disturbances in Adults with Cancer. Canadian Association of Psychosocial Oncology. 2012. 253P. [180923].

There was insufficient evidence to support acupuncture or homeopathic medicines to manage chronic insomnia.

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