

Acupressure and Sleep Quality: Exploring Its Role in the Management of Insomnia and Sleep Disturbances

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Abstract

Sleep is a fundamental component of physical and psychological health, yet insomnia and other sleep disturbances affect a substantial proportion of the population. Persistent difficulties with sleep initiation, sleep maintenance, early awakening, and non-restorative sleep can impair daytime functioning, emotional well-being, cognitive performance, and quality of life. Although behavioral and pharmacological approaches remain central to insomnia management, interest in complementary and non-pharmacological interventions has increased because of concerns regarding medication-related adverse effects, long-term use, and incomplete treatment response. Acupressure is a non-invasive complementary intervention involving pressure or stimulation of selected points of the body and has attracted growing scientific interest as a potential approach to improving sleep. This review examines the relationship between acupressure and sleep quality, focusing on possible mechanisms, clinical applications, evidence of effectiveness, safety, methodological limitations, and future research directions. Proposed mechanisms include modulation of autonomic nervous-system activity, reduction of physiological arousal, regulation of stress-related processes, sensory modulation, relaxation, and indirect effects mediated through improvements in anxiety and pain. Clinical studies have reported potential improvements in subjective sleep quality, sleep duration, sleep efficiency, sleep onset, and daytime functioning among selected populations. It should not replace appropriate diagnosis and evidence-based treatment for persistent or clinically significant insomnia. Future research should emphasize well-designed randomized controlled trials, standardized intervention protocols, objective sleep measurements, longer follow-up, identification of responsive patient subgroups, and evaluation of self-administered and wearable approaches. A stronger evidence base could establish the specific circumstances in which acupressure offers clinically meaningful benefits for sleep health.

Keywords: Acupressure, sleep quality, insomnia, sleep disturbances, complementary medicine, sleep health, relaxation, autonomic regulation, non-pharmacological intervention, integrative healthcare.

1. Introduction

Sleep is essential for physical restoration, emotional regulation, cognitive functioning, immune processes, and overall health. Despite its importance, sleep disturbances are widespread and can occur across different age groups and clinical populations. Insomnia is characterized by persistent difficulty initiating or maintaining sleep or waking earlier than desired, together with daytime consequences such as fatigue, impaired concentration, irritability, or reduced functioning.

Sleep problems can arise from numerous factors. Psychological stress, anxiety, depression, chronic pain, medical illness, medication use, irregular schedules, environmental conditions, shift work, and lifestyle behaviors can all influence sleep. Persistent sleep disruption can also create a self-reinforcing cycle in which worry about sleep increases physiological and cognitive arousal, making subsequent sleep more difficult.

Acupressure has emerged as one such complementary approach. It involves applying pressure to specific anatomical points using the fingers, thumbs, palms, or specialized pressure-based devices. Unlike acupuncture, it does not require needle insertion and can potentially be delivered by trained practitioners or, for selected techniques, taught for self-care.

The scientific interest in acupressure and sleep is based partly on the relationship between sleep and physiological arousal. If pressure stimulation can promote relaxation, influence autonomic regulation, reduce stress, or alter sensory processing, it may potentially contribute to improved sleep.

However, the existence of a plausible mechanism does not establish clinical effectiveness. Evidence must be assessed according to study quality, consistency, clinical relevance, safety, and reproducibility.

This review examines the role of acupressure in sleep management, with particular attention to insomnia and sleep disturbances, proposed mechanisms, clinical applications, current evidence, safety, research limitations, and future directions.

2. Understanding Sleep Quality and Insomnia

Sleep quality is a multidimensional concept that includes more than total sleep duration. It may encompass sleep onset, nighttime awakenings, sleep continuity, sleep efficiency, perceived restfulness, and daytime functioning.

Insomnia can occur as a short-term response to stress or illness or become a persistent condition. Chronic insomnia can affect mood, cognitive performance, physical health, and quality of life.

An important feature of insomnia is the interaction between sleep disturbance and hyperarousal. Individuals may experience increased cognitive activity, worry, muscle tension, and physiological activation at bedtime. This can interfere with the transition from wakefulness to sleep.

Consequently, interventions that promote relaxation and reduce arousal may have potential relevance to sleep management.

3. Acupressure as a Complementary Sleep Intervention

Acupressure traditionally involves stimulation of defined body points. Traditional systems explain these points within specific theoretical frameworks, while contemporary biomedical research examines possible effects through nervous-system, autonomic, sensory, and psychological mechanisms.

For sleep research, acupressure is particularly interesting because it can potentially be delivered in a quiet, relaxing environment before bedtime. Repeated sessions may also provide a structured behavioral routine.

Acupressure should, however, be regarded as a complementary strategy rather than a substitute for diagnosis and evidence-based treatment of clinically significant insomnia.

4. Proposed Mechanisms Linking Acupressure and Sleep

4.1 Autonomic Nervous-System Regulation

Sleep involves changes in autonomic activity, with a general shift toward reduced physiological arousal during the transition to sleep.

Acupressure may influence autonomic regulation through sensory stimulation and relaxation. Some research on pressure-based interventions has reported changes in physiological indicators associated with autonomic activity, although the specificity and clinical significance of these effects remain uncertain.

4.2 Reduction of Physiological Arousal

Hyperarousal is an important component of insomnia. Stress-related activation may make it difficult to initiate and maintain sleep.

Acupressure sessions may promote relaxation and provide a structured period away from stimulating activities. Reduced physiological arousal could therefore contribute indirectly to improved sleep.

4.3 Psychological Relaxation

Touch and focused attention can have calming effects. Acupressure may provide individuals with a practical ritual for relaxation before bedtime.

The psychological context is important because expectations, perceived control, therapeutic attention, and relaxation can influence subjective sleep outcomes.

4.4 Stress-Related Pathways

Chronic stress can disrupt normal sleep regulation. Acupressure may potentially influence stress-related physiological responses, although the mechanisms require further investigation. Studies that simultaneously measure sleep outcomes and physiological markers of stress could provide stronger evidence regarding these pathways.

4.5 Pain Reduction

Pain and insomnia frequently interact. Chronic pain can make it difficult to fall asleep or remain asleep, while inadequate sleep may increase pain sensitivity.

If acupressure reduces pain in certain populations, sleep may improve indirectly. This is particularly relevant to individuals experiencing musculoskeletal pain or other chronic conditions.

4.6 Anxiety Reduction

Anxiety and sleep disturbance commonly coexist. Worry and repetitive thinking at bedtime can delay sleep onset.

Acupressure may potentially improve sleep partly through reductions in subjective anxiety or psychological distress.

5. Acupressure for Insomnia

Insomnia is one of the most frequently investigated sleep-related applications of acupressure.

Clinical studies have examined whether repeated pressure stimulation can improve subjective sleep quality, sleep onset, nighttime awakenings, total sleep time, and daytime functioning. Some studies report favorable outcomes, particularly when interventions are administered repeatedly over several weeks. However, results are not uniformly consistent. The variation may partly reflect differences in treatment protocols and patient populations. Insomnia associated with psychological stress may respond differently from insomnia associated with chronic pain, medical illness, or circadian disruption. Future studies should therefore distinguish among clinically meaningful insomnia phenotypes rather than treating all sleep disturbance as a single condition.

6. Acupressure and Sleep Quality

Sleep quality is frequently measured using validated questionnaires. These instruments provide valuable information about the patient's subjective sleep experience. Studies of acupressure have reported improvements in sleep quality among some populations. Possible improvements include reduced difficulty falling asleep, fewer nighttime awakenings, greater perceived restfulness, and better daytime functioning. However, subjective improvements must be interpreted alongside objective sleep measures where possible. A person may perceive improved sleep without substantial changes in sleep architecture or total sleep time, and both subjective and objective outcomes may provide useful but different information.

7. Sleep Duration and Sleep Efficiency

Acupressure has also been investigated in relation to total sleep time and sleep efficiency. Sleep efficiency refers broadly to the proportion of time in bed spent asleep. Improvements may result from shorter sleep-onset latency, fewer awakenings, or reduced periods of wakefulness during the night. Evidence suggesting improvements in these outcomes is encouraging, but more objective research is needed to determine whether perceived improvements correspond to measurable changes in sleep behavior.

8. Acupressure in Older Adults

Older adults commonly experience changes in sleep patterns and may have increased risk of insomnia and fragmented sleep. Contributing factors can include medical conditions, pain, medication use, reduced physical activity, and changes in circadian rhythms. Acupressure may be attractive in this population because it is non-invasive and potentially adaptable to home-based care. However, older adults often have multiple health conditions and take several medications. Safety assessment and communication with healthcare professionals are therefore important. Research should examine not only sleep outcomes but also daytime functioning, falls, cognitive effects, medication use, and overall quality of life.

9. Acupressure and Sleep in Patients with Chronic Pain

The relationship between chronic pain and poor sleep creates a potentially important application for acupressure.

Pain can interfere with sleep initiation and maintenance, while sleep deprivation may increase pain sensitivity. This bidirectional relationship can create a cycle of worsening symptoms. An intervention that simultaneously influences pain and relaxation may therefore have potential value.

Clinical trials should investigate whether improvements in sleep are direct effects of acupressure or occur primarily because pain and anxiety have decreased.

10. Acupressure and Anxiety-Related Sleep Disturbances

Stress and anxiety are common contributors to sleep difficulties.

Individuals who experience persistent worry may have difficulty disengaging from cognitive activity at bedtime. Acupressure may potentially provide a structured relaxation practice that helps reduce perceived tension.

The potential benefits may therefore extend beyond sleep itself to emotional well-being.

Nevertheless, clinically significant anxiety disorders require appropriate assessment and treatment. Acupressure should not be presented as a replacement for psychological or medical care.

11. Acupressure in Healthcare Settings

Sleep disturbances occur frequently among hospitalized patients and individuals undergoing medical treatment.

Hospital environments can disrupt normal sleep through pain, anxiety, noise, unfamiliar surroundings, medication schedules, and frequent nighttime interruptions.

Acupressure could potentially be incorporated into supportive care programs because it does not require medication and can be delivered relatively quickly.

Research in hospitalized populations should examine whether improvements in sleep translate into meaningful outcomes such as reduced distress, improved recovery, or better patient satisfaction.

12. Self-Administered Acupressure

Self-administered acupressure is particularly relevant to sleep because individuals can potentially use it as part of a bedtime routine.

Potential advantages include:

- accessibility;
- low equipment requirements;
- reduced need for clinic visits;
- greater patient autonomy;
- potential integration into daily routines; and
- relatively low treatment cost.

However, self-administration requires appropriate instruction. Patients should understand correct point location, pressure intensity, treatment duration, and situations in which they should stop or seek professional advice.

13. Clinical Effectiveness

The current evidence indicates that acupressure **may improve subjective sleep outcomes in selected populations**, but the strength of evidence varies.

Research has reported potential improvements in:

- subjective sleep quality;
- sleep onset;
- sleep duration;
- nighttime awakenings;
- sleep efficiency;
- daytime functioning; and
- psychological well-being.

However, these findings should be interpreted cautiously because studies often involve small samples and different treatment protocols.

Systematic reviews of acupressure and related acupoint stimulation techniques have reported potentially favorable effects on sleep quality, but heterogeneity and methodological limitations remain important concerns.

The appropriate conclusion is therefore that acupressure is a **promising complementary intervention for sleep disturbances**, while additional high-quality evidence is required to establish standardized clinical recommendations.

14. Comparison with Conventional Insomnia Management

Evidence-based insomnia care emphasizes behavioral and psychological approaches, particularly cognitive behavioral therapy for insomnia. Medication may be considered in selected circumstances based on clinical assessment.

Acupressure should not be regarded as a replacement for these established approaches.

Instead, it may potentially be incorporated into a broader sleep-health program that includes:

- regular sleep and wake times;
- appropriate sleep environment;
- reduction of excessive evening stimulation;
- physical activity;
- stress-management techniques;
- cognitive behavioral approaches;
- treatment of underlying medical conditions; and
- appropriate pharmacological treatment where clinically indicated.

The central research question should therefore be whether adding acupressure provides additional benefit beyond standard care.

15. Safety Considerations

Acupressure is generally non-invasive and appears to have a favorable safety profile when appropriately performed.

Potential minor effects include temporary tenderness, discomfort, bruising, or localized skin irritation.

Pressure should not be applied excessively or over areas where mechanical stimulation could worsen an existing injury or skin condition.

Individuals with persistent or severe sleep problems should receive appropriate medical evaluation, particularly when sleep disturbance is associated with breathing problems, severe daytime sleepiness, significant mood symptoms, neurological symptoms, or other concerning clinical features.

A major safety principle is that complementary treatment should not delay diagnosis of an underlying sleep disorder.

16. Methodological Challenges

16.1 Intervention Heterogeneity

Different studies use different acupressure points and treatment schedules. This makes comparison and replication difficult.

Future studies should use standardized reporting frameworks and clearly describe all intervention parameters.

16.2 Subjective Outcome Measures

Sleep-quality questionnaires are valuable, but many studies rely heavily on subjective outcomes.

Future research should incorporate objective measures such as actigraphy or polysomnography where clinically appropriate.

16.3 Placebo and Expectancy Effects

Participants may have expectations about whether acupressure will improve sleep.

Touch, attention, relaxation, and therapeutic interaction may also influence outcomes.

Therefore, credible control conditions are important for determining the specific contribution of acupressure.

16.4 Small Samples

Small studies can produce uncertain estimates and limit generalizability.

Large, adequately powered trials are required to establish reliable effect estimates.

16.5 Limited Long-Term Evidence

Sleep interventions need long-term assessment. A short-term improvement does not necessarily indicate sustained benefit.

Longer follow-up should therefore become a standard component of future research.

17. Emerging Digital and Wearable Acupressure

Technological developments are creating new possibilities for pressure-based interventions.

Wearable devices could potentially apply standardized pressure to selected anatomical locations without requiring continuous practitioner involvement.

Digital applications could guide patients through validated techniques and monitor adherence and sleep patterns.

Potential future systems may combine wearable sensors, sleep monitoring, symptom diaries, and personalized acupressure schedules.

However, technological innovation should not outpace clinical validation. Devices must be evaluated for effectiveness, safety, usability, and long-term adherence before widespread clinical adoption.

18. Research Gaps

Several important research questions remain unresolved.

First, the optimal acupressure points for specific sleep disorders need greater investigation.

Second, the appropriate pressure intensity and duration remain insufficiently standardized.

Third, researchers need to determine whether repeated treatment produces sustained improvements.

Fourth, the relationship between subjective sleep improvement and objective sleep changes requires greater attention.

Fifth, it remains unclear whether acupressure is more effective for primary insomnia or sleep disturbances secondary to pain, anxiety, medical illness, or other conditions.

Sixth, research should examine whether particular patient characteristics predict treatment response.

Seventh, cost-effectiveness and feasibility in routine healthcare require systematic evaluation.

19. Future Research Priorities

Future studies should prioritize well-designed randomized controlled trials with:

1. clearly defined sleep disorders;
2. adequately powered samples;
3. standardized acupressure protocols;
4. credible control conditions;
5. validated sleep questionnaires;
6. objective sleep measures where appropriate;
7. assessment of adverse effects;
8. long-term follow-up;
9. adherence monitoring; and
10. patient-centered quality-of-life outcomes.

Mechanistic studies should also investigate whether acupressure produces measurable changes in autonomic activity, stress physiology, sensory processing, or neural activity associated with sleep regulation.

Comparative studies examining acupressure alongside established behavioral interventions could help determine its incremental clinical value.

20. Discussion

The relationship between acupressure and sleep quality is scientifically interesting because sleep disturbance is influenced by multiple interacting factors, including physiological arousal, psychological stress, pain, environmental conditions, and behavioral patterns.

Acupressure may potentially influence several of these factors simultaneously. Its sensory stimulation may affect nervous-system activity, while the treatment context may encourage relaxation and reduce stress.

The existing literature provides encouraging evidence, particularly regarding subjective sleep quality. However, evidence should not be overstated. Variation in study design and intervention protocols prevents firm conclusions about the optimal treatment strategy.

Another important consideration is the distinction between improving **sleep perception** and changing **objective sleep physiology**. Both are clinically relevant, but they should not be treated as interchangeable outcomes.

The future research agenda should therefore move toward multidimensional assessment that includes subjective sleep quality, objective sleep parameters, daytime functioning, psychological well-being, and quality of life.

Acupressure may ultimately prove most useful as part of an integrated sleep-management model rather than as a standalone treatment.

21. Conclusion

Acupressure represents a promising non-invasive complementary approach for improving sleep quality and managing selected sleep disturbances. Existing research suggests potential benefits for subjective sleep quality, sleep onset, sleep duration, sleep efficiency, and related psychological outcomes.

The potential mechanisms include autonomic regulation, reduction of physiological arousal, relaxation, modulation of sensory processing, and indirect effects through reduced anxiety and pain.

Nevertheless, the evidence remains heterogeneous. Differences in acupressure protocols, treatment duration, sample characteristics, control conditions, and outcome measurement make it difficult to establish universal recommendations.

Acupressure should therefore be viewed as a **potential adjunct to evidence-based sleep care**, rather than a replacement for established treatments such as cognitive behavioral therapy for insomnia or clinically appropriate medical management.

Future research should focus on standardized treatment protocols, objective sleep assessment, larger randomized trials, long-term outcomes, patient-specific response factors, and digital or wearable delivery systems. Stronger evidence may clarify the precise role of acupressure in contemporary sleep medicine and integrative healthcare.

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