Understanding the Use of Acupuncture for Insomnia Among Cancer Survivors: A Qualitative Study

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Abstract

Objective: To understand cancer survivors' perceptions regarding the use of acupuncture for the treatment of cancer-related insomnia.

Design: Semistructured interviews with cancer survivors participating in a randomized controlled trial comparing the effectiveness of Cognitive Behavioral Therapy for Insomnia (CBT-I) and acupuncture for the treatment of insomnia. Interviews were conducted before randomization into either treatment option, and structured to elicit participants' experiences with insomnia as well as their beliefs and understanding surrounding acupuncture for the treatment of insomnia. An integrated approach was used for data analysis.

Subjects: Sixty-three cancer survivors with DSM-V diagnosed insomnia.

Results: Participants shared a broad lack of understanding regarding acupuncture for the treatment of insomnia. Specifically, individuals in this study expressed confusion surrounding what symptoms or medical conditions acupuncture could be used to treat, how acupuncture works, and how long the effects of acupuncture last.

Conclusions: This study identified three specific gaps in knowledge, including treatment target, mechanism, and durability, surrounding the use of acupuncture for insomnia in cancer survivors. Addressing these gaps by providing appropriate and timely education surrounding the use of acupuncture to treat insomnia is essential to increase the evidence-informed utilization of acupuncture and to better meet patients' needs among cancer survivors.

Keywords: acupuncture, insomnia, knowledge, belief, cancer, qualitative research

Introduction

INSOMNIA IS A common and disruptive clinical problem affecting over half of all cancer patients and survivors.^{1,2} It can begin before or manifest during cancer treatment, and continue for years after completion of treatment.¹ Sleep disturbances can be particularly challenging to cancer survivors, as they disrupt both psychological and physical wellbeing. Insomnia often coexists with pain, fatigue, depression, and anxiety in cancer patients, thus creating a positive feedback loop in which all symptoms are amplified and overall symptom burden is increased.^{3–5}

Currently, several pharmacological and nonpharmacological treatment options are available for the management of in-

omnia. Pharmacological options, such as sedative hypnotics, benzodiazepine receptor agonists, melatonin receptor agonists, and orexin receptor antagonists can be effective treatment options. However, they are associated with many side effects, including daytime drowsiness and cognitive and psychomotor impairment.^{6–8}

Many cancer survivors prefer nonpharmacological options, such as acupuncture and Cognitive Behavioral Therapy for Insomnia (CBT-I), for symptom management due to lack of side effects, failure of pharmacological treatments, and the value in treating the whole person.^{9,10} While CBT-I is currently the “Gold Standard” nonpharmacological treatment for insomnia,^{11,12} there is growing evidence for acupuncture as an effective nonpharmacological option.^{13–15}

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Acupuncture, a therapy that is part of Traditional Chinese Medicine (TCM), involves penetrating the skin with thin, solid, metallic needles that are manipulated by hand or electrical stimulation.¹⁶ It is used by cancer survivors at a higher rate than noncancer controls¹⁷ and is considered safe for patients with few side effects (e.g., needling pain, bruising).¹⁸ Studies suggest that acupuncture's clinical efficacy in the treatment of insomnia is mediated by different neurotransmitters, including norepinephrine, melatonin, gamma-aminobutyric acid, and β -endorphin, and may be linked to stimulation of the central nervous system or autonomic nervous system.^{14,19}

While increasing research has focused on evaluating the efficacy of acupuncture, little has focused on elucidating the perceptions of acupuncture from patients' perspectives. Researchers used the National Health Interview Survey from 2007 to identify acupuncture users' sociodemographic characteristics and reasons for seeking acupuncture.²⁰ Additional qualitative research studies have explored decision-making factors in consideration of acupuncture for the treatment of insomnia in cancer survivors,²¹ and how patients with chronic pain integrate acupuncture into their personal health maintenance.²²

To date, no research has examined what beliefs and misconceptions affect patients' willingness to utilize acupuncture for insomnia. This qualitative study was conducted to understand cancer survivors' perceptions and identify gaps in their knowledge regarding the use of acupuncture for the treatment of insomnia in an effort to guide future patient education. This is particularly important as a prior study has suggested that lack of knowledge represents a major barrier to the use of acupuncture.²³

Methods

The CHOosing Options for Insomnia in Cancer Effectively (CHOICE) Study, was a randomized controlled trial with the primary aim of comparing the effectiveness of acupuncture and CBT-I for the treatment of cancer-related insomnia in cancer survivors [Clinical trial registration: NCT02356575].²⁴

In the CHOICE Study, all interested English-speaking persons over the age of 18 years with a cancer diagnosis were eligible; no restrictions were placed on tumor type or stage. Participants needed to have completed active cancer treatment (surgery, chemotherapy, and/or radiation) at least 1 month before starting the study. To be included in the study, participants were required to have an Insomnia Severity Index score >7 and have met the diagnostic criteria of insomnia disorder as defined by the Diagnostic and Statistical Manual of Mental Disorders, 5th Ed. Details of the primary study protocol and study sample have been described previously.²⁴ All study activities were reviewed and approved by the University of Pennsylvania Institutional Review Board. All participants signed a written informed consent before study activities.

Before randomization to one of the two treatments, semistructured interviews were conducted with 63 of the 160 participants enrolled in the study. In line with theoretical sampling in Grounded Theory research,²⁵ participants were initially selected purposively for interviews based on treatment preference, namely preference for acupuncture,

CBT-I, or no preference. Following development of the codebook at the eighth interview, participants were continually interviewed until saturation of themes was reached, no new themes emerged, and similar numbers were achieved from participants who were randomized into acupuncture and CBT-I (for post-treatment interview purposes).

The open-ended interview guide was developed to elicit participants' experiences with sleep problems both during and after their cancer treatment, as well as their understanding of and preference for treatment options. The interview guide and protocol for conducting, coding, and analyzing the interviews have been published previously.²¹ An integrated approach was used for analysis of the data,²⁶ merging a priori codes identified to address key ideas with a set of codes that emerged from the interviews through a Grounded Theory approach.²⁷ The codebook was iteratively refined with the initial interviews by members of the study team and patient stakeholders to set code definitions and rules for applying the code. By employing an integrated approach, we were able to simultaneously capture factors pertinent to the larger study framework, including barriers to implementation and impacts of insomnia on the individual, with themes expressly salient to the participants.²⁸

For the current analysis, we further explored participants' reasoning behind their preferred treatment, to seek out variations in understanding of and previous exposure to treatment that could impact acceptability and willingness of the participant. All data were coded by two coders and interrater reliability was checked periodically, using the interrater reliability function in NVivo, to ensure consistency in coding. Trustworthiness and credibility were enhanced by peer debriefing and by member checking.

Results

Of the 63 participants interviewed, the mean age was 60.6 ± 12.2 years, 59% were female, and 75% had a college degree or greater. The sample included 44 Caucasians, 18 African Americans, and one Asian. The most common cancer types reported were breast (32%), prostate (17%), and hematological (13%). See Table 1 for detailed demographic and clinical information.

The majority of participants had some exposure to acupuncture, sharing their own experience with the treatment or noting a friend or coworker who had experience. However, this familiarity was predominately cursory; most participants expressed curiosity about the treatment, intermingled with confusion or a lack of clarity surrounding the treatment. Notably, participants did not have a solid understanding of what acupuncture could be used for, how the treatment works, or how long the effects of acupuncture would last.

What can acupuncture be used for?

Participants' general understanding of acupuncture focused on conditions or symptoms that could potentially be treated with acupuncture. The majority of participants shared their understanding of acupuncture as an adaptable treatment that focused predominately on physical symptoms or conditions, such as pain, neuropathy, or hot flashes, while a handful of participants noted the use of acupuncture for psychosomatic complaints, such as stress or mood regulation.

TABLE 1. DEMOGRAPHIC AND CLINICAL CHARACTERISTICS (N=63)

Characteristic	N (%)
Age in years (M ± SD)	60.6 ± 12.2
Gender	
Male	26 (41)
Female	37 (59)
Race	
White	44 (70)
Non-white	19 (30)
Education	
High school or some college	16 (25)
Four-year degree or above	47 (75)
Marital status	
Not married	29 (46)
Married/cohabitating	34 (54)
Cancer type	
Breast	20 (32)
Prostate	11 (17)
Colon/rectal	2 (3)
Head/neck	3 (5)
Hematological	8 (13)
Gynecological	3 (5)
Other cancer ^a	10 (16)
More than 1 cancer	6 (9)

^aOther cancer includes skin, lung, other gastrointestinal, other genitourinary, etc.

I have a chiropractor, and we've talked a lot at length about what it is—the acupuncture, and I just have talked to a couple people that have used it that were very skeptical about it, but had some great success with it. So I have neuropathy in my feet from the chemotherapy, and I've talked to a couple other people that have had sleep problems and the same neuropathy that I have.—*Male Participant, Age 58*

I've used it for weight loss, and I had positive results. I was originally apprehensive to acupuncture, placing needles. I have an aversion to needles. But the treatment itself I got over the aversion, and it calmed me definitely.—*Female Participant, Age 47*

I know people who have used acupuncture for pain, and they were quite pleased with the process for pain management. A cancer patient used it for pain management. And I do have some lower back problems, so I wouldn't be against going to an acupuncturist for something to relieve lower back pain or something to that effect.—*Female Participant, Age 52*

While acupuncture's effectiveness was acknowledged and often praised for treating physical symptoms, the translation to a concern as dynamic and individual as insomnia was uncertain. Despite their awareness of acupuncture promoting a calm, relaxing environment and experience, some participants did not feel this was sufficient rationale to utilize acupuncture for their insomnia. Acupuncture was perceived as a more superficial treatment unable to address the fundamental mechanisms behind the insomnia.

[Acupuncture is] not something I've ever thought about or placed [trust] in that particular treatment for anything. Well, no, no. I shouldn't say for anything. I know a lot of people have been helped with pain and other problems with acupuncture. That's why I have no idea why it would work with insomnia.[...] I just have no idea why. But the body has very,

very—is very complex. Let me put it that way.—*Female Participant, Age 78*

With acupuncture, if you're just sitting—if you're lying down relaxing, anyone could relax. You could—I feel that anyone could relax and sleep for whatever. But if you're not able to—but it still hasn't addressed the underlying anxiety itself. It may make you sleep. It may make you relax better. But the anxiety is there because you're not getting—I feel that I'm not getting any feedback as far as what type of suggestions are needed to address it.—*Female Participant, Age 48*

This lack of clarity surrounding what symptoms and medical conditions acupuncture can treat led participants to posit their own beliefs about which conditions were (pain, neuropathy, weight loss, and hot flashes) and were not (sleep difficulties, anxiety) appropriate to address with acupuncture.

How does the treatment work?

Participants held two opposing explanatory models regarding the mechanism of acupuncture: that it promoted healing through either a biomedical or TCM mechanism. Fourteen participants described the mechanism of action within a biomedical framework, and 18 participants described it through a TCM framework. Interestingly, patients that endorsed a biomedical explanatory model were more likely to be male (9 of 14, 64.3%), whereas patients who described acupuncture through a TCM perspective were more likely to be female (11 of 18, 61.1%). The remaining participants did not describe their beliefs on the mechanisms of acupuncture.

Participants who favored the biomedical mechanism described acupuncture as affecting the nervous system, restoring chemical or neurotransmitter imbalances, and stimulating blood flow. These participants were more likely to associate the use of acupuncture for physical symptoms, such as pain, neuropathy, and hot flashes.

It works on the nervous system or something like that? [...] I think it should be helpful, too, because everything in your body is central. One thing goes off, it just throws everything else off. And if you bring things back into alignment, it should work.—*Female Participant, Age 68*

Well, I think and believe that it probably could affect the neurotransmitters or the chemical balance in your brain as a way of evening out the flow in your body.—*Female Participant, Age 67*

Our nervous system is very much affected by—or influenced by acupuncture. The chiropractors continually tell us to—you've got to have your—crack your neck and all that, because that loosens the calcium and then the nerves can flow freely. And in some way, the acupuncture does something like that, maybe even better. Blood flow—they can stop it, increase it and so forth and that type of thing.—*Male Participant, Age 83*

Participants who subscribed to the TCM theory invoked similar language of balance and energies, while allowing for a certain mysticism or ambiguity in the mechanism of action. These participants were also less likely to associate acupuncture with treating any specific condition.

There's a part of me that thinks well maybe it is just like if you think that it's helping you it is—it will help you. Or if there is a science to it in terms of body meridians. Again, I'm very—I read the occasional article. But talk about body

meridians and energy through the body.—*Female Participant, Age 61*

I don't have enough knowledge of the movement of Qi about the body. I know the basic concepts. I—just from [my] study and martial arts work. But I don't know exactly how they focus the Qi, what types of—or what parts of the body are—which parts of the body touch to change Qi and move it.—*Male Participant, Age 58*

But hopefully, [I'll] learn through the acupuncture—maybe I can learn for myself because it's kind of mystery. Because I—for Asian culture it's—acupuncture is—it's like your body is mechanical. You can turn on or off with a switch if you know how to turn it off. So that just makes me curious.—*Male Participant, Age 47*

Participants frequently couched their descriptions of how acupuncture could work to treat their insomnia with declarations of uncertainty and unfamiliarity, favoring terms such as “I guess,” “I think,” “I don't know,” and one participant's variant “That's way past my pay grade.”

How long will the treatment last?

A unique subset of 10 participants questioned the durability of acupuncture beyond active treatment. These participants typically did not share a particular belief regarding acupuncture's mechanism of action, favoring neither the biomedical nor TCM theory, and did not uniformly promote acupuncture as ideal for physical or psychosomatic complaints. However, participants who did share this concern were nearly all female (9/10). These participants believed acupuncture would not lead to long-lasting, sustained effects on their insomnia.

From my understanding, you just have a bunch of needles and you have certain places, which have proven to work on different areas, whether it's sleep or whatever. So I don't think that there's a lot of—I don't think that there would be a lot of long-term effects with the acupuncture.—*Female Participant, Age 45*

I just—I'm kind of leery of the long-term. I think it's one of those that maybe you need to refresh.—*Female Participant, Age 57*

I'm just hesitant to believe that a few weeks or a couple months of acupuncture can change something on an ongoing basis. But I mean, it'd be great if it could.—*Male Participant, Age 43*

The acupuncture may work for that period of time, but will it be sustainable and will I have to keep kind of having to go get acupuncture treatment for it to sustain my—yeah, for it to be sustainable?—*Female Participant, Age 52*

These participants felt acupuncture may be effective, but only in the short term. Many felt the treatments had to be maintained or “refreshed” periodically to see a continued improvement in their sleep.

Discussion

Insomnia is a distressingly common symptom that poses unique difficulties for cancer survivors. While acupuncture is an effective, nonpharmacological treatment option for managing insomnia, most patients remain uncomfortable consulting their healthcare providers regarding complementary and alternative medicines.²⁹ With limited knowledge, patients construct their own narrative about acupuncture,³⁰ and, as a result, often lack accurate information on fundamental concerns surrounding the treatment, including its targets,

mechanisms, and durability. Our study substantively contributes to a limited body of qualitative research examining patients' perceptions of acupuncture treatment by clarifying patients' understanding of these key treatment components.

Despite existing evidence that acupuncture is an effective treatment option for insomnia, the majority of participants believed that acupuncture was effective for physical symptoms or conditions, such as pain, neuropathy, or hot flashes. Only a minority of participants shared the view that acupuncture could be utilized for psychosomatic concerns, such as to relieve stress or promote relaxation. Given the heterogeneity in how patients conceptualize their insomnia,²¹ this understanding of acupuncture as good for either physical or psychosomatic conditions could dissuade individuals from utilizing acupuncture if they feel it does not address the root cause of their insomnia.

Although recent scientific literature supports acupuncture for a wide variety of conditions,^{14,15} acupuncture's long-standing history for pain management appears to overshadow its other uses.²² As more evidence emerges through clinical research, data supporting the use of acupuncture to treat insomnia should be more effectively communicated to patients and healthcare providers to increase awareness and utilization of this approach that ultimately contributes to a more positive treatment outcome. While the mechanisms behind acupuncture are not completely understood, it may be helpful to discuss with patients how the theory behind acupuncture differs from other treatments and might be expected to address insomnia.

Cancer survivors further shared two very distinct explanatory models regarding the mechanism of action in acupuncture treatment: TCM and biomedical. Participants who viewed acupuncture through the biomedical framework were more likely to be male and associate its use with physical symptoms, such as pain, neuropathy, and hot flashes; whereas, participants who viewed acupuncture through the TCM lens were more likely to be female and were less likely to associate its use with a specific condition or symptom. Staying attuned to the language a patient uses in discussing treatment mechanisms could help healthcare providers identify their framework for understanding acupuncture and begin a dialog on the mechanisms of acupuncture to ameliorate any underlying gaps in knowledge or concerns.

A subset of participants also expressed concerns about the durability of acupuncture's effects following treatment completion; however, substantial data support its positive persisting efficacy. In trials comparing acupuncture to no acupuncture treatment for chronic pain, ~90% of acupuncture's benefits continued after 12 months, and for trials comparing acupuncture to sham acupuncture, ~50% of the benefit of acupuncture continued at 12 months.³¹ Other studies on treatment of hot flashes have shown that acupuncture had similar efficacy to pharmacological treatment, but potentially long-lasting effects and lower rebound of hot flashes after completion of treatment.³²

As most effects of symptomatic drugs for insomnia are short lived, the treatment durability of acupuncture should be communicated clearly to patients. Especially as acupuncture is not covered by insurance in many areas, knowing that one does not need ongoing acupuncture for sustained improvement in sleep will remove some of the financial barriers as patients contemplating acupuncture.

A few limitations of our study must be acknowledged. Since participants in this study sought out a clinical trial involving acupuncture, they may be more familiar and open to using integrative medicine for symptom management and may not be representative of the general population. However, as shown by our data, many still do not quite understand what acupuncture can treat, nor the underlying mechanisms, or durability of the effects. During the study screening and informed consent phases, the research staff may have described acupuncture in general terms, thus inadvertently increasing the participants' awareness about acupuncture. Despite these limitations, this is the only study with a large sample of qualitative interviews from a diverse group of survivors as related to gender, tumor types, and included many African American participants.

Our research findings have several specific implications for integrative oncology. First, as evidence continues to accumulate for the use of acupuncture in treating insomnia, systematic efforts are needed to educate both patients and clinicians to maximize potential benefit from this therapy. The themes identified from this research can be the foundation for future education intervention and dissemination efforts. In addition, the themes identified by participants should also be discussed by acupuncturists as they consult new patients to promote optimal understanding of acupuncture and appropriate expectation. In order for acupuncture to be effective, adequate adherence to treatment is essential. Future research should evaluate whether patient-centered communication can lead to better adherence to treatment, improved patient satisfaction, and clinical outcomes.

Conclusion

Our study adds significant depth to existing literature assessing patients' understanding and knowledge of acupuncture. Participants shared conflicting beliefs and a lack of understanding regarding three core components of acupuncture treatment for insomnia: treatment target, mechanisms, and durability. These misconceptions may prevent people from accessing a safe, nonpharmacological therapy that could treat their insomnia. Educational interventions need to be designed to address these gaps in knowledge with the goal of increasing the appropriate utilization of acupuncture services. Additionally, healthcare providers should be aware of and properly address these misconceptions regarding the use of acupuncture when discussing nonpharmacological treatment options with cancer survivors.

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