



# Auricular Acupuncture Treatment Associated With Improved Self-reported Sleep And Emotional Distress In Hispanic And Latino Immigrants: A Preliminary Report

Rupp Hockmeyer, T., Ph.D., M.Ac & Rupp, H., Ph.D.: EbbTide Wellness Studio, Easton, MD

## Background

- Sleep disturbances are prevalent in Hispanic and Latino immigrants.<sup>1</sup> Studies suggest emotional distress/ stress may be important contributing factors.
- Auricular acupuncture, specifically the National Acupuncture Detoxification Association (NADA) protocol, has demonstrated effectiveness for reducing anxiety, sleep disturbance and stress.<sup>2</sup>
- No study has examined auricular acupuncture in a community setting to assess improvements in sleep in Hispanic/ Latino immigrants by reducing in emotional stress.
- **This study is a preliminary investigation into the efficacy of acupuncture for sleep disturbance through mitigating emotional distress/ psychological stress.** The theoretical model and intervention is illustrated in Figure 1.

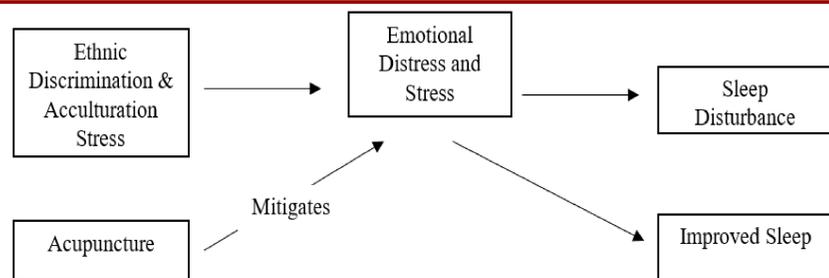


Figure 1. Conceptual model of the mitigating effect of acupuncture on emotional distress for improved sleep.

## Research Objectives

1. To investigate whether Hispanic/ Latino immigrant adult men and women with self-reported sleep disturbance show improvements in sleep with auricular acupuncture intervention.
2. To investigate whether levels of emotional distress may mediate changes in sleep outcomes associated with acupuncture treatment.

## Methods

- **Sample:** Hispanic/ Latino adult immigrants ages 18-64 with self-reported sleep problems recruited from Talbot County, MD
- **Design:** Randomized Controlled Trial:
  - Active Intervention [NADA protocol (Figure 1. Shen men, sympathetic autonomic, lung, liver and kidney points)] OR
  - Sham Control (outer ear helix with no active points).
- **Study Timeline and Procedures:** See Table 1.
- **Questionnaires:** Emotional distress and sleep responses to auriculotherapy measured using Emotional Distress Scale (EDS), Perceived Stress Scale (PSS), Athens Insomnia Scale (AIS), and Pittsburgh Sleep Quality Index (PSQI) scales completed Baseline, Mid (4 treatments), and Follow-up (8 treatments).

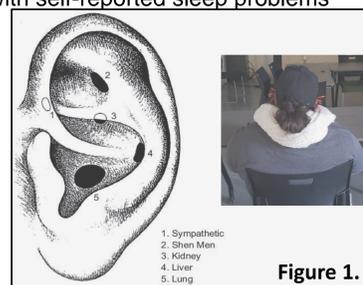


Figure 1.

Table 1. Study timeline and procedures

Session # (time)	Study Procedures
<b>Week 1</b>	
1. <b>BASELINE &amp; Intervention (2 hours)</b>	-Consent; Forms: Baseline (Demographic), Sleep (AIS, PSQI) and Emotional distress and Stress forms (EDS, PSS) -Acupuncture treatment #1 (sham control or NADA)
2. <b>Intervention (45 minutes)</b>	-Acupuncture treatment #2 (sham control or NADA)
<b>Week 2</b>	
3. <b>Intervention (45 minutes)</b>	-Acupuncture treatment #3 (sham control or NADA)
4. <b>Intervention (45 minutes)</b>	-Acupuncture treatment #4 (sham control or NADA)
<b>Week 3</b>	
5. <b>MID-WAY &amp; Intervention 1 hour)</b>	-Forms: Sleep (AIS, PSQI) and Emotional distress and Stress forms (EDS, PSS) -Acupuncture treatment #5 (sham control or NADA)
6. <b>Intervention (45 minutes)</b>	-Acupuncture treatment #6 (sham control or NADA)
<b>Week 4</b>	
7. <b>Intervention (45 minutes)</b>	-Acupuncture treatment #7 (sham control or NADA)
8. <b>Intervention (45 minutes)</b>	-Acupuncture treatment #8 (sham control or NADA)
<b>Week 5</b>	
9. <b>FOLLOW-UP (30 minutes)</b>	-Forms, Sleep (AIS, PSQI) and Emotional distress and Stress forms (EDS, PSS)

- **Data Analysis:** Scores were compared between Groups (NADA or SHAM) and within Pre-, Mid- and Post- treatment sessions using Mixed-Model ANOVA. Linear regression was performed with the sleep scores (AIS and PSQI) as the y-input and the emotional stress measures (EDS and PSS) as the x-input. Intent to Treat (ITT) was used for all analyses for missing data.

## Results

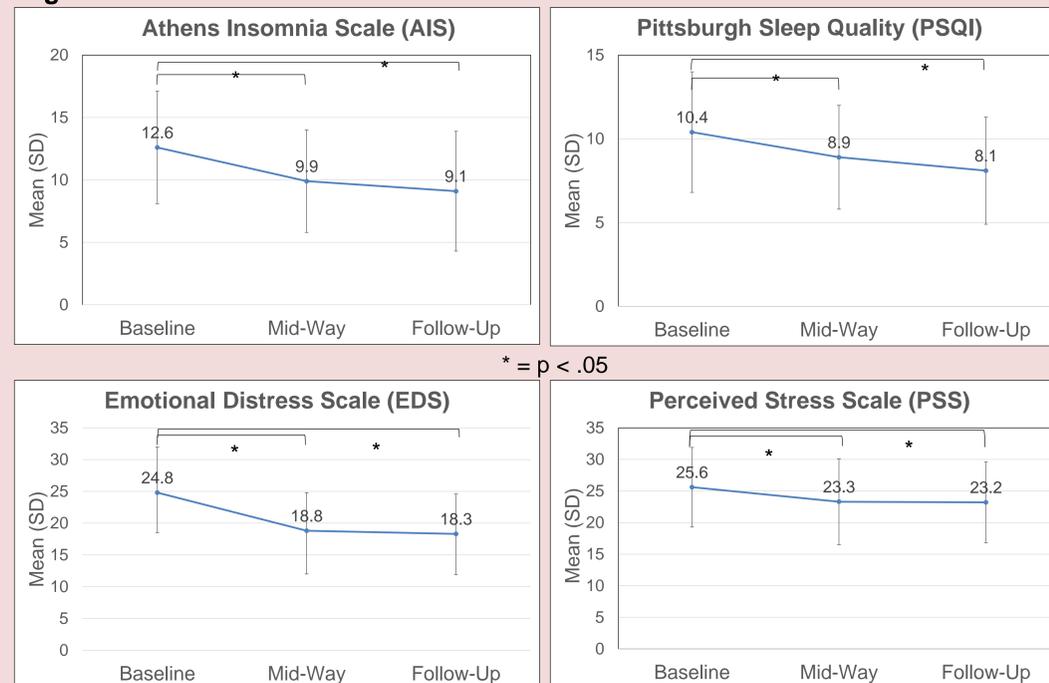
- **Participants:** Sixteen Hispanic/ Latino male (N=4) female (N=12) volunteers participated in the study [NADA treatment group, N=8, mean (SD) age = 41 (37); SHAM control group, n=8; mean (SD) age = 37 (16)]. Ten volunteers completed all 9 sessions: 5 volunteers' participation was ended after 6 sessions due to COVID-19; 1 volunteer completed 3 sessions and then withdrew due to a work conflict.

**Aim 1:** Mixed-Model Anova for ASI and PSQI and emotional stress measures EDS and PSS showed significant within-subjects effect of Session ( $p$ 's < .05) with improvements in sleep and emotional distress (Table 2, Figure 2): Post-hoc t-tests for the main effect of session show significant differences between Baseline and Mid-Way and Baseline and Final for ASI, PSQI, EDS and PSS measures ( $p$ 's < .05); there was not a significant difference between Mid and Final Sessions ( $p$  > .05) for any measure. Main effects of Group and Group by Session interactions were not significant ( $p$ 's > .05).

Table 2.	Baseline; Mean (SD)	Mid-Way; Mean (SD)	Follow-up; Mean (SD)
ASI	12.6 (4.5)	9.9 (4.1)	9.1 (4.8)
PSQI	10.4 (3.6)	8.9 (3.1)	8.1 (3.2)
EDS	24.8 (7.2)	18.8 (6.0)	18.3 (6.3)
PSS	25.6 (6.3)	23.2 (6.8)	23.2 (6.4)

- **Aim 2:** Linear Regression showed significant associations between sleep and emotional distress at Baseline for the AIS and the EDS (R square = 0.28;  $p$  = .03) and PSQI and EDS (R square = 0.45;  $p$  = .005); with higher scores on the EDS associated with higher scores on the AIS and PSQI. There was a trend for an association between PSQI and EDS scores at Mid-Way (R square = 0.24;  $p$  = .05). No significant associations were found for the PSS with the AIS and PSQI.

Figure 2. Aim 1 results.



## Discussion & Conclusions

- **Results** of the study showed significant improvements in sleep and emotional stress after 4 auriculo-acupuncture sessions (2 weeks).
- There was some association between improvement in sleep and decreasing emotional distress.
- Auriculo-acupuncture therapy is a low-cost, easily implemented group treatment option for improving sleep and emotional stress in this community with relatively quick results (4 treatments).
- Implementation of this treatment in communities could directly benefit sleep and emotional health in Latino/ Hispanic immigrants.
- Study results will be used to support outreach efforts to promote auricular acupuncture for sleep and emotional stress in the Hispanic and Latino community.
- **Future directions** may investigate the mechanisms of the effect of auriculo-acupuncture on sleep and emotional distress (e.g., with salivary cortisol measures) and also with additional control measures (e.g., sitting quietly in a room with music for 30 minutes) to better address issues of a placebo effect.

## References

1. Schneeberger, A., Seixas, A., Schweinfurth, N., Lang, U., Cajochen, C., Bux, D., Richards, S., Jean-Louis, G., Casimir, G. & Huber, C.G. (2018). Differences in Disturbed Sleep between Immigrants and Non-Immigrants in Switzerland attributed to Emotional Distress: Analysis of the Swiss Health Survey. *Sleep*, 41 suppl, A363- A362.
2. Wang, S.M. & Kain, Z.N. (2001). Auricular acupuncture: a potential treatment for anxiety. *Anesth Analg*, 92(2):548-553.

## Acknowledgements

- This research was made possible with thanks to the American Academy of Sleep Medicine (AASM) Humanitarian Award#:197-FP-18
- Special thank you to the Chesapeake Multi-Cultural Resource Center (ChesMRC) in Easton, MD for their support and help with recruitment and outreach.