## Research Paper
# Effect of Acupressure at ShenMen Acupoint on the Sleep Quality of Nurses in Emergency Departments and Intensive Care Units

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**A B S T R A C T**

**Objective** Sleep disorders in nurses have a significant impact on their patient care quality. This study aims to evaluate the effect of acupressure at ShenMen acupoint (HT7) on the sleep quality of nurses in emergency departments and Intensive Care Units (ICUs).

**Methods** In this randomized clinical trial with pre-test-post-test design with control group, participants were 80 nurses working in emergency departments and ICUs of hospitals in Kashan, Iran. There were divided into two groups of intervention and control using the block randomization method after signing a written informed consent form. The intervention group underwent acupressure intervention at HT7 in both hands twice per day for 4 weeks. The control group did not receive any intervention. Data collection tools were a demographic form and Pittsburgh Sleep Quality Index (PSQI) questionnaire. Collected data were analyzed in SPSS software using descriptive statistics and independent t-test, Mann-Whitney U test, Chi-square test, and paired t-test, considering a significance level of 0.05.

**Results** Pre-test results showed no statistically significant difference in the Mean±SD score of PSQI between the two groups of intervention (6.94±1.96) and control (7.53±3.57) (P>0.05), but the post-test results showed a significant increase in the mean score of PSQI in the intervention group (4.48±1.61) compared to the control group (6.83±2.81) (P<0.001).

**Conclusion** Acupressure on ShenMen acupoint can increase the sleep quality of nurses; therefore, it is recommended for the management of their sleeps.

## Extended Abstract

### 1. Introduction

Sleep as an important and influential factor in health status, plays an important role in improving the quality of life such that its impairment can have severe negative effects on physical and mental health and, thus, increase healthcare costs. Sleep disorders lead to increased fatigue and drowsiness during the day, which in turn reduces a person's daily functioning. Nurses are exposed to relatively high stress when providing care to the patient, due to high patient care responsibility and factors associated with their sleep disorders such as long hours of working that put them under emotional and psychological pressure. The effect of patient care necessity can increase their stress, fatigue, and sleep disturbance and may lead to errors that can adversely affect the patient's recovery or lead to adverse consequences such as their death. The results of some studies have indicat-

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ed an unsatisfactory level of sleep quality among nurses. For example, Bozorg Sohrabi et al. reported a low level of sleep quality in 84% of nurses [6]. In recent years, the interest of people in using complementary medicine has increased due to its positive effects on the some disorders. Acupressure is a form of complementary medicine with an easy technique that has received a lot of attention.

## 2. Materials and Methods

The present study is a controlled randomized clinical trial with a pre-test-post-test design. The study population consisted of all nurses working in the emergency departments and Intensive Care Units (ICUs). Samples were divided into two groups of intervention (n=40) and control (n=40) using the block randomization method. A demographic form and Pittsburgh Sleep Quality Index (PSQI) questionnaire were used for collecting data before and after the intervention. First, for 15 minutes, face-to-face training on how to apply acupressure, finding the desired points and applying pressure on them was presented to the nurses by a researcher who had a certificate in acupressure. The nurses

were asked to perform the acupressure intervention once in the presence of the researcher to ensure their learning. They were then asked to perform the intervention twice a day for 4 weeks in both hands at short intervals using a pressure of 3-5 kg; once during work shift breaks or rest at home or anywhere else, and once at night 30 minutes before going to bed or in bed for 5 minutes. Nurses in the control group did not receive any intervention.

## 3. Results

The Mean±SD age of nurses in the intervention and control groups were 28.55±4.01 and 28.68±3.40 years, respectively, but there was no statistically significant difference between the two groups in terms of age (P=0.58). The mean of shift work per month of nurses in the intervention and control groups were 26.7±2.12 and 26.92±2.41, respectively. There was no statistically significant difference between the two groups in any demographic characteristics which indicates the homogeneity of samples in the two groups (Table 1). Within-group comparison using independent t-test in the intervention group showed a statistically signifi-

**Table 1.** Demographic characteristics of nurses in two study groups

| Variables | | No. (%) | | Sig. |
| --- | --- | --- | --- | --- |
| | | Intervention Group | Control Group | |
| Gender | Male | 14 (35) | 17 (42.5) | 0.49* |
| | Female | 26 (65) | 23 (57.5) | |
| Marital status | Single | 19 (47.5) | 13 (32.5) | 0.17* |
| | Married | 21 (52.5) | 27 (62.5) | |
| Number of children | 0 | 28 (70) | 21 (17.5) | 0.33** |
| | 1 | 3 (7.5) | 7 (20) | |
| | 2 | 7 (17.5) | 8 (10) | |
| | 3 | 2 (5) | 4 (19.4) | |
| Educational level | BA | 32 (80) | 31 (77.5) | 0.78** |
| | MSc/MA | 8 (20) | 9 (22.5) | |
| Work experience | <5 y | 20 (50) | 21 (52.5) | 0.82** |
| | 5-10 y | 13 (32.5) | 14 (35) | |
| | >10 y | 7 (17.5) | 5 (12.5) | |
| Number of night shifts | 0 | 6 (15) | 10 (25) | 0.38** |
| | 1 | 14 (35) | 9 (22.5) | |
| | 2 | 16 (40) | 14 (35) | |
| | >2 | 4 (10) | 7 (17.5) | |
| Shift schedule | Fixed | 6 (15) | 10 (25) | 0.26* |
| | Rotating | 34 (85) | 30 (75) | |
| Department | Emergency | 20 (50) | 20 (50) | 1* |
| | ICU | 20 (50) | 20 (50) | |

* Chi-squared test; ** Mann-Whitney U test.

**Table 2.** Mean±SD of PSQI scores in two study groups before and after intervention

| PSQI | | Mean±SD | | Mean Difference*** | Intra-group Comparison** |
|---|---|---|---|---|---|
| | | Pre-test | Post-test | | |
| Subjective sleep quality | Intervention group | 1.58±0.90 | 0.80±0.68 | -0.77 | P<0.001 |
| | Control group | 1±0.82 | 1.55±0.63 | -0.12 | P=0.19 |
| Intra-group comparison* | | P<0.71 | P<0.001 | - | - |
| Sleep latency | Intervention group | 1.35±0.70 | 0.98±0.63 | -0.45 | P<0.001 |
| | Control group | 1.58±0.93 | 1.35±0.77 | -0.22 | P=0.05 |
| Intra-group comparison* | | P<0.35 | P<0.007 | - | - |
| Sleep duration | Intervention group | 1.13±0.82 | 0.63±0.65 | -0.45 | P<0.001 |
| | Control group | 1.18±0.93 | 1.05±0.84 | -0.12 | P=0.16 |
| Intra-group comparison* | | P<0.82 | P<0.04 | - | - |
| Habitual sleep efficiency | Intervention group | 0.75±0.63 | 0.0±65.59 | -0.2 | P=0.01 |
| | Control group | 0.90±0.81 | 0.0±85.66 | -0.25 | P=0.01 |
| Intra-group comparison* | | P<0.48 | P<0.053 | | |
| Sleep disturbances | Intervention group | 0.98±0.62 | 0.68±0.61 | -0.3 | P=0.001 |
| | Control group | 0.93±0.76 | 0.98±0.18 | +0.05 | P=0.61 |
| Intra-group comparison* | | P<0.71 | P<0.09 | - | - |
| Use of sleep medication | Intervention group | 0.13±0.15 | 0.13±0.40 | 0 | P=1 |
| | Control group | 0.18±0.38 | 0.33±0.52 | +0.15 | P=0.01 |
| Intra-group comparison* | | P<0.19 | P<0.03 | - | - |
| Daytime drowsiness | Intervention group | 1.03±0.89 | 0.70±0.68 | -0.32 | P=0.02 |
| | Control group | 1.10±1.64 | 0.83±0.41 | -0.27 | P=0.05 |
| Intra-group comparison* | | P<0.60 | P<0.68 | - | - |
| Total | Intervention group | 6.93±1.96 | 4.48±1.61 | -2.45 | P<0.001 |
| | Control group | 7.53±3.57 | 6.83±2.81 | -0.7 | P=0.007 |
| Intra-group comparison* | | P<0.93 | P<0.001 | - | - |

*Independent t-test; **Paired t-test; ***Repeated measures ANOVA.

cant decrease in PSQI dimensions of subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, daytime drowsiness and in overall PSQI score after intervention (P<0.05). In the control group, the results of independent t-test showed a significant decrease in sleep latency, habitual sleep efficiency, use of sleep medication, daytime drowsiness and in overall PSQI score after the intervention (P<0.05). The results of paired t-test for be-

tween-group comparison of sleep quality in the intervention group showed that the mean score of overall sleep quality increased but the scores of all subscales (except in use of sleep medication) decreased significantly after the intervention (P<0.05), while the mean score of overall PSQI and its subscales in the control group did not show a statistically significant difference compared to the scores of baseline (P<0.05) (Table 2).

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## 4. Conclusion

According to the results of the present study, the use of acupressure at Shenmen acupoint (HT7) for 4 weeks is effective in reducing sleep disorders in nurses working in emergency and ICUs. Therefore, due to the very high prevalence of insomnia and its complications in nurses, acupressure can be suggested as a non-pharmacological treatment in the management of nurses' sleep disorders and consequently the quality of life, due to ease of use and not having side effects.

## Ethical Considerations

### Compliance with ethical guidelines

This study was approved by Kashan University of Medical Sciences (Code: IR.KAUMS.NUHEPM. REC.1399.025) and has been registered by Iranian Registry of Clinical Trials.

### Authors' contributions

Writing – original draft: Mahdieh Saberi; Writing – review & editing, data analysis: Hossein Akbari; Data collection: Sajjad Abbasi Tadi.

### Conflicts of interest

The authors declared no conflict of interest.

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