

**“The effect of acupressure on vital signs, acute pain, stress and satisfaction during venipuncture: Single-blind, randomized controlled study”**

**Abstract:**

**Introduction**

Pain increases the patient's anxiety levels and prolongs examination and other medical processes. This study was conducted as a single-blind, randomized controlled study to determine the effects of [acupressure](#) applied on adult patients and whether it changed their vital signs, acute pain, stress and satisfaction during [venipuncture](#).

**Methods**

Patients were randomly allocated to either an acupressure group (n=100) or a no-intervention control group (n=100). Acupressure (LI 4, LI 11 and HT 7 points) was applied once by a certified researcher for 10 min prior to venipuncture. Pain, satisfaction, stress, heart rate and [oxygen saturation](#) levels of the patients in the

acupressure and control groups were assessed 15 min before and immediately after the venipuncture procedure. The [Visual Analog Scale](#) for the Measurement of Pain Severity, the Visual Analog Patient Satisfaction Scale and the State-Trait Anxiety Inventory were used to collect the data.

**Results**

The acupressure group had a significantly lower mean pain score than the control group (respectively,  $1.23 \pm 1.09$  and  $1.95 \pm 1.95$ ,  $p < 0.05$ ). The acupressure group had a significantly higher mean satisfaction score than the control group (respectively,  $9.13 \pm 1.31$  and  $8.51 \pm 1.86$ ,  $p < 0.05$ ). The acupressure group had a significantly lower mean stress score than the control group (respectively,  $34.66 \pm 7.99$  and  $41.91 \pm 9.21$ ,  $p < 0.05$ ).

**Conclusion**

Acupressure reduced acute pain and stress and increased satisfaction levels in adult patients undergoing venipuncture.

**Introduction:**

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## [Case Study: The effect of acupressure on vital signs, acute pain, stress and satisfaction during venipuncture](#)

Pain, which is acknowledged as the fifth vital sign, is a sophisticated experience affected by physical, emotional and behavioral factors [1]. Giving rise to several physiological and psychological changes in the body, pain increases the patient's anxiety levels and prolongs examination and other medical processes. By considering the severity level of pain and individual differences in reactions to pain, pain should be evaluated for each individual separately [2]. Painful procedures such as [venipuncture](#) and injection are intimidating and stressful experiences for patients. Reducing the pain experienced during venipuncture is important for elimination of negative reactions likely to be exhibited toward painful procedures in the future and for the fast adaptation of patients to treatment and care procedures [3]. Therefore, initiatives should be taken to reduce the pain felt by patients during the venipuncture procedure [4].

There are different approaches which aim to eliminate pain. The importance of using non-pharmacological

methods in pain control, in addition to pharmacological methods, also increases with each passing day. It is suggested that, from among non-pharmacological methods, practices such as [breathing exercises](#), creating distractions, reflexology, shot blockers, vibration and massage are effective in reducing the pain that patients experience due to invasive procedures [5], [6], [7].

Pain is a condition that requires immediate attention, overwhelms the patient, disrupts the patient's behaviors and views, gives rise to behavioral reactions and autonomic changes, delays the recovery process and raises the cost of care [8].

Moreover, pain is directly associated with patient satisfaction. It is expected for patient satisfaction to be enhanced as the severity of pain falls. To raise patient satisfaction, pain treatment should be performed properly [9]...

It is argued that, among non-pharmacological practices, the acupressure method, which is based on [traditional Chinese medicine](#) and considered to allow the flow of energy

via pressure to be exerted with stimulation tapes, hands and fingers on particular points on meridians which are thought to exist innately in the human body and convey energy, is effective and may be used in reducing pain [13]. Acupressure is also called acupuncture without needles. As needles are not used in acupressure, it is a method that is easily learned and applied, safe, effective and economical. Moreover, stimulation of acupuncture points helps establish the sympathetic and parasympathetic balance and maintain [homeostasis](#) healthily [14,15].

### **1.1. Aim of the study**

This study was conducted as a single-blind, randomized controlled study to determine the effects of acupressure applied on adult patients on their vital signs, acute pain, stress and satisfaction during venipuncture...

#### **Methods:**

...A Patient Evaluation Form, the [Visual Analog Scale](#) for the Measurement of Pain Severity, the Visual Analog Patient Satisfaction Scale and the

State-Trait Anxiety Inventory were used in the research. All outcomes were assessed before and after the venipuncture procedure...

Acupressure (LI 4, LI 11 and HT 7 points) was applied by a certified researcher on the patients in the acupressure group for 10 minutes before the venipuncture procedure. The acupressure points were as follows: HT7 Shenmen - On the ulnar end of the transverse crease of the wrist, in the small depression between the pisiform and [ulna](#) bones; LI4 Hegu - On the dorsum of the hand, between the 1st and 2nd [metacarpal bones](#); LI11 Quchi - With a bent elbow, the point lies in the depression at the lateral end of the transverse cubital crease, midway between LU5 and the lateral epicondyle of the [humerus](#) [22]...

The data were analyzed by using SPSS (Statistical Package for the Social Sciences, Chicago, Illinois) version 26.0. In the statistical analysis of the data, percentages, frequencies and mean values (min-max) were calculated...

## [Case Study: The effect of acupressure on vital signs, acute pain, stress and satisfaction during venipuncture](#)

### **Results:**

...the acupressure group had a significantly lower mean score than the control group for the pain experienced during the procedure (respectively,  $1.23 \pm 1.09$  and  $1.95 \pm 1.95$ ), ( $p < 0.05$ ). Likewise, it was ascertained that, between the acupressure and control groups, there was no statistically significant difference in the mean scores for the satisfaction expected before the procedure ( $p > 0.05$ ). On the other hand, the acupressure group had a significantly higher mean score than the control group for the satisfaction experienced during the procedure (respectively,  $9.13 \pm 1.31$  and  $8.51 \pm 1.86$ ), ( $p < 0.05$ ). Moreover, it was found that, between the acupressure and control groups, there was no statistically significant difference in the mean scores for the stress expected before the procedure ( $p > 0.05$ ). However, the acupressure group had a significantly lower mean score than the control group for the stress experienced during the procedure...

### **Discussion:**

This study was performed as a single-blind, randomized controlled study for evaluating whether [acupressure](#) applied on adult patients during [venipuncture](#) had any effect on their vital signs, acute pain, stress and satisfaction. This study hypothesized that the acupressure intervention would reduce acute pain and stress and raise satisfaction in the adult patients during the venipuncture procedure...It was determined that the [acupressure](#) intervention applied on the adult patients reduced their acute pain and stress during the [venipuncture](#) procedure while raising their satisfaction levels with the procedure...For reducing acute pain and stress and enhancing satisfaction in adult patients during the venipuncture procedure, acupressure is a safe, easy, non-invasive and effective technique that needs no additional equipment when it is applied on the LI 4, LI 11 and HT7 points. However, to advocate its effectiveness through evidence-based studies, acupressure should be

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applied in different painful procedures.

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