



RESEARCH ARTICLE

COMBINED EFFECT OF ACUPUNCTURE AND HEAD MASSAGE ON TENSION TYPE HEADACHE AMONG ADULTS

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ABSTRACT

**Background:** Complementary and alternative therapies (CAM) have been used as corrective treatments for ailments including chronic pain and psychopathological conditions. Acupuncture and massage therapies are used for tension-type headache prophylaxis as well as treatment.

**Aims and objectives:** The objective of this study was to assess the value of a structured acupuncture and head massage therapy program, in order to improve their quality of life by reducing their headache pain and to improve sleep with standard protocol for tension-type headache sufferers.

**Materials and Methods:** A total of 100 tension type headache subjects aged 18-26 years were screened and after filling inclusion criteria as well as diagnostic criteria (International Headache Society criteria) 30 subjects were recruited to the study. Pre assessments were, made before the treatment. Acupuncture and Standard head massage was, given for the duration of 30 minutes each for 7 days. Post assessments were, made after 7 days of the treatment. All the details of the study were, explained and informed consent was, obtained from the subjects.

**Results:** Values from PDI, VAS and headache diary recordings, significant differences were detected in headache. Subjects reported that there is a greater improvement in their sleep quality by reducing headache pain ( $p < 0.047$ ) intensity and duration for combined effect of acupuncture and head massage. Post analysis indicated sleep quality was improved from baseline ( $p < 0.001$ ), there was decrease in PDI ( $p < 0.001$ ) also reduction in headache intensity and duration for the combined effect of head massage and acupuncture.

**Conclusion:** Acupuncture and head massage is effective for the treatment of tension type headache. Significant differences has been found before and after the treatment. Hence combining both massage and acupuncture plays a significant role in treating tension headache.

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INTRODUCTION

Tension type headaches (TTH) are recurrent episodes of headache enduring minutes to weeks. The pain is commonly pressing or tightening in high quality, of slight to moderate intensity, and bilateral in region, and does not worsen with the physical activity (Headache Classification Subcommittee of the International Headache Society, 2004). Nausea and vomiting is typically absent, but photophobia or phonophobia may be present. In most patients, tension-type headache occurs infrequently and there is no need for further treatment beyond over-the-counter painkillers. In some patients, however, tension-type headache occurs on several days per month or even daily (Ashina, 2004).

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Complementary and alternative therapies have been used as corrective remedies for illnesses including chronic pain and psychopathological conditions (Eisenberg et al., 1988). Acupuncture is defined as the needling of specific points of the body. It is one of the most extensively used complementary therapies in many countries (Bodeker et al., 2005). Acupuncture is a safe and effective holistic remedy backed by way of more than two thousand years of practice and studies. Acupuncture is often used as an intervention to reduce the frequency and intensity of headaches (<https://yinyanghouse.com/acupuncture/introduction-to-acupuncture>). Massage therapy (MT), the systemized manipulation of soft tissues intended to promote health and wellbeing (Moyer et al., 2004). Scientific evidence supports and explains the beneficial effects of massage that has developed into a sophisticated and specialized tool in today's treatment of muscle, tendon, ligament and joint injuries. It is also very effective in cases of frequent complaints of some types of headaches as it improves

the condition and texture by lubricating the skin and thus relaxes the fascia of scalp (Tanushree podder, 2005). The aim of the present study was to assess the value of a structured acupuncture and head massage therapy program, in order to improve their quality of life by reducing their headache pain and to improve sleep with standard protocol for tension-type headache sufferers.

## MATERIALS AND METHODS

Up on Ethical clearance from the institutional committee, the present study was carried out at Alva's College of Naturopathy & Yogic Sciences, Moodabidri, Karnataka India. A total of 100 tension type headache subjects aged 18-26 years were screened and after filling inclusion criteria as well as diagnostic criteria (International Headache Society criteria) 30 subjects were recruited to the present study. Pre assessments were made before the day of treatment. Next day Acupuncture was given first and Standard head massage was given after acupuncture for the duration of 30 minutes each for 7 days. Head massage given immediately after acupuncture without any interval between both treatments. Post assessments were taken immediately after the 7th day of the treatment.

### Inclusion criteria

- Both the gender groups in the age group of 18-26 were included
- At least eight days with headache a month in the previous three months and in the baseline period.

### Exclusion criteria

- Patients with Additional migraine headache
- Use of analgesics on more than 10 days a month, prophylactic headache treatment with drugs during the previous four weeks, and any acupuncture treatment during the previous 12 months. Those who take regular medication for headache.
- Subjects with other neurological disorders.
- Weak and systemic illness subjects.

### Intervention

Acupuncture is administered by specialized physician and consisting of 7 sessions per patient over consecutive one week with duration of 30 min per session. All patients were treated at "basic" points bilaterally. Additional points chosen individually. The total number of needles limited to 15 per session.

#### 'Basic' points

- GB 20 (fengchi)
- GB 21 (jianjing)
- LR 3 (taichong)

#### Optional points

- Mainly frontal headache: LI4 (hegu), GV23 (shangxing), extra points Yin Tang and Tai Yang, ST44 (neiting), GB2 (tinghui).
- In case of headache mainly in the vertex: GV20 (baihui) or GV23 (shangxing), extra point Si Shen Cong.

- In case of mainly neck pain: BL10 (tianzhu), BL60 (kunlun) or BL62 (shenmai), GV14 (dazhui) or GV19 (houding), SI3 (houxi) or SI6 (yanglao). In case of pain through whole head with fatigue: extra point Tai Yang, SP6 (sanyinjiao) or 9 (yinlingquan), ST36 (zusanli) or ST40 (feng lung), CV12 (zhongwan).
- Complaints worse with wet or cold weather: LI4 (hegu), GV14 (dazhui), GB3 (shangguan), SJ6 (zhigou), GB39 (xuanzhong).
- Modalities Wind, Dampness, Cold: LI4 (hegu), GV14 (dazhui), TE6 (zhigou), GB34 (yanglingquan).
- Modalities Cold, Wind: LI4 (hegu), LU7 (lieque), TE5 (waiguan), GV14 (dazhui) (Melchart *et al.*, 2005).

Each session was observed by a student assistant who served as timer for each phase and recorder of pain referral responses for each client. Each therapist used only the practiced specific protocol and did not improvise during the treatment. The therapists were instructed that their role was to perform the protocol, not to specifically treat the subjects' headaches.

### Head Massage

Each subject received total of seven 30-minute massage therapy sessions during the 1-week treatment period. Massage therapy treatments delivered by certified massage therapists. A standardized precise 30-minute massage treatment protocol was developed, refined and practiced by each therapist for 2 weeks before the study began. The treatment protocol consisted of 6 distinct phases within the 30-minute time frame.

**Phase 1:** Preparatory tissue warm-up (3 minutes) included bilateral pressure moving from the lower cervical region to the occiput. This procedure was repeated with completion of 3 passes bilaterally.

**Phase 2:** Myofascial release (5 minutes) included 3 palmar glide passes each over the deltopectoral, deltoid, and posterior deltoid regions bilaterally. Additionally 3 passes with a soft fist contact were made from the occiput to the lateral shoulder along the upper trapezius bilaterally.

**Phase 3:** Axial cervical traction (2 minutes) included application of manual axial traction with 1 hand under the head and neck and the other hand on the forehead. Gentle traction was applied with the head first slightly flexed, then with slight right lateral flexion, and finally with the head in slight left lateral flexion. Traction was held for 15 seconds in each position.

**Phase 4:** Trigger point therapy procedure (15 minutes) consisted of scanning palpation of the upper trapezius, sternocleidomastoid, sub occipital, splenius capitis, levator scapulae, and temporalis muscles to locate and manually treat trigger points. When located active trigger points were treated by pincer or flat palpation with just enough pressure to elicit referred pain or autonomic referral phenomena. That pressure was maintained on the trigger point until the client reported that the referral pain had dissipated or for a maximum of 2 minutes. Pressure on the active Trigger point was then slowly eased to elicit a vascular flushing. This procedure was repeated 3 to 5 times on each trigger point. Typically 6 active trigger points were treated in the time allotted.

**Phase 5:** Facilitated stretching techniques (5 minutes) consisted of muscle energy techniques, which included therapist-assisted lengthening and stretching of the cervical paravertebral musculature. The stretching

procedure invoked relaxation through reciprocal innervation mechanisms. The antagonist musculature was isometric ally contracted this was followed by passive stretching of the agonist musculature .

**Phase 6:** Session closure (3–5 minutes) included relaxing effleurage and petrissage strokes and application of passive motion to the cervical region to end the session (Quinn *et al.*, 2002)

### Laboratory investigations

- Pain Disability Index:** The rating scales are designed to measure the degree to which aspects of life are disrupted by chronic pain (A score of 0 means no disability at all, and a score of 10 signifies that all of the activities in which you would normally be involved have been totally disrupted or prevented by your pain) (Chibnall and Tait, 1994; Pollard, 1984; Tait *et al.*, 1990).
- Visual Analogue Scale (VAS):** Was Developed by Cline. The subjects will be asked to rate the severity of pain related to headache by visual assessment technique with a scale of 0-10cm (Revill *et al.*, 1976; Scott and Huskisson, 1979).
- Headache diaries:** This diary was designed to help to understand and manage headaches by recording information about them and any treatments used track the frequency of headaches, the treatments used and how effective (www.nps.org.au/conditions/nervous-system-problems/pain/for individuals/headache diary published on 15 November 2012 available at www.nps.org.au/headache, NPS cited on 28-02-2016.).

### Statistical Analysis

Data were analyzed using IBM SPSS 21.0. The data was analyzed for normality .For all the analysis, we present 95% confidence intervals and considered  $p < 0.05$  as significant.

As shown in the Table 1 there statistically significant( $p < 0.047$ ) was noticed in VAS and headache pain intensity and there was a statistically significant ( $P < 0.001$ ) improvement was noticed in their sleep quality after the combined effect of acupuncture and head massage. Table-1 also displaying significant ( $P < 0.001$ ) decrease in PDI in the subjects after combined effect of acupuncture and head massage.

### DISCUSSION

Tension-type complications are defined as, being bilateral, nonpulsating, tightening, or squeezing sensation around the top and not aggravated by activity. Anxiety-kind complications are not followed by using slight or extreme nausea and vomiting, and simplest one of the following: photophobia, phonophobia, or moderate nausea. Acupuncture has been located to be clinically beneficial for sufferers with persistent complications, mainly migraines and tension-type complications (Endres *et al.*, 2007; Linde *et al.*, 2009). The mechanism by which acupuncture regulates pain is by the activation of large fibers, specifically A-Beta and A-Delta fibers, which stimulate both wide range neurons and inhibitory neurons in layers III, IV, and V of the dorsal horn (McLennan *et al.*, 1977).

These touch, pressure, and proprioceptive fibers are inhibitory or antinociceptive; they regulate the pain sensation by stimulating GABA and glycine release via interneurons at the spinal cord level. Wide dynamic range neurons receive highly convergent input from joints and muscles and via the paleo spinothalamic tract, and continue on to nonspecific inhibitory thalamic nuclei (Shen *et al.*, 1978; Cheng and Pomeranz, 1981). The precise mechanism of action in massage therapy is not known. It has been proposed that increased parasympathetic activity and a slowed-down physiological state may underpin the behavioral and physiological processes associated with massage (Field, 1998).

**Table 1. The demographic information of the subjects analyzed before and after treatment**

Variable	Pre (Mean SD)	Post (Mean SD)	p value
PDI	6.133±1.3830	3.767±1.2507	0.001
SLEEP QUALITY	4.067±.9072	6.667±1.2411	0.001
VAS	5.933±1.2299	2.700±1.5570	0.047
HEADACHE RATING	5.800±1.1861	2.567±1.5013	0.050

**Table 2. Showing effect between genders**

Variable	Males		Females		ANCOVA p value	D <sup>2</sup>	F Value
	Pre (Mean SD)	Post (Mean SD)	Pre (Mean SD)	Post (Mean SD)			
PDI	3.731±.192	3.333±1.3973	3.802±.192	4.200±.9411	.803	.002	.064
SLEEP QUALITY	6.331±.268	6.200±1.2071	7.002±.268	7.133±1.1255	.092	.102	3.051
VAS	3.273±.358	3.400±1.2421	2.127±.358	2.000±1.5584	.086	.105	3.175
HEADACHE RATING	3.247±.341	3.267±1.2228	1.886±.341	1.867±1.4573	.009	.227	7.929

### RESULTS

A total of 100 individuals were assessed for study eligibility; 30 met eligibility and were enrolled for the study. All the subjects received both massage and acupuncture for consecutive seven days without interruption. From PDI, VAS and headache diary recordings, differences across time were detected in headache.

Wright and Sluka showed that massage is thought to produces a variety of positive physiological effects that may contribute to tissue repair, pain modulation, relaxation, and improved mood (Wright and Sluka, 2001). For example, these authors point to research showing that massage has beneficial effects on arterial and venous blood flow and edema (Goats, 1994). In addition, vigorous massage has been shown to increase local blood flow and cardiac stroke volume, as well as improve

lymph drainage (Carrier, 1922; Ladd *et al.*, 1952); massage also shows to have an anticoagulant effect.

## Conclusion

The study results showed that there was improvement in sleep quality and reduction in headache by reducing pain hence the combining of acupuncture with head massage will be a reasonable alternative methods in treating patients with chronic tension-type headaches.

## Limitations of the study

Smaller sample size

- Subjective variables were used which tend to have bias
- Shorter follow up compared to previous studies may have limited the magnitude of benefit reported

## REFERENCES

- Ashina M. 2004. Neurobiology of chronic tension-type headache. *Cephalalgia*, 1; 24(3):161-72.
- Bodeker G, Ong CK, Grundy C, Burford G, Shein K. 2005. WHO global atlas of traditional, complementary and alternative medicine. World Health Organization.
- Carrier EB. 1922. Studies on the physiology of capillaries: the reaction of the human skin capillaries to drugs and other stimuli. *American Journal of Physiology*, 1; 61(3):528-47.
- Cheng RS, Pomeranz B. 1981. Monoaminergic mechanism of electro acupuncture analgesia. *Brain Research*, 29; 215 (1-2): 77-92.
- Chibnall JT, Tait RC. 1994. The Pain Disability Index: factor structure and normative data. *Archives of physical medicine and rehabilitation*, 1; 75(10):1082-6.
- Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, Kessler RC. 1998. Trends in alternative medicine use in the United States, 1990-1997: results of a
- Endres HG, Diener HC, Molsberger A. 2007. Role of acupuncture in the treatment of migraine. *Expert review of neurotherapeutics*, 1; 7(9):1121-34.
- Field TM. 1998. Touch therapies. In: Hoffman RR, Sherrick MF, Warm JS (eds). *Viewing psychology as a whole*. Washington DC: American Psychological Association, 603– 24.
- follow-up national survey. *Journal of the American medical association*, 11; 280(18):1569- 75.
- Goats GC. 1994. Massage--the scientific basis of an ancient art: Part 2. Physiological and therapeutic effects. *British Journal of sports medicine*, 1; 28(3):153-6.
- Headache Classification Subcommittee of the International Headache Society. The international classification of headache disorders. *Cephalalgia*, 2004; 24(1):1-60. <https://yinyanghouse.com/acupuncture/introductiontoacupuncture>
- Ladd MP, Kottke FJ, Blanchard RS. 1952. Studies of the effect of massage on the flow of lymph from the foreleg of the dog. *Archives of physical medicine and rehabilitation*, 33(10):604.
- Linde K, Allais G, Brinkhaus B, Manheimer E, Vickers A, White AR. 2009. Acupuncture for migraine prophylaxis. *Cochrane Database Systematic Review*, 1; 1(1).
- McLennan H, Gilfillan K, Heap Y. 1977. Some pharmacological observations on the analgesia induced by acupuncture in rabbits. *Pain*, 3(3):229-38.
- Melchart D, Streng A, Hoppe A, Brinkhaus B, Becker-Witt C, Hammes M, Irnich D, Hummelsberger J, Willich SN, Linde K. The acupuncture randomised trial (ART) for tension-type headache--details of the treatment. *Acupuncture in Medicine* 2005 Dec 1; 23(4):157-65.
- Moyer CA, Rounds J, Hannum JW. 2004. A meta-analysis of massage therapy research. *Psychological bulletin*, 130(1):3.
- Pollard CA. 1984. Preliminary validity study of the pain disability index. *Perceptual and motor skills*, 59(3):974.
- Quinn C, Chandler C, Moraska A. Massage therapy and frequency of chronic tension headaches. *American journal of public health* 2002 Oct; 92(10):1657-61.
- Revill SI, Robinson JO, Rosen M, Hogg MI. 1976. The reliability of a linear analogue for evaluating pain. *Anaesthesia*, 1; 31(9):1191-8.
- Scott J, Huskisson EC. 1979. Vertical or horizontal visual analogue scales. *Annals of the rheumatic diseases*, 1; 38(6):560.
- Shen E, Ma WH, Lan C. 1978. Involvement of descending inhibition in the effect of acupuncture on the splanchnically evoked potential in the orbital cortex of cat. *Scientia Sinica*, 21(5):677-85.
- Tait RC, Chibnall JT, Krause S. 1990. The pain disability index: psychometric properties. *Pain*, 1; 40(2):171-82.
- Tanushree podder. In, *The magic of massage*. New Delhi, pustak mahal, 2005; 17, 20.
- Wright A, Sluka KA. 2001. Non-pharmacological treatments for musculoskeletal pain. *The Clinical journal of pain*, Mar 1; 17(1):33-46.
- [www.nps.org.au/conditions/nervous-system-problems/pain/for-individuals/headache-diary](http://www.nps.org.au/conditions/nervous-system-problems/pain/for-individuals/headache-diary) published on 15 November 2012 available at [www.nps.org.au/headache](http://www.nps.org.au/headache), NPS cited on 28-02-2016.

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