

Research Article

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A clinical study to evaluate the efficacy of *Hijamat-bila-shart* (dry cupping) on non-specific neck pain and its potential role in improving the health-related quality of life

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Abstract:

Background: The study is an open, clinical study done with the aim to evaluate the effect of *hijamat-bila-shart* (dry cupping) in relieving non specific neck pain and its potential role in improving the health related quality of life.

Material & Methods: 46 subjects of neck pain were screened, of which 31 subjects were diagnosed as having non-specific neck pain and were included in the study. However, one subject was lost to follow up and only 30 subjects completed the study. The study participants were given 6 sessions of *hijamat-bila-shart* (dry cupping) therapy over a period of 2 weeks. The outcome measures were assessed before (i.e. day 0) and after treatment (i.e. day 14), after one week of treatment free period (i.e. day 21). The outcome assessment measures were pain intensity (at rest & related to movement), neck disability and health-related quality of life which were assessed with the help of VAS (Visual Analogue Scale), NDI (Neck Disability Index) and SF 12v2 respectively.

Results: VAS for pain at rest was 57.3 ± 11.9 (mean \pm SD) at baseline which decreased to 11.3 ± 7.3 (mean \pm SD) after treatment. Similarly, VAS for pain related to movement was 61.1 ± 8.5 (mean \pm SD) at baseline which decreased to 13 ± 7.1 (mean \pm SD) after treatment. The mean score of NDI at baseline was 15.3 ± 4.6 (mean \pm SD) which was reduced to 3.8 ± 2.9 after treatment. The mean PCS of SF12v2 was found to be 37 ± 4.3 at baseline and 48.6 ± 5.1 at day 14. The mean MCS of SF12v2 was found to be 39.6 ± 10.4 at baseline and 50.8 ± 6.8 at day 14. The subjects were also assessed after 1 week follow-up (treatment free period), which showed further decrease in pain. No adverse effects had been reported by any of the study subjects during the study period.

Conclusion: The results of the study concluded that *hijamat-bila-shart* (dry cupping) therapy is considerably effective in relieving non-specific neck pain and improving the health-related quality of life. The follow up also showed sustained pain free status, exhibiting the long-term beneficial effects of the therapy.

Key words: non-specific neck pain, *hijamat-bila-shart*, dry cupping, VAS, NDI, quality of life

INTRODUCTION:

Neck pain is a subjective, personal experience (1) which is usually described as pain located between the occiput and the third thoracic vertebra (2). Neck pain can be due to some underlying pathology or simply due to postural or mechanical causes without any underlying pathology. For the majority of neck disorders, there is an absence of an underlying disease or abnormal anatomical structure, which could be labeled as non-specific neck pain (NSNP). It can be acute (< 4 weeks duration), sub-acute (1-4 months duration) or chronic neck pain (> 4 months

duration) (3). Once an episode of neck pain occurs, most of the people will find it as a chronic condition (4). Non-specific neck pain is a serious public health problem that has become a major cause of disability around the world (5). Established risk factors include age, sex, genetics, smoking and poor psychological health (5) and the etiological factors include poor posture, anxiety, depression, neck strain or occupational or sporting activities, but are often multifactorial and poorly understood. NSNP usually resolves within days or weeks, but can recur or become chronic (6). Prognosis of NSNP too appears to be multifactorial.

Poor health, prior neck pain, poor psychological health, worrying, and passive coping are associated with poor prognosis (5).

Even though the pathogenesis of non-specific neck pain is not completely understood, evidence suggests for disturbed oxidative metabolism and elevated levels of pain-generating substances in neck muscles, signifying that impaired local muscle circulation or metabolism can be part of the pathophysiology (7). Hence, treatment and rehabilitation interventions are primarily intended to lessen symptoms and improve function (7). Identifying interventions which will help in increasing well-being and minimizing symptoms, impairments, activity limitations, participation restrictions are important to have an impact on the onset, course, and care of neck pain (1).

The usual therapeutic modalities for non-specific neck pain include patient education, physical exercise, analgesics, massage and physical, thermal and electrical modalities, (8). Most mechanical neck pain will respond to conventional measures, but the finest therapeutic approach for uncomplicated neck pain has yet to be established (6). Some traditional Asian medicines, such as cupping, guasha, or reflex massages are used in neck pain and were found to be effective in preliminary trials (9).

In Unani system of medicine diseases are treated by using different modes of treatment namely; regimenal therapies (*Ilaj-bil-Tadbeer*), dietotherapy (*Ilaj-bil-Ghiza*), drug therapy (*Ilaj-bil-Dawa*) and/ or surgery (*Ilaj-bil-Yad*). *Hijamah* or cupping is one of the regimes of *Ilaj-bil-tadbeer*, which is indicated in numerous disorders, including musculoskeletal disorders like neck pain, back pain, osteoarthritis, rheumatoid arthritis etc.

Hijamah is a method of local evacuation or diversion of morbid humors in which a cupping instrument (horn or cup) is attached to the surface of the skin of the affected part through negative pressure created by vacuum; the vacuum can be created by heat or suction (10). *Hijamah* is used both as a preventive as well as therapeutic measure. Broadly there are two types of *hijamah*: (i) *Hijamat-bish-shart* (Wet Cupping): Cupping with scarification i.e. cups are positioned by creating vacuum after making incision or pricks on the skin of the affected area. (ii) *Hijamat-bila-shart* (Dry Cupping): Cupping without scarification i.e. cups are placed by creating vacuum without making incision or pricks on the skin of the affected area (11, 12, 13, 14, 15, 16) *Hijamat-bish-shart* works on the principle of *tanqiya-e-mavaad*, i.e. evacuation of morbid matters from the affected area, while *hijamat-bila-shart* works on the

principle of *imala-e-mavaad* that is diversion of morbid humors from one site to another (11, 12, 13, 15, 16)

Hence, with the aim to evaluate the effect of *hijamat-bila-shart* (dry cupping) in relieving non specific neck pain and its potential role in improving the health related quality of life, this study was conducted at *Ilaj bil tadbeer* unit, Majeedia Unani Hospital, Jamia Hamdard, New Delhi.

METHODOLOGY

Materials

The study was commenced after taking ethical clearance from the Jamia Hamdard Institution Review Board. At Majeedia Unani Hospital, Jamia Hamdard, New Delhi, subjects complaining neck pain with no previous history of injury or surgery of neck first underwent X-ray Cervical Spine (AP & Lateral) to rule out any neck pathology. The subjects of non-specific neck pain were included after explaining details of the study & therapy procedure and after taking the informed consent. All patients seeking care at the hospital OPD fulfilling the criteria for inclusion were offered this therapy during the period of data collection. 46 subjects of neck pain were screened, of which 31 subjects were diagnosed as having non-specific neck pain and were included in the study; however, one subject was lost to follow up and 30 subjects completed the study. (Fig: 1)

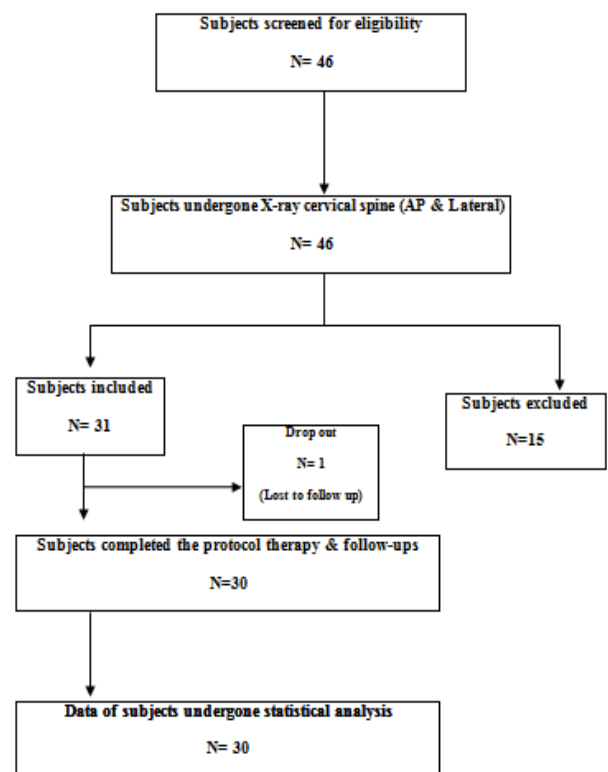


Figure 1: Schematic representation of study procedure Inclusion criteria

- Subjects of either sex between 20 and 60 years of age seeking care for non-specific neck pain at

the *Ilaj bil tadbeer* unit of the Majeedia Hospital were included in the study.

- Subjects willing to participate in the study.

Exclusion criteria

- Individuals below 20 years and above 60 years.
- Any previous major surgery or injury of neck, cervical rib or any other diagnosed pathological condition of neck.
- Any finding in cervical spine x-ray suggestive of neck pathology.
- Pregnant and lactating women.
- Acute local skin lesion that makes the therapy difficult.

Methods

Therapy procedure and assessment period

The study participants were given *hijamat-bila-shart* therapy. Six to eight cups were applied to the neck region by using suction pump. The cups remained at place for minimum 10 minutes depending upon the hyperemia. The therapy was given for 2 weeks. There were 3 sessions in a week given on alternate days, i.e. total of 6 cupping sessions over a period of 2 weeks. The outcome measures were assessed before (day 0) and after treatment (day 14). The subjects were also followed up after 1 week of treatment free period (day 21).

The outcome assessment measures were pain (at rest & related to movement), neck disability and health-related quality of life which were assessed with the help of VAS (Visual Analogue Scale), NDI (Neck Disability Index) and SF 12v2 respectively.

Visual analogue scale (VAS)

The visual analogue scale (VAS) is a widely used tool in medical practice to measure pain (17). VAS is a one-dimensional measure of pain intensity. It is a continuous scale; usually 10 cm (100mm) in length anchored by two

verbal descriptions, one for each symptom extreme i.e. no pain and worst imaginable pain.

Neck disability index (NDI)

The "Neck Disability index" is the most strongly validated instrument for self-rated disability (18). It is an instrument for measuring the self-rated disability due to neck pain or whiplash associated disorder. This applies to a person's ability to perform their daily activities (19). Low score of Neck Disability Index (NDI) signifies the less self-rated disability and vice versa.

SF-12 v2

The SF-12v2 Health Survey is a 12-item, multipurpose, short-form health survey that was developed to be a brief, broad measure of eight domains, or aspects, of health status that are considered important in describing and monitoring individuals suffering from a disease or illness. Low scores on the Physical Component Summary (PCS) measure indicates limitations in physical functioning, limitations in role participation due to physical problems, a high degree of bodily pain, and poor general health and vice versa (20). For the Mental Component Summary (MCS) measure, a low score is indicative of frequent psychological distress, social and role disability due to emotional problems, and poor general health and vice versa (20).

Statistical analysis

Statistical Analysis was done pre-post treatment using paired t-test.

RESULTS

Table 1 displays demographic and clinical characteristics. Table 2 shows VAS, NDI and SF12v2 scores depicting pain intensity, neck disability and quality of life respectively before and after treatment and are discussed below.

Table 1: Demographic Profile and clinical characteristics

S. no.	Characteristics	Frequency
1.	Age (years) (mean ± SD) Age group (years) 20-30 31-40 41-50 51-60	33.53± 10.4 16 8 3 3
2.	Gender (M/F)	11/19
3.	Duration of neck pain Acute Sub-acute Chronic	1 12 17
4.	Pain Intensity (VAS mm) (mean ± SD)	57.3 ± 11.9

Table 2: Outcome of pain, neck disability and quality of life before and after treatment

	Before treatment Mean \pm SD	After treatment Mean \pm SD	Percent variation	p-value*	After follow-up Mean \pm SD
VAS (pain at rest)mm	57.3 \pm 11.9	11.3 \pm 7.3	80.3%	<.0001	5.7 \pm 5.1
VAS (pain related to movement)mm	61.1 \pm 8.5	13 \pm 7.1	78.7%	<.0001	7.9 \pm 6.8
NDI	15.3 \pm 4.6	3.8 \pm 2.9	75%	<.0001	2.1 \pm 2.3
SF-12 PCS	37 \pm 4.3	48.6 \pm 5.1	31.2%	<.0001	50.7 \pm 5.1
SF-12MCS	39.6 \pm 10.4	50.8 \pm 6.8	28.7%	<.0001	53.1 \pm 6.8

*paired t-test

DISCUSSION

Effect on VAS (pain at rest and pain related to movement)

In the current study, VAS for pain at rest was 57.3 \pm 11.89 (mean \pm SD) at baseline which decreased to 11.27 \pm 7.35 (mean \pm SD) after treatment. Similarly, VAS for pain related to movement was 61.1 \pm 8.5 (mean \pm SD) at baseline which decreased to 12.97 \pm 7 (mean \pm SD) after treatment. There was 80.33% decrease in pain at rest and 78.77% decrease in pain related to movement after *hijamat-bila-shart* therapy. The results came out statistically extremely significant ($p < .0001$) (Table 2). The observations are in conformance with the study done by Lauche et al (21) which showed significant improvement in pain after five sessions of dry cupping in chronic non-specific neck pain.

The subjects were also assessed after 1 week follow-up (treatment free period), which showed further decrease in pain; 49.69% decrease in pain at rest and 38.86% decrease in pain related to movement. The short term follow up of 1 week does not show any recurrence of pain, in fact there was some reduction in pain, which indicate positive effect of cupping even after completion of the therapy.

Effect on NDI

In the current study population, disability due to non-specific neck pain was between mild to moderate i.e. the mean score of NDI at baseline was 15.34 \pm 4.63 (mean \pm SD) which was reduced to 3.83 \pm 2.93 after treatment. NDI showed 75.03% decrease after *hijamat-bila-shart* therapy. The observations came out statistically extremely significant ($P < .0001$) (Table 2). In a similar study done by Lauche et al (21), to study the influence of dry cupping in non-specific neck pain, NDI score showed decline after dry cupping sessions as compared to control group.

NDI scores also showed further declination after 1 week of follow up, which showed long- lasting beneficial effects of *hijamat-bila-shart* therapy even after its culmination.

The changes in the neck muscles which lead to microlesions, overuse injury, and pain due to the

absence of oxygenation and nutrition (22) may be corrected by *hijamat-bila-shart* leading to pain relief and decrease in neck disability. This can be attributed to the actions of *hijamat-bila-shart* (dry cupping) which increase the local circulation of blood and lymph and relieve painful muscle tension (21). *Hijamat-bila-shart* (dry cupping) creates skin upliftings inside which local pressure correspondingly decreases around capillaries. This causes increased capillary filtration, local collection of filtered fluids, lymph and interstitial fluids and their retention inside skin uplifting. This dilutes chemical substances, inflammatory mediators, nociceptive substances, bathes nerve endings in collected fluids and breaks tissue adhesions causing decreased pain (23).

By activating vascular system cupping improves circulation and release toxins from tissues, consequently, the toxins and morbid matter is removed by lymphatic and venous drainage (*imala-e-akhlat-e-fasidah*) (24) and the requirement of oxygen and other nutrients is accomplished. Thus, pain is relieved and so is disability.

Some of the recent studies showed marked improvement in neck pain and associated disability after cupping therapy. Lauche et al (21) showed effectiveness of dry cupping in chronic non specific neck pain while Kim et al (25) illustrated the efficacy of combination of dry and wet cupping in neck pain. Massage cupping done by Schumann et al (26) and pulsatile cupping done by Cramer et al (27) also confirmed its efficacy in neck pain.

Effect on Physical Component Summary (SF 12v2)

In the present study, the mean PCS was found to be 37.04 \pm 4.32 at baseline and 48.61 \pm 5.08 at Day 14. The observations revealed 31.24% improvement in PCS after the *hijamat-bila-shart* therapy, the results being statistically extremely significant ($p < 0.0001$) (Table 2).

Effect on Mental Component Summary MCS (SF 12v2)

As PCS, MCS too showed enhancement, with 28.73% improvement after *hijamat-bila-shart* therapy. The mean MCS was found to be 39.6 \pm 10.4 at baseline and 50.8 \pm 6.8 at Day 14. This result was also statistically

extremely significant ($p < .0001$) (Table 2). Lauche et al (21) also assessed health related quality of life (by SF 36) after dry cupping in subjects of non-specific neck pain. Both PCS and MCS were improved after the therapy in the treatment group.

It is apparent from the literature that neck pain can impair functional capacity, quality of life and can cause worry, anxiety and depression (18) effecting not only physical but psychological health also. The results of the current study verify that *hijamat-bila-shart* therapy enhances health related quality of life. SF 12 v2 showed significant improvement, which is evident by both Physical as well as Mental Component Summaries. This can be attributed to the reduced impairment caused by *hijamat-bila-shart* which reduces pain and associated interference in daily activities. Once neck pain and disability is reduced, subjects were able to accomplish their daily activities properly, thus, improving their over-all health status. As stated by Ullah et al (28) that the biological benefits of cupping therapy along with the psychological ones collectively induce a feeling of physical and psychological well being.

Adverse effect

No adverse effects had been reported by any of the study subjects during the study period.

CONCLUSION

In the study, a series of six *hijamat-bila-shart* therapy sessions over a period of two weeks, exhibited that this therapy is safe and effective in treating NSNP. Besides, it also showed improvement in quality of life of the study subjects. The follow up of subjects after one week of treatment free period showed no recurrence of pain in neck, which suggests that *hijamat-bila-shart* could have long-term benefits.

The results of the present study might be limited due to small sample size and the absence of a control group. Therefore, to substantiate the findings of the present study, it should be done on a larger sample size. Also, comparison with other standard complementary therapy or other forms of cupping like wet cupping can also be done. The subjects should also be followed up for longer duration to affirm the long-lasting benefits of *hijamat-bila-shart*.

With the observed clinical efficacy of *hijamat-bila-shart* in non-specific neck pain, the possible therapeutic mechanism of *hijamat-bila-shart* should be studied. We have discussed the possible attributing factors which make *hijamat-bila-shart* effective in relieving neck pain like improvement in local blood circulation, relieving of painful muscle tension, activation of vascular system. These proposed mechanisms should be explored in future studies to have a scientific explanation of

mechanism of *hijamat-bila-shart*. In conclusion, this safe, tolerable, cost-effective, non invasive therapy with minimal to no side-effects can provide a better and promising treatment option for the patients of non specific neck pain.

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