

Perceptions of cupping therapy for chronic pain: A prospective case series

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ABSTRACT

The present study is designed to determine whether chronic pain syndrome (lower and upper back pain) before and after cupping is the same or there are significant treatment differences. Perception due to cupping of here and now pain sensation; sensation of pain at worst conditions; sensation of pain at best conditions; and tolerated sensation of pain; all before and after cupping were rated on 0 to 10 pain scale. It was hypothesized that there is a significant statistical difference before and after cupping, and cupping is effective in lessening and desensitizing chronic pain among lower and upper back pain subjects. Subjects were drawn on convenience sampling basis, where 95 males and females were recruited for the purpose of investigation. Results indicate that cupping therapy is effective procedure in reducing and alleviating chronic pain, where true statistical differences were obtained. It was found after the study that cupping therapy as an alternative medical technique is an effective and fruitful enough either for the management of upper and lower back pain or the control of such annoying medical conditions.

Keywords: Perception, cupping therapy, chronic pain, lower and upper back pain.

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INTRODUCTION

Pain that has lasted for more than three months is called chronic pain. In medical sciences, the distinction between the so called acute and chronic pain is traditionally determined by an arbitrary interval of time since their onset, and the two most commonly used markers for that determination are 3 months and 6 months period of time since onset (Turk and Okifuji, 2001). In scientific literatures, we find some pain theorists and researchers place the transition from acute to chronic state at a period of 12 months (Main and Spanswick, 2001). Others do apply acute conditions to pain which lasts for less than 30 days, while they see chronic conditions as applied to situations extending more than 6 months duration, and in between comes the sub-acute condition that lasts up to 6 months from 1-6 months (Thienhaus and Cole, 2002). Chronic pain can be associated with any part of the human body, from top of head to the edge of feet, mostly manifested as headaches, joint pains, lower and upper back pains, and the present study with reference to cupping therapy will investigate merely lower and upper

back pains.

Lower back pain, has been found commonly a persisting, incapacitating, costly, and even difficult to treat. It was found that many patients might benefit significantly from an individualized; multidisciplinary team-based models of care, mainly when those include access to license complementary care practitioners (e.g., chiropractors, massage therapists, and acupuncturists). Cupping therapy may be an asset in addition to the most prevalent conventional system of intervention (Eisenberg et al., 2012).

When it comes to impact, symptoms usually improve significantly in the first 6 weeks for those who receive health care for an acute as well persistent lower-back pain, while pain scenarios associated with a disability may linger even after a period of one year (Costa et al., 2012). Further, significant improvements were observed in a 2 years follow up studies in the role of thoracic pain blocks in managing chronic mid and upper back pain. Pain relief as well functional improvement of 50% or

more, also were observed among 80% of patients of group I and 84% among patients of group II. It means clearly that therapeutic medial branch blocks of thoracic facets with or without steroids may provide a management option for chronic debilitating thoracic pain of facet joint origin, an outcome that is attributed to cupping therapy (Manchikanti et al., 2012).

In another research findings, where systematic evaluations of thoracic inter-laminar epidural injections were considered, results showed a fair evidence with one randomized trial in patients with various causes of chronic mid and upper back pain, whereas the evidence found to be limited on the bases of one non-randomized study carried out for evaluating chronic pain in the case of post thoracotomy syndrome (Benyamin et al., 2012).

Generally speaking, many results showed that chronic pain have impacts upon a large proportion of adult populations, including working age population, and is strongly associated with markers of social disadvantage (Blyth et al., 2001).

In Grampian region of Scotland where a random sample of 4611 individuals aged 25 years and over, stratified for age and gender, results showed that 14.1% of the investigated sample reported significant chronic pain, and this was more prevalent among women and older age groups. A total of 6.3% reported severe chronic pain, and this was more common in older age groups. On multiple logistic regression modeling, female gender, housing tenure, employment category and educational attainment were found to be independently associated with both significant and severe chronic pain. Furthermore, the presence of 'any,' 'significant' and 'severe' chronic pain had progressively more marked adverse associations with employment, interfering with daily activities and all measured dimensions of general health (Smith et al., 2001). When it comes to further impacts, prevalence, severity, and treatment issues, in a study of 46,394 respondents, in 15 European countries and Israel it was found that chronic pain from moderate to severe intensity occurs in 19% of the adult populations of those countries, and seriously affecting the quality of their social and working lives (Breivik et al., 2006).

When it comes to cupping therapy, simply, it is a method of using glass or kind of plastic cups to create localized pressure by creating a vacuum. The ancient Chinese had been doing this since ancient history thru inserting heat stuff inside a glass or even via the implementation of bamboo tree cups. Whereby such cupping sets, suction of blood and dirt let out takes place thru the created pressure and vacuum; a procedure per se, causes the blood to flow out from the located cupped part of the body and ends with forming a kind of healing in that cupped area (Lee et al., 2010). In the Arab World, especially among Muslims, cupping is considered as a Prophetic Traditional Medicine - PTM, where the prophet of Islam (PBUH) insisted upon its practice by saying: {Healing is in three things: a gulp of honey, cupping, and

branding with fire (cauterizing). But I forbid my followers to use branding with fire (cauterization)} (Ibn' Abbas, nd). In another well-reputed tradition, the prophet of Islam said: {the best medicines you may treat yourselves with are cupping and sea incense} (Anas, nd).

When it comes to the present study, the matter of fact is that chronic lower and upper back pain are prevalent worldwide and common conditions that results in significant healthcare costs, disability and absenteeism from work places (Woolf and Akesson, 2001). Furthermore, there are differing views on how rapidly and thoroughly people can recover from such conditions; especially when it comes to complementary and alternative medicine (CAM) (Herman et al., 2005). Though, pain being a common malady all over the globe, reviewing the medical literature in the Palestinian/Arab context showed a complete absence of related research works and studies, which makes the present investigation a novel and first of its kind within local and regional health communities. From here it is hypothesized that there could be a significant statistical differences before and after cupping therapy in the case of the studied lower and upper chronic back pain subjects.

PATIENTS AND METHODS

Study design

Descriptive analytical method was used to carry out the present study, where on the bases of a prospective procedure, subjects were recruited. Gender, age, marital status, place of residence, employment and type of pain (upper/lower back pain) were set as major demographic variables, while the degree of pain sensations and related responses before and after cupping were taken as dependent variables.

Patients

All tested subjects (N = 95) are from Jenin district of North West Bank, Palestinian Territories. Subjects were informed about the purpose and significance of the study. Participants were assured confidentiality and they were informed that the information collected would be used only for scientific purposes. Informed consents were obtained without any coercion. Then, patients were recruited with reference to their medical records and entire selected patients without exception were identified as suffering from chronic back pain, who were treated by different regiments before coming to the Al-Shif'a Specialized Centre, for cupping. Subjects who already were cupped, suffering from anemia, hemophilia, homophobia, chronic pain other than low or upper back pain, and below 6 years and above 70 years of old were excluded from participating in the study. All subjects responded to the provided 'Pain Analogue Scales' per instruction, with the assistance of researchers and some of the attending therapists. Sample distribution and related characteristics as depicted in Table 1.

Measurement tool

For the data collection purposes, a Degree of Pain Sensation Scale (DOPSS) was developed by researchers and validated by referring

Table 1. Sample frequency distribution and related characteristics.

Parameter	Frequency	Percent	Valid percent	Cumulative percent
Gender				
Male	66	69.5	69.5	69.5
Female	29	30.5	30.5	100.0
Age				
Less than 30 years	16	16.8	16.8	16.8
30 years and above	79	83.2	83.2	100.0
Marital status				
Single	20	21.1	21.1	21.1
Married	75	78.9	78.9	100.0
Place of residence				
Village	35	36.8	36.8	36.8
Camp	8	8.4	8.4	45.3
City	52	54.7	54.7	100.0
Employment				
Unemployed	25	26.3	26.3	26.3
Employed	70	73.7	73.7	100.0
Low back pain				
No pain	39	41.1	41.1	41.1
Pain	56	58.9	58.9	100.0
Upper back pain				
No pain	59	62.1	62.1	62.1
Pain	36	37.9	37.9	100.0
Total validity of all subjects on all studied variables	95	100.0	100.0	

to some reviewers who are experts in research methods, mainly available competent psychologists and physical therapists at the department of Health Sciences of the Arab American University, Palestinian Territories. To add more, DOPSS was developed relying on the pain works of McCaffery M., and Beebe A., which are used by the National Institutes of Health and related Centers in the United States (McCaffery and Beebe, 1993).

All data were collected on the bases of interval scaling, where decimal points from 0 to 10 were provided as responses to represent the perception and sensation of pain; 0 - represents the absolute absence sensation of pain, while 1 to 3 points represent a kind of annoying acceptable sensation of pain (where the patient can carry on his/ her daily life activities completely); 4 to 6 represent a kind of annoying moderate sensation of pain (where the patient can carry on his/her daily life activities partially); and 7 to 10 represent a kind of annoying and severe continuous sensation of pain (where the patient cannot carry on any of his/ her daily life activities). To enhance reliability of the used data collection tool, Cronbach's Coefficient was calculated on the bases of piloting study data (n = 10 subjects), where the calculated Alpha value found to be (0.91); a value that is highly fulfills the requirements for carrying out our research work.

Procedure

After signing an informed consent, sensation of pain for each and every participating subject via DOPSS is measured in a pre-testing session, then a traditional cupping therapy is performed directly post measurement, followed with an individualized testing of pain post cupping. The patient who decided to participate in the study is instructed to come to therapy as fasting for a 3 to 4 h period of time (to avoid any vomiting scenarios). Blood pressure is measured before any interventions (where hypo/hypertensions are turned). He/she is asked to lay down on a medical bed (size 180 cm × 80 cm) in a comforting position, where back is In the case of upper back pain patients, the muscles where C2 and C4 in addition to C7 in the cervical region are targeted for cupping, while in the case of lower back pain, the lumbar region as well as the thoracic: T2 and T4 are targeted. Hair is removed by a medical razor from all targeted locations for cupping. Sterilizing follows, where a medical alcoholic/Dettol is applied properly at all set regions/points to be prepared for cutting and cupping. The proper cups for cupping therapy are decided, where sets of 6 cups of different sizes/diameters are used (respectively in size: 5.4; 4.8; 4.1; 3.8; 2.8; and 2.1 cm of 7 cm height applied to all). Incision is performed

Table 2. Descriptive stat of chronic pain distribution pre and post cupping in the case of low back pain.

Low back pain		Degree of pain sensation scale- pre cupping	Degree of pain sensation scale-post cupping
No pain	Mean	5.55	3.01
	N	39	39
	Std. deviation	1.546	1.417
Pain	Mean	5.02	2.71
	N	56	56
	Std. deviation	1.457	1.241
Total	Mean	5.24	2.83
	N	95	95
	Std. deviation	1.509	1.317

Table 3. Descriptive stat of chronic pain distribution pre and post cupping in the case of upper back pain.

Upper back pain		Degree of pain sensation scale-pre cupping	Degree of pain sensation scale-post cupping
No pain	Mean	5.10	2.78
	N	59	59
	Std. deviation	1.495	1.281
Pain	Mean	5.47	2.92
	N	36	36
	Std. deviation	1.525	1.387
Total	Mean	5.24	2.83
	N	95	95
	Std. deviation	1.509	1.317

by a surgical blade (size-11) at a depth of 1 to 3 mm (depending on the region/point to be cupped), followed with a placement of the suiting proper cup. After 3 to 5 min, cups are removed to be cleaned from flown blood, then to be replaced at the same region/point. Such a process is repeated for 5 trials/times. Cuts in number at each and every region/point are varied from 3 to 15, depending on the nature of region/point per se and the size of the used cup (the more the targeted region is bulky/thick the more are the cuts). The whole process takes from 30 to 40 min. Then, the subject is asked to relax for 5 to 10 min before he is given any sugary drink/juice to maintain appropriate blood sugar level. The amount/volume of the drained blood is between 100 to 150 mm. The whole process is done manually at specialized centers by certified professionals in cupping. Such a procedure goes in assimilation with revised STRICTA 2010 guidelines (MacPherson et al., 2010).

Data analysis

Based on using descriptive as well inferential statistical measures with the help of SPSS, frequencies, means, standard deviations, standard errors of means were calculated to answer the set research question and related tentative hypothesis. Also, specifically, t-test for paired data was calculated at level of

significance ($\alpha = 0.05$) and degree of freedom ($df = n - 1$). Further, One-Sample Kolmogorov-Smirnov Test was carried out to check the distribution of data, where it is found normally distributed, and Z values before and after cupping are equal to .837 and .916, respectively.

RESULTS AND DISCUSSION

As shown in Tables 2 and 3, it is that much clear that there are an observed significant differences in the degree of pain sensation pre and post cupping procedures.

In the case of lower back pain, mean of degree of pain sensation before cupping which depicted as 1.509 dropped to 1.317 (Table 2). Whether a coincidence or not, the same outcomes are observed in the case of upper back pain.

Paired data testing on the bases of mean, sample size, standard deviation and standard error of mean calculations were carried out to find that pain average in the total pairing was as equal to (5.24) before cupping

Table 4. Descriptive stat of study pairs of chronic pain before and after cupping therapy.

Parameter		Mean	N	Std. deviation	Std. error mean
Pair 1	Pain now as sensed pre cupping therapy	6.17	95	2.076	.213
	Pain now as sensed post cupping therapy	3.62	95	2.012	.206
Pair 2	Worst pain as sensed pre cupping therapy	7.25	95	1.940	.199
	Worst pain as sensed post cupping therapy	4.34	95	1.754	.180
Pair 3	Best pain as sensed pre cupping therapy	4.47	95	1.668	.171
	Best pain as sensed post cupping therapy	2.26	95	1.664	.171
Pair 4	Most tolerated pain as sensed pre cupping therapy	3.05	95	1.801	.185
	Most tolerated pain as sensed post cupping therapy	1.11	95	1.180	.121
Total degree of pain sensation scaling	Pain total as sensed pre cupping therapy	5.24	95	1.509	.155
	Pain total as sensed post cupping therapy	2.83	95	1.317	.135

Table 5. Pair differences (pre-post cupping), where values of t-test are calculated.

Pairs of study	Paired samples statistics					t	df	Sig. (2-tailed)
	Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
				Lower	Upper			
Pair 1 (pre-post)	2.547	1.442	.148	2.254	2.841	17.215*	94	.000
Pair 2 (pre-post)	2.916	1.412	.145	2.628	3.203	20.132*	94	.000
Pair 3 (pre-post)	2.211	1.254	.129	1.955	2.466	17.183*	94	.000
Pair 4 (pre-post)	1.947	1.316	.135	1.679	2.215	14.426*	94	.000
Total degree of pain sensation scaling (pre-Post).	2.405	.887	.091	2.225	2.586	26.441*	94	.000

Note: $p < 0.05$, * significant values.

with a standard deviation of 1.509, where it becomes as equal to 2.83 after cupping, with a standard deviation of 1.317 (Table 4).

To test the preset tentative hypothesis, which was hypothesized as “there are significant statistical differences before and after cupping in lower and upper chronic back pain,” the calculations of paired difference t-test values at $\alpha = 0.05$ level of significance clearly indicate that there are true significant differences in the status of chronic back pain before and after cupping. The sig. (2-tailed) values being less than the set level of significance make it more than clear that there are true statistical differences between pairs of the present study before and after therapeutic intervention (Table 5). Similar findings were observed when comparing the calculated t-test values with t-tabulated values under the same level of significance and same degree of freedom [of course $df = n-1$].

Figure 1 show to how much extent the difference

among the studied pairs of our sample is obvious. Also, the total degree of pain sensation pre and post cupping, is depicted, where it shows that cupping as a complementary and alternative medical procedure is significant in both pooled scenarios of pain.

With reference to Tables 4 and 5, it is obvious that the set hypothesis is accepted for the fact that pooled mean differences found to be true differences. As shown above, in all tested paired data, pain situations found to be more in level pre-cupping compared to post-cupping. In Table 5, particularly, paired t-test calculations showed a clear-cut significant statistical difference in total responses of the tested subjects. Such findings make it clear that complementary and alternative medical therapeutic techniques such as cupping therapy whether alone or combined with other conventional medical procedures significantly may improve the treatment chances of chronic back pain. This goes in agreement with what was practically demonstrated by Eisenberg et al. (2012),

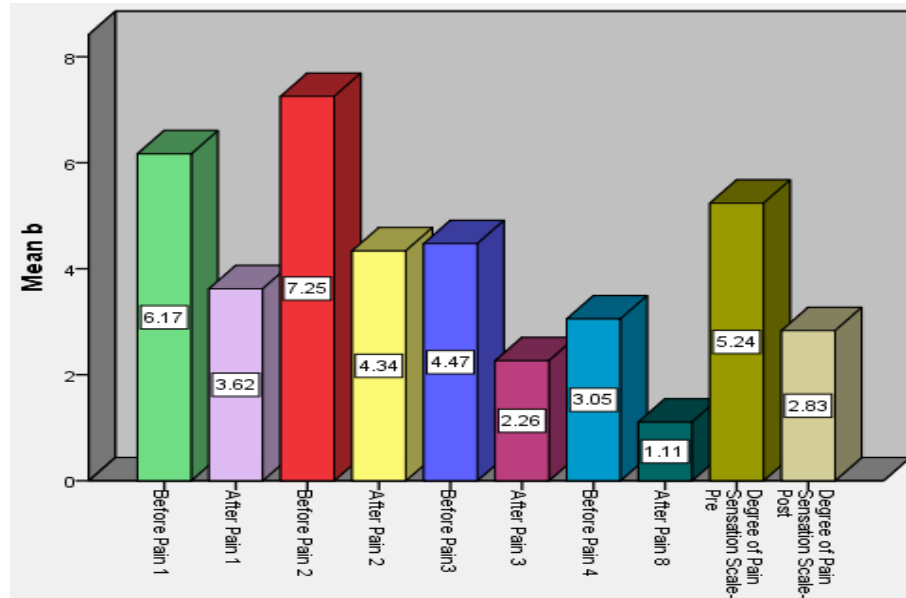


Figure 1. Distribution of mean values of all studied sample pairs before and after cupping.

where in one of their studies, reached the conclusion that patients might benefit significantly from an individualized, multidisciplinary, team-based model of care that includes access to licensed complementary care practitioners (e.g., chiropractors, massage therapists, and acupuncturists), of course in addition to treatments of conventional care providers (Eisenberg et al., 2012). Though, the present study outcomes reached on the basis of short time periods post cupping procedures (not on the bases of any follow up), findings still indicate that cupping as complementary and alternative medical intervention is a promising technique either alone, or when combined with other conventional biomedical clinical procedures.

When bringing such findings in conjunction with Eisenberg et al. (2012), it is clear that chronic back pain can improve dramatically within few weeks of intervention, while lingering effects as it was found by Costa et al. (2012) could take place at one year. In their findings, people who were receiving health care for acute and persistent low-back pain, their acute symptoms were improved significantly in the first six weeks, while in contrast, persistent pain and disability scenarios lingered even after one year. Finding cupping in the present study as lessening and desensitizing chronic pain conditions in comparative to other research findings may make it enough as viable to be utilized in all conditions of pain, even in the case of acute conditions.

In short, our findings come in consonance with Lambeek et al. (2010), where it was reported that integrated care can reduce disability due to chronic back pain by four months. It is really interesting to see that patients who had been absent from work for almost half a year on average returned to their work in just four months

earlier compared to those subjects who were receiving usual traditional/conventional medical care.

From here, we may say that Lambeek et al. (2010), integrated care program and related complementary and alternative procedures (e.g., implementation of adjustment and exercise) is not more in significance when compared in tune with our cupping therapy outcomes.

Furthermore, to compare our findings (though they lack control) with some recent controlled research findings, Akbarzadeh et al. (2014) experimentally showed that cupping therapy is effective enough in sedation of pain. Thus, it may be used as an effective treatment for reducing low back pain.

In another randomized controlled pilot study, it was also found that a single application of traditional cupping might be an effective enough in treatments for improving pain, quality of life, and hyperalgesia in patients suffering from chronic non-specific pain (Lauche et al., 2012).

Even in studies related to neck pain intensity as well non-specific chronic neck pain, though a series of cupping treatments did not influence neck pain intensity on the longer term, however significant increases were clinically observed for physical function and quality of life in patients who are suffering from chronic nonspecific neck pain (Lauche et al., 2013). Such findings, no doubt add to the efficacy of cupping.

From here it may be said that current research findings are promising, as it is the case with other research works, where results showed cupping therapy fruitful not only for pain control, but for improvement of quality of life and the minimizing of all potential risks of treatment (Huang et al., 2013).

It is clear that the present findings not solely lessen and

desensitize chronic back pain, rather, they are in line with many other earlier research findings such as Hänninen and Vaskilampi (1982), Li et al. (2006), Chen (2006), Chen (2007), Farhadi et al. (2009) and Jang et al. (2010).

Based on such findings, we may strongly advocate that cupping therapy proves itself to be effective in dealing with different chronic pain conditions and related matters (Tan et al., 2007).

No doubt that such complementary and alternative interventional medical procedure can be added to those programs designed to improve and manage chronic pains. Examples of collaborative interventional programs that include patients and clinicians in health education, symptom monitoring and feedback to the primary care providers, and improvements in pain-related disability and intensity, compared to usual care ones was fully demonstrated (Dobscha et al., 2009).

Furthermore, being a sort of economical and effective method, cupping therapy can be employed to alleviate or even cure nonspecific low back pains (NLBPs), therefore it might be recommended to be included and incorporated to treat and prevent all related NLBPs (Hong et al., 2006).

Limitations of study

Several methodological limitations may be found in the present study, on top of them, our research design, which is far from being RCT (Randomized Control Trial), where it makes study findings incomplete when it comes to evidence and evidence-based outcomes. Also, our sample as being a convenience sample small in size ($n = 95$); where it was found difficult to have more subjects due to the fact that cupping is relatively new as medical procedure at Palestinian Private Health Care Centers (that is, totally absent in government sector). Another problem resides in the paucity of continued feedback from the investigated subjects, mainly beyond one-month of post data collection.

In addition, we need to know more about some replicated research studies in an independent research groups to compare multi groups instead of merely pooling and conducting paired data analyses. Additional research works are required to ratify such limitations, if it is really a question of providing rigorous evidence for the use of cupping as a CAM in chronic pain and related management issues.

Research implications

As the above analysis and discussions show, cupping therapy as a complementary and alternative medical procedure has an effect in lessening and desensitization of chronic back pain syndrome, in both lower and or upper back pain. Collecting data from patients post

cupping makes it further interesting to implement the findings by health care providers who are either practicing cupping therapy or planning to practice such a technique. Cupping is growing to be an evidence-based medical procedure. Therapist, whether they are physical therapists or clinical/health/ psycho-physiological therapists can rely on it as a “newly – old found” traditional procedure in dealing with different medical conditions, pain is one of them.

The concerned national, regional and international health committees may discuss it further on the bases of continued evidence-based researches and reviews to reach an agreement on its fruits, regulations for practice, and all what is necessary for best outcomes, for both practitioners and patients who are imbibing such remedies.

CONCLUSION AND RECOMMENDATIONS

However, complementary and alternative medicine, which is a group of diverse medical and healthcare system of therapy, and their products are not yet considered as part of conventional medicine, research findings here, make it clear that cupping is effective enough as a therapeutic procedure.

On the bases of the classification systems developed by the American National Institutes of Health and National Centers for Complementary and Alternative Medicine (CAM), cupping therapy as a CAM technique can be included as biologically based intervention, energy and mind-body medicine.

Also, based on the guidelines of the American Psychological Association's (APA) Clinical Psychology Division, we can conclude that our findings indicate that cupping akin to other CAM modalities that have a solid track record of efficacy. Continued researches would further enhance its efficacy and applicability, a step that we recommend continuously.

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