



Cupping therapy combined with conventional physical therapy improves pain and health related quality of life among female patients with low back pain

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Abstract

Cupping therapy is a traditional therapy treatment used since ancient era. It is a therapy of alternate medicine, gaining popularity in physical medicine because of minimal adverse effects, reduction in pain and muscle tenderness. Very little literature is available on the combine effect of cupping therapy and conventional physical therapy in order to treat low back pain in female patients. To evaluate effects of cupping therapy combined with conventional Physical therapy in order to improve the pain and health related quality of life among female patients with low back pain. Randomized control trial done on diagnosed cases of 40 low back pain female patients in Fauji Foundation Hospital, Rawalpindi. Experimental Group (A) received cupping therapy once every two weeks for 4 weeks combined with conventional physical therapy including hot pack, interferential therapy and strengthening exercises for back done 3 times per week for 4 weeks. Control group (B) did not received cupping therapy, only conventional Physical therapy was given and their outcomes were observed at the baseline and at the end of 4 weeks sessions. Results showed significant improvement in the measured variables of pain and low back disability as well as in physical health, psychological health, and social relations whereas no such significant improvement was seen in environmental health. Combine effect of cupping therapy along with conventional physical therapy helps in reducing not only low back pain symptoms but also improve the health related quality of life among female patients.

Keywords: cupping therapy, health related quality of life, low back pain, musculoskeletal disorders, physical therapy

1. Introduction

Pain is one of the most common causes of seeking medical care (1). While cardiac infarction, stroke and many other infectious diseases including cancer and diabetes have high mortality rates, chronic pain is the leading cause of human suffering and disability. Pain, along with many diseases resulting from chronic pain, is not life-threatening. People can also continue to live with the pain. Both the developed and underdeveloped countries are facing the problem (3, 4).

Pain in the low back region is usually referred to as pain, muscle tension and stiffness that is localized below the region of the costal margin and also above the region of the inferior gluteal folds, which may or may not involve leg pain. Sciatica involving low back pain occurs in about 60 – 80% of the people at some point in their lives, and there are some cases where it begins in childhood (5, 6).

Chronic back pain may cause emotional, physical, and also socioeconomic changes (7, 8) which also includes high dose and frequent usage of medicines and other health resources (9). Sometimes the search for de-medicalization results in an increase in the usage of integrative and complementary practices, such as the traditional Chinese

medicine (TCM) in order to complement the pain related to allopathic care (10). One of the recommended therapies of TCM for reducing chronic pain is cupping therapy (11). Cupping therapy involves application of cups of different materials (12) placed at acupoint or any area causing pain with the help of heat or any vacuum apparatus (13).

Manual therapy is one of the most commonly used and applicable among the various physical therapy procedures. It aims at relieving pain through the use of the vertebral manipulations along with relaxation of the muscles and hence improving the biomechanical functions present in the tissues (11). Besides the manual therapy, the physical therapy can also depend upon various types of resources and different techniques which are mainly used for analgesic purposes, which include kinesiotherapy, electrotherapy. Pilates is also commonly performed on patients who are complaining of low back pain (14).

However, in addition to the techniques and resources mentioned for the treatment of the pain in the low back region, the cupping therapy is most commonly used today as a complementary therapy for the reduction of the symptoms

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caused by chronic pain, helping in lowering the problems faced by the patient suffering from the pain in the low back region. The procedure of cupping therapy is a very common practice in traditional Chinese medicine. There is a history of applying it in order to minimize the symptoms experienced due to the chronic pain. Currently, an increasing number of patients are displaying their interest in the use of cupping therapy in treatment of the reducing pain in the low back region, as it is believed to be very effective and a lot safer (11). Many techniques utilizing the cupping therapy procedure which may include both dry and wet suction cups, holding the cups, stirring fast cups, setting in motion and balancing the cups. The safest form of application is the dry suction cup, which is mostly utilized in clinical practice. This technique involves sucking the skin through the suction cups without drawing blood. Negative pressure is generated through this type of suction, which in turn is used for increasing the removal of toxin materials at the location of application and thus in return activates the anti-inflammatory enzymes which causes relief from pain and increases the relaxation of muscles (11). In 2017 Wang et al. (11), in 2018 Teut et al. (15), in 2011 Kim et al. (16) and the other authors analyzed the efficacy and safety of using cupping therapy on different pain levels in treating patients for back pain. Significant results were obtained, revealing that this was potentially very safe and also economical, with an average reduction in pain ranging from 50 % to 70%. In this study, the effectiveness of using different types of cupping therapy for lowering symptoms of pain in the low back area revealed that no such significant difference was present among the different types of the suction cups. Whereas in other studies it has been said that the cupping therapy may lower the pain among patients with nonspecific pain in the low back area, however its effect on the variables of neuromuscular region which are responsible for causing low back pain is still not very well-known. Among different causes, the back pain is said to be associated with various imbalances in neuromuscular region, resulting in less stabilization of the trunk and causing an overload on the structures of the joint while performing the task of daily activities (17). The difficulty in spine stabilization is connected to recruitment inefficiency among stabilizing deep muscles, increase in the superficial muscle contraction in the trunk region and the reduction in the fatigue resistance in the capacity of extensor muscles of the trunk (14).

The cupping therapy is a traditional technique used in Chinese medicine. This technique has been practiced for nearly around thousands of years and is considered very beneficial for treating various conditions which include pain, stroke and hypertension (18), (19), (12). However, the clinical efficacy is still uncertain. The process of the action is not clearly explained and also the methodology and research are not of good quality which represents many research biases (18,20).

Although cupping has been used successfully for thousands of years in order to treat the pain and a variety of other complains, the cupping therapy usage has greatly diffused during last few decades as the preliminary systematic clinical trials indicating that it is very useful in managing the very painful conditions (20, 21). Moreover, the cupping procedure has a very broad indication in the therapeutic properties, simplicity in applying the cups, low cost, with very few adverse effects, and immediate results after the treatment of various kinds of diseases (12, 22). Cupping therapy is now regularly observed in clinical practice, in order to bring relief from pain and also to improve the general feeling of well-being in a patient (23).

The purpose of this present study is to analyze the patients with low back pain and to perform the comparison between the control and experimental group.

The main goal of doing this research is to find out if there are any additional impacts and benefits of cupping therapy combined with the conventional physical therapy. The study objective was to determine the cupping therapy effects combined with conventional physical therapy in a female patient population with pain in the low back region and also to find out the health related quality of life.

2. Materials and Methods

The study design used was Randomized Control trial. This study was performed in the physical therapy department of Fauji Foundation University Hospital Rawalpindi, Pakistan. It was a 6- month study from July 1st, 2019 to December 30th 2019.

This study was conducted with the approval of Foundation University Review Committee on 18 August 2020. (Approval number FF/FUMC/215 Phy/20)

2.1. Participants

Forty-three female patients were initially assessed for eligibility criteria. Diagnosed cases of low back pain referred from the rehabilitation department of Fauji Foundation hospital were included in our study. The sample collected was selected by purposive sampling technique and then participants were randomly assigned by using toss and trial method to group A and B. Patients were randomly assigned to two different groups. Group A (experimental group) received cupping therapy along with conventional physical therapy which included ultrasound modality and McKenzie exercises for back pain. The questionnaire used to check the disability related to back pain was Oswestry low back pain disability questionnaire and WHOQOL-BREF questionnaire was utilized to assess the quality of life at base line and at the end of the treatment. Sample selection was done on the basis of the inclusion and exclusion criteria. The criteria of inclusion for this study included the (I) female population; (ii) they were between the ages of 30 and 50 years; and (iii) diagnosed cases of the mechanical low back pain. Whereas the patients excluded consists of (I) patients having spinal tumor; (ii)

cases of herniated discs problems; (iii) patients suffering from spondylolisthesis or spondylosis and any case of systemic illness.

2.2. Data collection procedure

Data was collected on Demographics and general information. Chronic pain was assessed with the help of VAS (Visual Analog scale). The health related to the quality of life was evaluated by a set questionnaire (WHOQOL- BREF). Experimental Group (A): This group received cupping therapy every month combined with conventional physical therapy which included: Moist Heat Pack for 10 min as well as McKenzie Extension Protocol which involves prone lying

position, the prone lying position in extension, the sustained extension and the correction of the posture in static condition having 3 sets of 10 repetitions each. In dynamic condition the McKenzie extension protocol was extension in lying, extension in lying with overpressure as well as extension mobilization with the same 3 sets of the 10 repetitions, following for 3 days in a week, for a period of 4 weeks. The treatment duration extended from 40 to 50 minutes. Control group (B): This group received conventional Physical therapy same as experimental group. Outcomes will be observed at the baseline and at the end of the session. All post treatments were measured at the end of 12 sessions. The data was analyzed through SPSS 21.0.

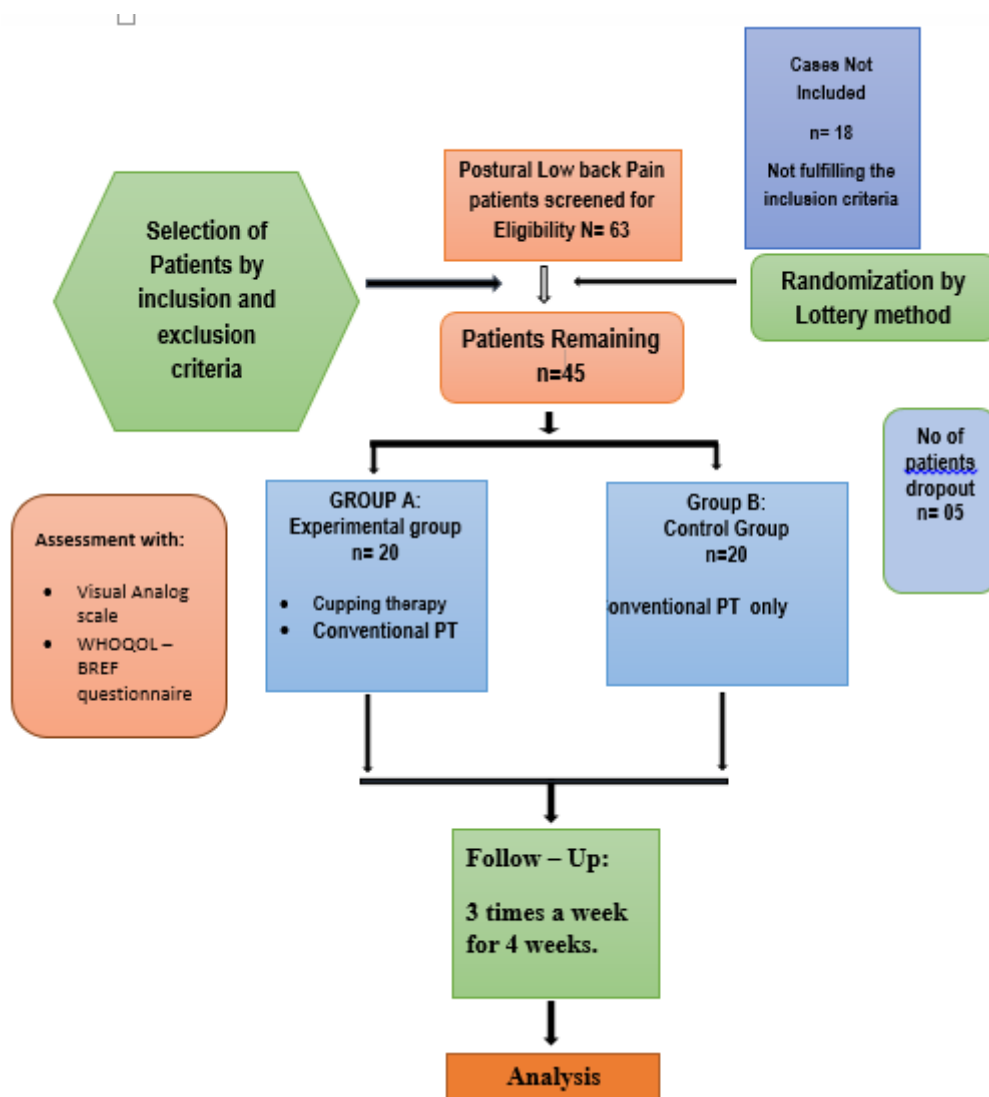


Fig 1. Study flow diagram

3. Results

Among 63 approached cases, 45 of the females met the inclusion criteria and were included in this study. After taking proper consent from the patients, only 40 patients completed the treatment protocol 20 in each group. The treatment protocol involved cupping therapy along with conventional physical therapy exercises in the experimental group(group A) and for the patients included in the control group(Group

B) they were treated using conventional physical therapy exercises only . Base line values for evaluation of patient demographics and duration of back pain were taken. The patients were assessed at the time of the first visit and also at the end of the last visit after completion of 12 sessions on a 4-week treatment protocol. A self-reported structured questionnaire was filled and the Oswestry low back pain disability questionnaire, visual analog scale and WHOQOL-

BREF questionnaire were calculated to compare the outcome measures in patients.

Table 1. Demographic distribution

Variables		Group A (Experimental)	Group B (Control)
Age in years		Mean \pm SD 42.85 \pm 6.98	Mean \pm SD 39.35 \pm 7.06
		f (%)	f(%)
Occupation	Working women	08(40%)	11(55%)
	House wife	12(60%)	09(45%)
Marital status	Single	06(30%)	04(20%)
	Married	14(70%)	16(80%)
Duration of illness	<1 year	07(35%)	09(45%)
	>1 year	13(65%)	11(55%)

The normality of the data was checked by applying Q-Q plots with a normality test to identify the normal distribution of data. Shapiro Wilk test showed the data for Oswestry low back pain disability questionnaire was not normally distributed at baseline so the non-parametric test Mann Whitney U test was applied.

Table 2. Group analysis between OLBDPQ and VAS by Mann Whitney U test

Variable		Median	IQ	P Value
OLBDPQ	Pre	51.0	9.75	.53
	Post	40.0	8.75	.01
VAS	Pre	7.0	1.0	.60
	Post	5.5	2.0	.00

OLBDPQ, Oswestry Low Back Pain disability Questionnaire; VAS, Visual Analog Scale; IQ, interquartile

Table 3. Comparison of the WHOQOL-BREF Mean Scores in four Domains

Variable		Experimental Group(A)	Control Group (B)	P value
PHD	Pre	40.51 \pm 5.92	45.69 \pm 6.99	0.07
	Post	40.55 \pm 5.96	66.86 \pm 8.56	0.00
PSHD	Pre	38.32 \pm 4.30	43.90 \pm 5.22	0.09
	Post	38.33 \pm 4.30	49.89 \pm 6.34	0.00
SHD	Pre	30.20 \pm 3.5	35.23 \pm 4.38	0.07
	Post	30.22 \pm 3.5	38.45 \pm 4.99	0.05
EHD	Pre	27.50 \pm 2.8	34.54 \pm 3.33	0.88
	Post	27.50 \pm 2.8	35.11 \pm 3.52	0.78

PH, Physical Health; PSH, Psychological Health; SR, Social Relation; ED, Environmental Domain

Significant difference was seen between the experimental group (A) and control group (B) after following the intervention in the following domains of WHOQOL-BREF, Physical Health Domain (P <0.05), Psychological health domain (P = 0.00) and Social Relations Domain (P= 0.05). There was found to be no significant difference observed between groups for Environmental Domain (P= 0.78).

4. Discussion

The Low back pain is one of the most prevalent health condition experienced by the elderly population especially females(24, 25). Nowadays there is an increase trend among people to start using alternative and complementary medicine to treat many different types of pain including the pain in the low back region (26). Cupping therapy is one of the most common among them. (26)

In the present study, it was revealed that the mean age used for the young adult female population was between 18 to 35 years. This was in accordance with a study conducted in Brazil in 2020, which stated that the female population mainly suffers from low back pain with an age ranging from 20 to 55 years (27). It is believed that women are at a higher risk in comparison to the male population due to their anatomical structure. Their bodies usually consist of small stature, bone density, less muscle mass, less adaption to physical effort and a greater amount of joint fragility. In addition to all this, the sum of the burden imposed on the body due to the performance of the household or domestic tasks can also result in an increase in the risk of developing low back pain (28).

Individuals receiving the cupping therapy, which was used for the treatment of their pain in the low back region, showed marked improvement on the visual analog scale. Another similar study conducted showed a significant reduction in pain level after cupping therapy application (29).

Low Back pain is accompanied often by either musculoskeletal, neurological or psychiatric disorders resulting in a negative impact on health related quality of life of a patient(30).The health related quality of life was assessed by WHOQOL – BREF questionnaire (31). This questionnaire was modified according to the requirement in order to include the 17 questions which involve the domain of Physical Health (PH), Psychological Health (PSH), Social health (SH) and environmental health domain (EHD). According to the results obtained wet cupping therapy proved to be effective in improving the quality of life in many domains especially the physical, social and Psychological domain. The two different studies were done which proved that by using various sessions of cupping therapy treatment or even one session of cupping therapy can notably improve the pain and enhance the physical function improving quality of life of the patients complaining of chronic pain (32, 33). Another Quasi experimental study was done in 2017, in Kind Abdul-Aziz University Saudi Arabia which reported that

cupping helps in improving the quality of life especially in domain of physical health, involving different pain types and other conditions related to medical issues(34).

One limitation in this study was that there was only a female population involved. The sample size used was also small which may limit the conclusiveness of this study finding. Therefore, it cannot be generalized for the whole population which can also contribute to selection bias. Other limitations include short periods of follow ups and the limited number of cupping therapy treatment sessions having a high rate of dropout in the female population. Further studies are needed to be done on cupping therapy to increase awareness and knowledge about cupping therapy sessions and its uses along with conventional physical therapy.

One of the few limitations observed in this study was that the participants included were only female. Most of the patients did not complete the follow up. The sample size used was also small. Further researches are recommended to include both female and male participants and also increase the time duration required in the study and also the sample size.

The study concluded that there are a lot of promising effects that not only help use the cupping therapy treatment to reduce the symptoms of pain in the low back region but also improve the quality of life of the female patients.

Conflict of interest

There was no conflict of interest declared among the authors.

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Authors' contributions

Concept: N.M.K., W.A.Q., Design: F.A.S., R.B., Data Collection or Processing: S.K., A.N., Analysis or Interpretation: K.Z., S.P., Literature Search: F.A.S., W.A.Q., Writing: N.M.K., R.B.

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