Wang J, et al., J Altern Complement Integr Med 2020, 6: 092
DOI: 10.24966/ACIM-7562/100092

HSOA Journal of
Alternative, Complementary & Integrative Medicine

Research Article

Effect of Cupping Therapy in the Treatment of Low Back Pain among Nurses in China

Jun Wang[1], Dongyang Wang[2]*, Wanying Zhao[3], Yu Wang[3], Hongshuai Pei[3], Yahui Shang[3], Vimean Botum Chea[2] and Yu Wang[4]

[1]Department of No.6 Psychiatry, The Second Affiliated Hospital of Xinxiang Medical University, Xinxiang, China

[2]School of Health Science, Mae Fah Luang University, Chiang Rai, Thailand

[3]School of Nursing, Xinxiang Medical University, Xinxiang, China

[4]Department of Neurosurgery, Henan Cancer Hospital, Zhengzhou, China

Abstract

Due to the complexity of nursing work and high physical stress, nurses show high risk for Low Back Pain (LBP). The impact of low back pain on the loss of work capacity and disability makes it especially important to effectively treat LBP in nurses. The purpose of this study was to investigate the effect of cupping therapy on the treatment of LBP among nurses. 100 chronic non-specific low back pain nurses aged 39 to 51 were randomly divided into two groups: experimental group and control group. The control group received placebo, and the experimental group received cupping therapy for 4 weeks. Visual Analog Score (VAS), Bone Mineral Density (BMD) examination and SF-36 scale were used to evaluate the improvement in pain, BMD and quality of life before and after treatment in the two groups. The VAS score of the experimental group (1.32 ± 0.78) was significantly lower than that of the control group (2.88 ± 0.83) after treatment. After treatment, the BMD results of the two groups was significantly higher than that before treatment (4.92 for experimental group t value, 2.87 for control group t value, $P < 0.01$), and the degree of increase in the experimental group was significantly higher than that in the control group (t value 2.57, $P < 0.01$). In terms of quality of life, both groups improved significantly after treatment (17.94 for experimental group t value, 10.86 for control group t value, $P < 0.01$), and the experimental group showed better improvement (t value 6.64, $P < 0.01$). Cupping therapy has a positive effect on the treatment of low back pain in nurses and it has also significantly improved the bone density and quality of life of nurses. Future research needs to provide more evidence on the pathological mechanism and long course of treatment of LBP by cupping therapy.

Keywords: Cupping therapy; Low back pain; Nurse

***Corresponding author:** Dongyang Wang, School of Health Science, Mae Fah Luang University, Chiang Rai, Thailand, Tel: +86 18737342304; Fax: +66 053916821; E-mail: wangdongyang1994@gmail.com

Citation: Wang J, Wang D, Zhao W, Wang Y, Pei H, et al. (2020) Effect of Cupping Therapy in the Treatment of Low Back Pain among Nurses in China. J Altern Complement Integr Med 6: 092.

Received: February 21, 2020; **Accepted:** February 28, 2020; **Published:** March 06, 2020

Introduction

Low Back Pain (LBP) is defined as the symptoms of pain, discomfort and limited function in the area below the T12 ribs and above the hip folds excluding primary structural pathological changes such as disc hernia ion and spine fractures [1,2]. The pain of non-absolute LBP mainly comes from back pain, radiating pain of nerve root and involved pain [3]. LBP is currently one of the more serious burdens of noncommunicable diseases worldwide. Every year, approximately 60.1 million people worldwide are disabled or unable to perform heavy physical work due to LBP [4]. According to global statistics, the prevalence of non-specific LBP in adults worldwide is about 40%, and the incidence of the disease is about 38% each year [5]. Due to the heavy psychological and working pressure, expressionism and other factors brought by the complexity of nursing work, the prevalence of LBP in nurses is much higher than that in other populations [6].

It has been reported that the prevalence of non-specific LBP among nurses around the world is 40-90% and developing countries with a shortage of health workforce are at higher risk [7]. In China, the combined prevalence of LBP meta-analyses reported by nurses in the early literature is 72% [8]. LBP is already one of the biggest challenges facing nurses in their own health.

Related research had shown that acetylsalicylic acid, caffeine, acetaminophen, and chlorpheniramine were more commonly used in clinical medical treatment to relieve LBP in patients [9]. However, studies in United States and China have also found that alternative medical therapies such as yoga and tai chi have a positive effect on LBP [10,11]. Cupping therapy, as a traditional treatment in Chinese medicine, has been proven to have a positive effect in relieving and improving pain [12]. This study aims to explore the role of cupping therapy in relieving LBP among nurses in China.

Method

Design and setting

This was a Randomized Controlled Trials (RCTs) study in Henan Province, China. The researchers randomly selected 100 registered nurses with LBP from July to August 2019 and divided them into experimental group and control group with 50 cases each according to the treatment method. Participants met the low back pain diagnostic criteria in the "Guidelines for Clinical Research of New Chinese Medicines" formulated by the Chinese National Administration of Traditional Chinese Medicine. The nurse presented with general weakness, significant back pain and gradual aggravation and the bone mineral density test result of positive will be diagnosed with LBP. Participants excluded nurses with mental illness, recent use of hormones or drugs

that affect bone density, osteoporosis. The participants were all females. In the control group, participants were 40-51 years old, with an average age of 44.2 ± 2.7 years. Course of disease was 1.5 to 4 years, with an average course of 2.8 ± 1.1 years. In the experimental group, participants were 39-50 years old, with an average age of 43.8 ± 2.6 years. The course of diseases was 2 to 4 years, with an average course of 2.9 ± 1.2 years. There was no significant difference between the two groups of participants in terms of age and course of disease ($P > 0.05$, $X^2 = 1.03$, $t = 0.25$, 0.42) [13].

Types of interventions

Experimental interventions were used for the experimental group. Both groups of participants used the normal treatment regimen in the hospital, and on this basis, trained Traditional Chinese Medicine (TCM) physician made the participants changed their posture to a prone position. The treatment area was focused on the participants' pain area and cupping was performed on the participants' waist and sides of the spine. The physician applied the medium Vaseline to the treatment area, and absorbed the medium cup on the participants' pain area by heating. The physician pulled the cup back and forth vigorously along the pain area until the participant's pain area skin turned dark red. The same method was applied to the waist and sides of the spine.

This treatment was used once a week for the participants, with a course of four weeks and the participants' recovery was evaluated after the course of treatment.

Comparators were used for the control group. The researchers used the same treatment in the control group as the experimental group, except for the cupping therapy. Vaseline was used as a placebo in the control group, both researchers and participants considered placebo ineffective.

Assessment method

The researchers used Visual Analog Score (VAS) to assess the pain levels of the two groups for participants before and after intervention [14]. LBP was directly proportional to VAS score. The VAS scale uses a straight line of 100 mm, with 0 mm on the far left and 100 mm on the far right.Two facial masks (the smiling face on the left and the crying face on the right) explain to the patient that 0 mm stands for no pain, 100 mm stands for very, very painful, from left to right, it shows increasing pain. Dual-energy X-ray Absorptiometry (DXA) was used to detect Bone Mineral Density (BMD) before and after treatment for two groups. SF-36 scale was used to test the quality of life of participantsincluding 36 items covering the dimensions physical functioning, role limitations due to physical function, bodily pain, general health, mental health, role limitations due to emotional health, social functioning and vitality [15]. The higher scores indicated better quality of life for participants.

Statistical analysis

The statistical analysis was tested by SPSS 24.0 software. The chi-square test was used to evaluate the difference of general characteristics. Independent sample t-test applied for data among groups and paired sample t-test analyzed the in-group data.

Ethical approval

This study fully respects the right of participants to informed consent. Participants can choose to voluntarily withdraw from the study at all stages of the study without giving any explanation. Researcher has obtained ethical approval from the institution's ethics committee.

Results

The VAS score of the experimental group after treatment was 1.32 ± 0.78 cm, which was lower than the score of the control group (2.88 ± 0.83 cm). After treatment, the VAS scores in both groups were significantly lower than before treatment (39.32 for experimental group t value, 27.17 for control group t value, $P < 0.01$), see details in table 1.

Groups	Before treatment (cm)	After treatment (cm)	t	P
Experimental group (n=50)	6.13 ± 0.72	1.32 ± 0.78	39.32	< 0.01
Control group (n=50)	6.07 ± 0.71	2.88 ± 0.83	27.17	<0.01
t	0.33	10.81		
P	0.73	<0.01		

Table 1: Comparison of pain levels before and after treatment between the two groups.

Table 2 showed BMD results of the experimental group after treatment was -1.88 ± 0.61, which was higher than the score of control group. The BMD results of both groups were significantly lower than before (4.92 for experimental group t value, 2.87 for control group t value, $P < 0.01$); however, the result of the experimental group was improving better than the control group (t value 2.57, $P < 0.01$).

Groups	Before treatment	After treatment	t	P
Experimental group (n=50)	-2.53 ± 0.67	-1.88 ± 0.61	4.92	< 0.01
Control group (n=50)	-2.47 ± 0.58	-2.03 ± 0.53	2.87	<0.01
t	0.02	2.57		
P	0.91	<0.01		

Table 2: Comparison of BMD before and after treatment between the two groups.

Table 3 contained that the quality of life among all residents had increased than before treatment (17.94 for experimental group t value, 10.86 for control group t value, $P < 0.01$), nevertheless,the quality of life for experimental group have significantly higher than participants in control group after treatment (t value 6.64, $P < 0.01$).

Groups	Before treatment (cm)	After treatment (cm)	t	P
Experimental group (n=50)	62.36 ±7.13	92.15 ±6.91	17.94	< 0.01
Control group (n=50)	64.53±7.15	80.36 ±5.73	10.86	<0.01
t	0.03	6.64		
P	0.94	<0.01		

Table 3: Comparison of quality of life before and after treatment between the two groups.

Discussion

In this study, we found that cupping therapy had a positive effect on LBP for nurses. Chinese cupping therapy as an auxiliary treatment method plays an important role in the pain, BMD and quality of life of nurses with low back pain. Previous studies had confirmed that

cupping could reduce neck pain, improved function and QoL might be effective in patients with neck pain.The effect of cupping therapy in this study was similar to previous studies [16].

Psychological factors had an impact in assessing the effect of participants' LBP treatment; this might cause some bias in the participants' quality of life assessment [17]. This was consistent with previous findings [18]. However, in order to avoid bias, this study first used the effects of bone density measurement before and after treatment. By combining the results of BMD examination with the VAS score, it had a positive significance for evaluating the effect of cupping therapy on LBP for nurse.

Although this study confirmed the positive role of cupping therapy in integrated Chinese and Western medicine, however, through comparison between the experimental group and the control group before and after treatment, it had been found that the traditional Western medical diagnosis and treatment method was most significant for the treatment of LBP. At this stage, cupping therapy can only be used as an adjuvant therapy to alleviate the pain of patients, but the pathological mechanism and long-term clinical significance need further observation and research. In addition, cupping therapy has strict limits on the technical capabilities of the TCM physician; it may cause side effects such as burns and congestion during treatment [18]. In the treatment of LBP patients, TCM physician need to pay attention to the control of cupping therapy on cupping time, adsorption strength and acupoints.

Limitation

This study has certain limitations. The pain level of the nurses in this study may be affected by the menstrual cycle, which caused some errors in the VAS score results in this study.However, in the RCT experiment, due to the differences in the departments and nursing work of nurses, they continued to work during the treatment and there may be some biases in the evaluation of treatment effects.

Conclusion

Cupping therapy has positive significance in the treatment of LBP for nurses. Research also confirms it can reduce the pain and improve quality of life among nurses. Future research could focus more on the pathological mechanism and long-term clinical effect of cupping therapy to provide more evidence for the role of cupping therapy in treating LBP. It recommends that future studies can systematically demonstrate the effect of cupping therapy on low back pain in nurses through case reports.

Reference

1. Jiménez-Ávila JM, Rubio-Flores EN, González-Cisneros AC, Guzmán-Pantoja JE, Gutiérrez-Román EA (2019) Guidelines on the application of the clinical practice guideline on low back pain. Directrices en la aplicación de la guía de prácticaclínicaen la lumbalgia. Cir Cir 86: 24-32.
2. Norton G, McDonough CM, Cabral HJ, Shwartz M, Burgess JF (2016) Classification of patients with incident non-specific low back pain: implications for research. Spine J 16: 567-576.
3. Urits I, Burshtein A, Sharma M, Testa L, Gold PA, et al. (2019) Low Back Pain, a Comprehensive Review: Pathophysiology, Diagnosis, and Treatment. Curr Pain Headache Rep 23: 23.
4. Sharma S, Traeger AC, Mishra SR, Sharma S, Maher CG (2019) Delivering the right care to people with low back pain in low- and middle-income countries: the case of Nepal. J Glob Health 9: 10304.
5. Manchikanti L, Singh V, Falco FJ, Benyamin RM, Hirsch JA (2014) Epidemiology of low back pain in adults. Neuromodulation 2: 3-10.
6. Skela-Savič B, Pesjak K, Hvalič-Touzery S (2017) Low back pain among nurses in Slovenian hospitals: cross-sectional study. Int Nurs Rev 64: 544-551.
7. Attar SM (2014) Frequency and risk factors of musculoskeletal pain in nurses at a tertiary centre in Jeddah, Saudi Arabia: a cross sectional study. BMC Res Notes 7: 61.
8. Jin L, Jia M, Xu F (2013) Prevalence of low back pain in Chinese nurses: a Meta-analysis. Chin J Prac Nurs 29: 45-47.
9. Voicu VA, Mircioiu C, Plesa C, Jinga M, Balaban V, et al. (2019) Effect of a New Synergistic Combination of Low Doses of Acetylsalicylic Acid, Caffeine, Acetaminophen, and Chlorpheniramine in Acute Low Back Pain. Front Pharmacol 10: 607.
10. Wieland LS, Skoetz N, Pilkington K, Vempati R, D'Adamo CR, et al. (2017) Yoga treatment for chronic non-specific low back pain. Cochrane Database Syst Rev 1: CD010671.
11. Qin J, Zhang Y, Wu L, He Z, Huang J, et al. (2019) Effect of Tai Chi alone or as additional therapy on low back pain: Systematic review and meta-analysis of randomized controlled trials. Medicine (Baltimore) 98: 17099.
12. Zhang YJ, Cao HJ, Li XL, Yang XY, Lai BY, et al. (2017) Cupping therapy versus acupuncture for pain-related conditions: a systematic review of randomized controlled trials and trial sequential analysis. Chin Med 12: 21.
13. Chong YP, Chong YZ, Xue CK, Chen XX (2011) Effect of Hatha Yoga on the Rehabilitation of Nonspecific Low Back Pain. China Sport Science And Technology. 47: 99-103.
14. Wu J, Chen Y, Luo Y (2014) Evaluation of the visual analog score (VAS) to assess acute mountain sickness (AMS) in a hypobaric chamber. PLoS One 9: 113376.
15. Salaffi F, Di Carlo M, Carotti M, Farah S, Ciapetti A, et al. (2019) The impact of different rheumatic diseases on health-related quality of life: a comparison with a selected sample of healthy individuals using SF-36 questionnaire, EQ-5D and SF-6D utility values. Acta Biomed 89: 541-557.
16. Kim S, Lee S-H, Kim M-R, Kim E-J, Hwang D-J, et al. (2018) Is cupping therapy effective in patients with neck pain? A systematic review and meta-analysis. BMJ Open 8: 021070.
17. Hartvigsen J, Hancock MJ, Kongsted A, Louw Q, Ferreira ML, et al. (2018) What low back pain is and why we need to pay attention. Lancet 391: 2356-2367.
18. Silva HJA, Saragiotto BT, Silva RS, Lins CAA, de Souza MC (2019) Dry cupping in the treatment of individuals with non-specific chronic low back pain: a protocol for a placebo-controlled, randomised, double-blind study. BMJ Open 9: 032416.

HERALD

Advances In Industrial Biotechnology | ISSN: 2639-5665

Advances In Microbiology Research | ISSN: 2689-694X

Archives Of Surgery And Surgical Education | ISSN: 2689-3126

Archives Of Urology

Archives Of Zoological Studies | ISSN: 2640-7779

Current Trends Medical And Biological Engineering

International Journal Of Case Reports And Therapeutic Studies | ISSN: 2689-310X

Journal Of Addiction & Addictive Disorders | ISSN: 2578-7276

Journal Of Agronomy & Agricultural Science | ISSN: 2689-8292

Journal Of AIDS Clinical Research & STDs | ISSN: 2572-7370

Journal Of Alcoholism Drug Abuse & Substance Dependence | ISSN: 2572-9594

Journal Of Allergy Disorders & Therapy | ISSN: 2470-749X

Journal Of Alternative Complementary & Integrative Medicine | ISSN: 2470-7562

Journal Of Alzheimers & Neurodegenerative Diseases | ISSN: 2572-9608

Journal Of Anesthesia & Clinical Care | ISSN: 2378-8879

Journal Of Angiology & Vascular Surgery | ISSN: 2572-7397

Journal Of Animal Research & Veterinary Science | ISSN: 2639-3751

Journal Of Aquaculture & Fisheries | ISSN: 2576-5523

Journal Of Atmospheric & Earth Sciences | ISSN: 2689-8780

Journal Of Biotech Research & Biochemistry

Journal Of Brain & Neuroscience Research

Journal Of Cancer Biology & Treatment | ISSN: 2470-7546

Journal Of Cardiology Study & Research | ISSN: 2640-768X

Journal Of Cell Biology & Cell Metabolism | ISSN: 2381-1943

Journal Of Clinical Dermatology & Therapy | ISSN: 2378-8771

Journal Of Clinical Immunology & Immunotherapy | ISSN: 2378-8844

Journal Of Clinical Studies & Medical Case Reports | ISSN: 2378-8801

Journal Of Community Medicine & Public Health Care | ISSN: 2381-1978

Journal Of Cytology & Tissue Biology | ISSN: 2378-9107

Journal Of Dairy Research & Technology | ISSN: 2688-9315

Journal Of Dentistry Oral Health & Cosmesis | ISSN: 2473-6783

Journal Of Diabetes & Metabolic Disorders | ISSN: 2381-201X

Journal Of Emergency Medicine Trauma & Surgical Care | ISSN: 2378-8798

Journal Of Environmental Science Current Research | ISSN: 2643-5020

Journal Of Food Science & Nutrition | ISSN: 2470-1076

Journal Of Forensic Legal & Investigative Sciences | ISSN: 2473-733X

Journal Of Gastroenterology & Hepatology Research | ISSN: 2574-2566

Journal Of Genetics & Genomic Sciences | ISSN: 2574-2485

Journal Of Gerontology & Geriatric Medicine | ISSN: 2381-8662

Journal Of Hematology Blood Transfusion & Disorders | ISSN: 2572-2999

Journal Of Hospice & Palliative Medical Care

Journal Of Human Endocrinology | ISSN: 2572-9640

Journal Of Infectious & Non Infectious Diseases | ISSN: 2381-8654

Journal Of Internal Medicine & Primary Healthcare | ISSN: 2574-2493

Journal Of Light & Laser Current Trends

Journal Of Medicine Study & Research | ISSN: 2639-5657

Journal Of Modern Chemical Sciences

Journal Of Nanotechnology Nanomedicine & Nanobiotechnology | ISSN: 2381-2044

Journal Of Neonatology & Clinical Pediatrics | ISSN: 2378-878X

Journal Of Nephrology & Renal Therapy | ISSN: 2473-7313

Journal Of Non Invasive Vascular Investigation | ISSN: 2572-7400

Journal Of Nuclear Medicine Radiology & Radiation Therapy | ISSN: 2572-7419

Journal Of Obesity & Weight Loss | ISSN: 2473-7372

Journal Of Ophthalmology & Clinical Research | ISSN: 2378-8887

Journal Of Orthopedic Research & Physiotherapy | ISSN: 2381-2052

Journal Of Otolaryngology Head & Neck Surgery | ISSN: 2573-010X

Journal Of Pathology Clinical & Medical Research

Journal Of Pharmacology Pharmaceutics & Pharmacovigilance | ISSN: 2639-5649

Journal Of Physical Medicine Rehabilitation & Disabilities | ISSN: 2381-8670

Journal Of Plant Science Current Research | ISSN: 2639-3743

Journal Of Practical & Professional Nursing | ISSN: 2639-5681

Journal Of Protein Research & Bioinformatics

Journal Of Psychiatry Depression & Anxiety | ISSN: 2573-0150

Journal Of Pulmonary Medicine & Respiratory Research | ISSN: 2573-0177

Journal Of Reproductive Medicine Gynaecology & Obstetrics | ISSN: 2574-2574

Journal Of Stem Cells Research Development & Therapy | ISSN: 2381-2060

Journal Of Surgery Current Trends & Innovations | ISSN: 2578-7284

Journal Of Toxicology Current Research | ISSN: 2639-3735

Journal Of Translational Science And Research

Journal Of Vaccines Research & Vaccination | ISSN: 2573-0193

Journal Of Virology & Antivirals

Sports Medicine And Injury Care Journal | ISSN: 2689-8829

Trends In Anatomy & Physiology | ISSN: 2640-7752

Submit Your Manuscript: https://www.heraldopenaccess.us/submit-manuscript

Herald Scholarly Open Access, 2561 Cornelia Rd, #205, Herndon, VA 20171, USA.
Tel: +1 202-499-9679; E-mail: info@heraldsopenaccess.us
http://www.heraldopenaccess.us/