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WET CUPPING EFFECTS ON PAIN AND QUALITY OF LIFE IN NON-SPECIFIC LOW BACK PAIN

Fathan Chandra Suhartono [1], Hendra Sutysna [2]
[1]Faculty of Medicine, Universitas Muhammadiyah Sumatera Utara, Medan, Indonesia
[2]Department of Anatomy, Faculty of Medicine, Universitas Muhammadiyah Sumatera Utara, Medan, Indonesia
hendra_sutysna@umsu.ac.id

ABSTRACT

Low back pain (LBP) is the most common musculoskeletal problem worldwide and is associated with disabilities that interfere with daily activities. One of the options for LBP therapy that is currently developing is cupping therapy. This study aims to determine the effect of cupping therapy on the pain scale and quality of life in patients with non-specific LBP. To determine the effect of wet cupping therapy on pain and quality of life in back pain. This research used a comparative analysis design. The research was carried out by observation, with a cohort study approach. The research subjects were 14 people who were taken by consecutive sampling method. Data were analyzed using paired t-test or the Wilcoxon test. Wilcoxon's test showed a significant change on the pain scale (p=0.001). Through the Wilcoxon test, it was found that only physical function (p<0.001) and pain (p=0.001) had significant changes in quality of life, and through paired t-test, only general health had significant differences (p=0.004).

Keyword : Low Back Pain, cupping therapy, pain scale, quality of life

Corresponding Author:
Hendra Sutysna
Department of Anatomy, Faculty of Medicine
Universitas Muhammadiyah Sumatera Utara
Jalan Kapten Muktar Basri No 3 Medan 20238, Indonesia.
Hendra_sutysna@umsu.ac.id

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1. INTRODUCTION

Low Back Pain (LBP) is a musculoskeletal problem that most often occurs in the adult population worldwide, closely related to years lived with disability.[1-3] Low Back Pain can cause limitations in activities and work because the lower back has the greatest weight burden and is the axis of the body when humans perform various movements. This becomes a problem in everyday life, especially because most LBP develops into a chronic condition.[4]

According to a publication issued by the Directorate General of Health Services at the Indonesian Ministry of Health in 2018, the prevalence of LBP in Indonesia is 18%, and this number increases with age with a peak in the middle and early fourth decades of life.[5] In developed countries such as the United States, LBP is often found among workers with a prevalence of 25.7%, while in the general population, the incidence of LBP that comes to the Emergency Department is 1.39 per 1000 people per year.[6,7]

Until now, the management of LBP has generally focused on a multidisciplinary conservative approach such as painkillers, exercise, acupuncture, massage, to psychotherapy. Most patients are satisfied with the results of the conservative approach and do not require invasive therapy. Invasive therapy, especially surgery, can only be an option if there are red flag symptoms (saddle anesthesia, history of cancer, severe trauma, loss of tendon reflexes, etc.) and failure of conservative therapy where the patient continues to experience persistent pain for more than 6 months or in individuals with chronic pain exacerbated by radicular symptoms.[8,9]

One option for NPB therapy that is currently developing rapidly is cupping therapy, also known as Hijamah. Cupping is a treatment that has been around for a very long time. Various histories reveal that cupping has existed since

400 BC, recorded by a Greek historian, Herodotus. Other findings also indicate that cupping has been practiced in various parts of the world such as Egypt, Arabia, China, and Europe to treat multiple diseases.[10,11]

In Islam itself, cupping is a method of treatment that has a quite special place. Cupping therapy was emphasized by The Prophet Muhammad in a Hadith narrated by Ibn Abbas RA The Prophet Muhammad "Healing is in three things: in the *syurthah mihjam* (knife incision in cupping procedures), a gulp of honey, or branding with fire (cauterizing). But I forbid my followers to use (cauterizing)" (Narrated by Bukhari hadith 5248).[12] In addition, in the Hadith Sahih Al- Bukhari and Muslim, narrated from Humaid Ath- Thawaiel, from Anas it is described that the Messenger of Allah was once cupped, then after that, he said to his companions: "The best way of treatment for you is cupping (Sahih Muslim) No. 1577)".[13] This strongly confirms the position of cupping in the treatment options recommended by The Prophet Muhammad.

Until now, many studies on cupping have been carried out to prove the various effects and benefits, including the impact of cupping in relieving pain, which is very useful for treating LBP, especially for non-specific LBP. Al-Bedah *et al*. revealed that cupping has several systemic effects, such as reducing pain, anti-inflammatory and increasing blood circulation, immunomodulating effects to hematological effects.[14]

Research on the effect of cupping on LPB itself has previously been carried out under various experimental conditions. A study conducted by Ramananda *et al*., Madani-Kivi*, et al*., and Lestari and Sastrawan showed that cupping therapy could significantly reduce pain scale in LBP patients.[15-17] In addition, the research conducted by Tarique *et al*. and Wang *et al*., showed that in addition to reducing pain levels, cupping therapy can also help to improve disability in LBP patients.[18,19]

Many studies have been linking cupping therapy with pain and disability in LBP patients. However, very few studies investigate about quality of life of patients with LBP. This study

aims to determine the effect of cupping therapy not only on the pain scale but also on the quality of life in patients with non-specific LBP.

2. METHOD

This research is a comparative analytic study conducted by observation, using a cohort study research design, where researchers compare the effects of treatment by looking at the before and after measurement results. This study was conducted in December 2020 on non- specific LBP patients who visited Cupping Clinics in Medan City of North Sumatra Province.

Research inclusion criteria include 1) Low back pain patients visiting Cupping Clinics; 2) 18 – 65 years old; 3) Received wet cupping therapy. The research exclusion criteria included: 1). Taking pain medication in the last 3 days; 2) Taking blood-thinning medications; 3) Having malignant disease and/or organ failure; 4) During pregnancy or puerperium; 5) Having a history of being medically diagnosed with a pathological condition or trauma to the lower back area; 6) Have a history of spinal surgery in the past year. In this study, the data collected were primary data using the NRS instrument and the SF-36 Indonesian questionnaire which was already tested for validity and reliability.[20] Assessments will be carried out before and a week after wet cupping therapy.

3. RESULTS

Based on the description in table 1, it can be seen that the sample consisted of 14 people with a median age of 32.5 years (p=0.005), with the lowest age being 21 years and the highest age being 54 years. Based on gender, the research subjects were the same number, consisting of 7 males (50.0%) and 7 females (50.0%). Based on ethnicity, the research subjects consisted of 4 Bataknese people (28.6%), 6 Javanese people (42.9%), and 1 (7.1%) with Acehnese, Ambonese, Mandailing, and Chinese ethnicity. Based on the latest education, 7 people (50.0%) with a high school degree, 1 person with a diploma degree (7.1%), 2 people with a bachelor's degree (14.3%), and 4 people with a master's degree (28.6%). Based on a history of low back pain, 10 people (71.4%) feel acute pain (<6 weeks) and 4 people (28.6%) feel chronic pain (≥ 3 months).

Table 1 Distribution of Research Subject Characteristics

Variable	Value
Age (years), median (min-max)	32.5 (21-54)
Gender, n (%)	
Male	7 (50.0)
Female	7 (50.0)
Ethnicity, n (%)	
Acehnese	1 (7.1)
Ambonese	1 (7.1)
Bataknese	4 (28.6)
Javanese	6 (42.9)
Mandailing	1 (7.1)
Chinese	1 (7.1)
Education level, n (%)	
Senior High School	7 (50.0)
Diploma	1 (7.1)
Bachelor	2 (14.3)
Master	4 (28.6)
History of LBP, n (%)	
< 3 months	10 (71.4)
≥ 3 months	4 (28.6)

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Table 2 Analysis of Pain Scale and Quality of Life Before and After Cupping Therapy

Variable	Before (n=14)	After (n=14)	p-value
Pain Scale, median (min-max)	4.0 (3-7)	0.5 (0-2)	0.001*[a]
Quality of Life			
Physical function, median (min-max)	82.5 (55.0-90.0)	90.0 (70.0-95.0)	<0.001*[a]
Physical Role, median (min-max)	75.0 (0.0-100.0)	81.25 (25.0-100.0)	0.157[a]
Emotional Role, median (min-max)	100.0 (100.0-100.0)	100.0 (100.0-100.0)	1,000[a]
Vitality, median (min-max)	45.0 (40.0-65.0)	45.0 (40.0-70.0)	0.739[a]
Social Function, median (min-max)	100.0 (67.5-100.0)	100.0 (80.0-100.0)	0.157[a]
Mental Health, mean ± SD	70.57±10.71	71.14 ± 10.19	0.500[b]
Pain, median (min-max)	50.0 (0.0-62.5)	75.0 (62.5-100.0)	0.001*[a]
General Health, mean ± SD	49.64 ± 9.45	54.29 ± 9.97	0.004*[b]

Description: p-value using [a]Wilcoxon [b]t-paired test, *significant

4. Discussions

Table 2 shows a significant difference between the pain scale in patients with non- specific low back pain before receiving cupping therapy and after receiving cupping therapy. This is in accordance with what was done by Mardani- Kivi*, et al.,* in Iran with 180 subjects. They found that there was a significant difference in subjects who received wet cupping therapy with an average decrease in pain scale of 4.0 (p <0.01), which was assessed a month after receiving the intervention.[16]

These findings are also in line with another research conducted by Al-Bedah, *et al*., in Medina, Riyadh, and Jeddah, which showed significant differences in subjects before the intervention. The average pain value was 60.50 with SD ±19.7 and the median after receiving wet cupping therapy was 29.2 (p=0, 0001) on the assessment 2 weeks after the intervention and 24.4 (p=000,1) on the evaluation 4 weeks after the intervention.[21]

In Indonesia itself, a similar study that assessed the effect of wet cupping therapy on the pain scale was conducted by Suarsyaf with 35 subjects consisting of 28 men and 7 women. In this study, there was a significant difference between the pain scale of the subjects before and after receiving cupping therapy (p = 0.000) with the mean value of decreasing the pain scale being 2.5 in male subjects and 2.0 in female subjects.

Other theories that explain the analgesic mechanism of cupping therapy are the pain-gate theory, conditioned pain modulation, and the reflex zone theory. The pain gate theory states that cupping therapy can reduce pain intensity by affecting pain transmission pathways from the stimulated area to the brain and vice versa.[14,24]

Pain stimuli are carried by small-diameter (A-delta and C) and large-diameter (A-beta) nociceptive nerve fibers to the synapse to the dorsal horn of the spinal cord. In this area, pain modulation occurs via a network of interneurons and presynaptic pain gates. The tiny fibers have an obstructive effect on inhibitory cells that transmit signals down the spine-thalamocortical pain pathway and then to the brain. Large fibers stimulate inhibitory cells and inhibit the transmission of pain signals. Furthermore, pain intensity is expected to decrease when large fibers are

stimulated through touch, pressure, or vibration.[14,24]

According to this theory, both large and small fibers are stimulated during cupping therapy. During the early stages of cupping therapy, large afferent nerve fibers will partially close the presynaptic gate due to applied pressure on the skin. As the intensity of the stimulus increases, the number of activated nerve fibers increases. The ongoing positive and negative effects of the small and large nerve fibers will be opposite to each other.[14,24]

Conditioned pain modulation theory, commonly known as Diffuse Noxious Inhibitory Control (DNIC), assumes that "pain inhibits pain" or one type of pain inhibits another. The DNIC is composed of spinal-medulla-spinal pathways that are activated when two painful stimuli occur simultaneously at the same time. Activation of these pain pathways, triggered by prolonged noxious stimuli, causes significant pain inhibition in spinal neurons. According to this theory, local vibrations or scratching during cupping therapy cause a nociceptive stimulus that triggers DNIC activation and relieves primary pain.[14,24]

The relaxation zone theory states that there is a relationship between one organ and another. Interactions will mediate the relationship between nerves, chemicals, and muscles. Furthermore, disturbances in one organ will cause external manifestations that can be detected on the underside of that organ. It is hypothesized that cupping therapy to the skin causes stimulation of skin receptors and triggers blood circulation through neural connections to the affected organs.[14,24]

Eight domains assessed from the SF-36 Quality of Life questionnaire have different analytical results. Significant differences between scores before and after cupping therapy can be found in the domains of physical function, pain, and general health. While in the domain of physical roles, emotional roles, vitality, social function, and mental health, there was no significant difference found.

Researchers argue that this can be influenced by several things, including the condition of the research subject itself. Significant changes in physical function, pain, and general health can be caused by the influence of low back pain on the movement and mobility of research subjects in carrying out daily activities. In addition, the pain experienced can also affect the subject's perception of his general health condition, wherein the study found that the majority of subjects with low back pain got sick more easily and had poor health.

The researcher also argues that insignificant changes in the domains of physical roles, emotional roles, vitality, social functioning, and mental health are caused by individual perceptions of subjects who think that the pain they feel does not make them fail in the activities they do. And does not relate to or influence the emotional state of the subject. In addition, it was found that the majority of subjects felt that the pain they felt had no impact at all on their daily social activities.

Until now, researchers have not been able to find any literature that describes similar research with the same quality of life assessment instrument used in this study. However, there is found some research literature that explained the effect of wet cupping therapy on disability in patients with low back pain.

Research conducted by Volpato *et al*., in Brazil with 40 subjects showed a significant decrease in the disability value of patients with low back pain before receiving cupping therapy and after receiving cupping therapy ($p < 0.05$) in the assessment 2 weeks after the intervention. This research used the Roland Morris Disability Questionnaire (RMDQ) instrument to perform the analysis.[25]

The same thing can also be found in research conducted by Tarique *et al*., in India with 30 subjects. This study found that there was a significant decrease in disability scores in patients with low back pain before and after getting cupping therapy ($p < 0.01$). This research used the Oswestry Disability Index (ODI) instrument.[18]

Researchers argue that disability is related to the quality of life of people with low back

pain. The higher disability a person has, the lower quality of life they have. However, researchers have not been able to find the relationship and correlation between these studies that have been described due to differences between the instruments used.
In the end, the researcher considers that this research has several limitations, including the limited time that the researcher has. In addition, the number of samples is still relatively small, thus unrepresentative to describe the results of the study.

In conclusion, it was found that wet cupping therapy had a significant effect in reducing the pain scale in patients with non- specific LBP. In addition, it was also found that wet cupping therapy has a significant impact on changes in physical function, pain, and general health in the assessment of the quality of life. However, it did not significantly affect physical roles, emotional roles, vitality, social functioning, and mental health. Researchers recommend a further study using another instrument with a larger population.

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