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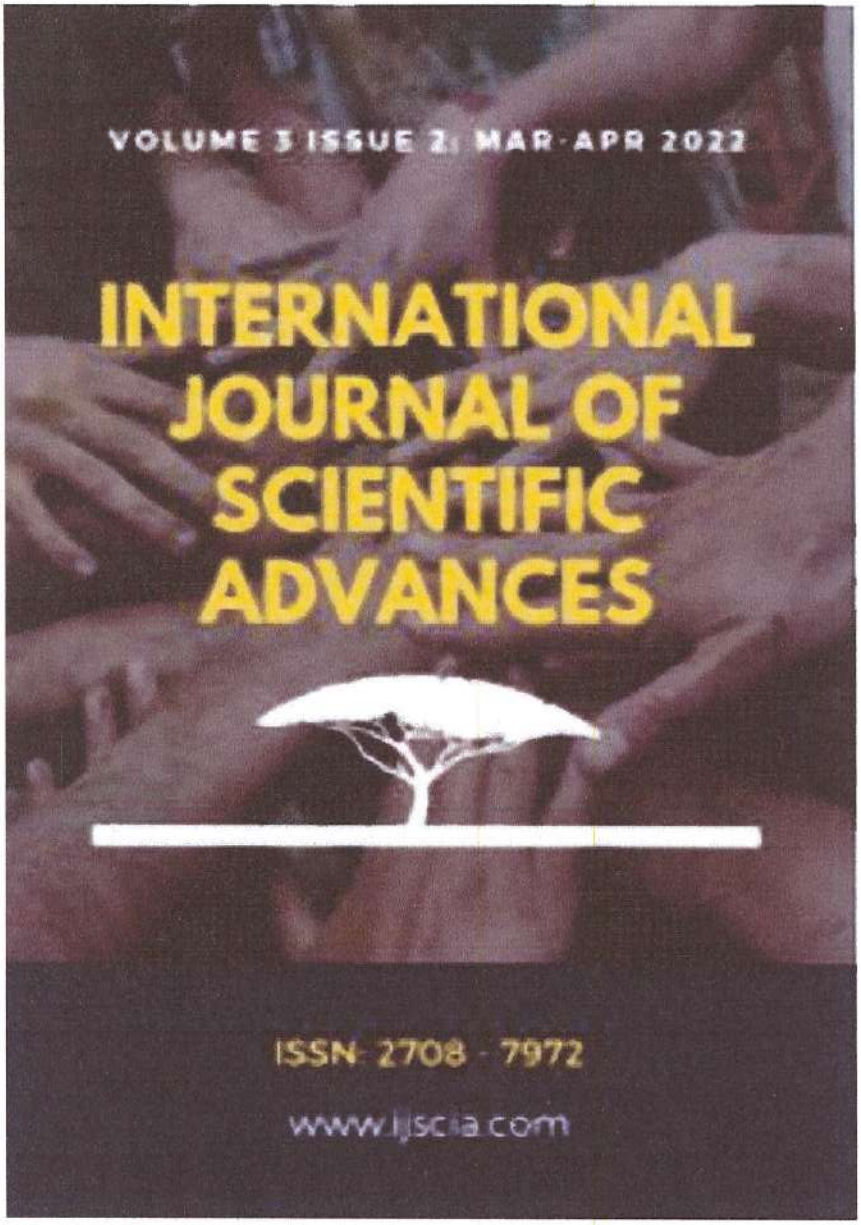

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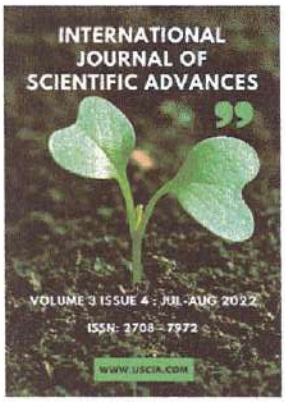

VOLUME 3 | ISSUE 4 : JUL - AUG 2022

Archives

- Current Issue
- Past Issues
- Call for Papers
- Article Processing Charges
- Sample Paper Format
- Copyright Form

Call for papers

Volume 3 | Issue 4

Last date: 31/08/2022

Detailed Study of Stellar Evolution and Stellar Gravitational Collapse Leading to The Formation of Black Holes

Abhinaya Sree Ravindran[1], Saakshi Padamwar[2], Shivika Lamba[3*], Shweatha J.[4], Sugath K. S.[5]

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Full Text

PDF

Chemical Quality of Rumen Fermentation And In Vitro Digestability Of Complete Feed Based on Sorgum-Clitoria Ternatea Silage with Additional Concentrate Contains Znso4 And Zn-Cu Isoleucinate

Erna Hartati, Gusti A. Y. Lestari, Markus M. Kleden, I.G.N. Jelantik and F.M.S. Telupere*

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Full Text

PDF

Sports Related Injuries and Suggested Treatments: A Research Synthesis

Harry Feng

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Full Text

PDF

Tentamen Suicidi as a Neuropsychiatric Syndrome in Severe COVID-19 Intensive Care Patient with Respiratory Failure: Serial Cases

Suparno Adi Santika[1*], Nancy Margarita Rehatta[2] ,and Christrijogo Sumartono[2]

PUBLISHED: 18 Mar 2022 (170-175)

https://doi.org/10.51542/ijscia.v3i2.4

Full Text

PDF

Correlation Analysis of Several Growth Characters in Three Genetic Groups of Native Chickens Under Intensive Rearing System

Franky M.S. Telupere*, Arnold E. Manu, and Johny Nada Kihe

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https://doi.org/10.51542/ijscia.v3i2.5

Full Text

PDF

Research on parallel braking control of distributed drive electric vehicles

Chunming Zhao*

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https://doi.org/10.51542/ijscia.v3i2.6

Full Text

PDF

The Potential of Kebar Grass (Biophytum petersianum Klotzsch) on the Liver Histopathology of Lactating Mice (Mus musculus) Exposed to Carbofuran

Muhammad Andika Aulia Rakhman [1] , Sri Hidanah [1] , Widjiati [1] , Thomas Valentinus Widiyatno [1] , Ratna Damayanti [1] , Viski Fitri Hendrawan [2] , Epy Muhammad Luqman [1] *

PUBLISHED: 28 Mar 2022 (185-192)

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Full Text

PDF

Antimalarial activity of Virgin Coconut Oil against Plasmodium berghei ANKA in mice

Bagus Widjanarko[1,2], Puspa Wardhani[3,4], Heny Arwati[5*]

PUBLISHED: 29 Mar 2022 (193-196)

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Full Text

PDF

Integration of MHD System to The Gas Turbine and The Steam Turbine Power Plant: A Brief Review

Raton Kumar Nondy[1], Md. Abul Bashar[1], Prof. Md. Aziz ul Huq[1], Md. Tawfikur Rahman[1], Prema Nondy[2*]

PUBLISHED: 5 Apr 2022 (197-202)

https://doi.org/10.51542/ijscia.v3i2.9

Full Text

PDF

External Debt in Developing Countries in The Period of 2001 to 2020: Reality and New Manifestations

Xoan Le Thi[1], Uyen Vo Thi Le[2*]

PUBLISHED: 7 Apr 2022 (203-212)

https://doi.org/10.51542/ijscia.v3i2.10

Full Text

PDF

Care Experience of Parents of Children with Type 1 Diabetes Using Diabetes Treatment Technology: A Meta-Synthesis of Qualitative Studies

Kaidi Sheng[1], Xiaodi Sun[1], Yan Liu[1], Yan Kong[2], Guiling Yu[2*]

PUBLISHED: 9 Apr 2022 (213-219)

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Full Text

PDF

Paracetamol Overdose in the Postoperative Postpartum Period

Ohikhuare Okun MD[1], Oboseh John Ogedegbe MD[2], Gabriel Alugba MD[3], Ayodeji David Johnson MD[4], Ojo Tioluwani Kolade MD[5], Asfand Yar Cheema MD[6]

PUBLISHED: 13 Apr 2022 (220-222)

https://doi.org/10.51542/ijscia.v3i2.12

Full Text

PDF

Study of The Organic Solar Cells Based on An Emeraldine Salt of Conductive Polyaniline

Amer N. Al-Daghman

PUBLISHED: 15 Apr 2022 (223-226)

https://doi.org/10.51542/ijscia.v3i2.13

Full Text

PDF

Quality Control with Failure Mode and Effect Analysis (FMEA) And Fault Tree Analysis (FTA) Methods: Case Study Japanese Multinational Automotive Corporation

Jakfat Haekal

PUBLISHED: 16 Apr 2022 (227-234)

https://doi.org/10.51542/ijscia.v3i2.14

Full Text

PDF

Integration of Lean Manufacturing and Promodel Simulation on Repair Production Process Flow of Polysilane Bottle Printing Using VSM, WAM, VALSAT, And RCA Methods: Case Study Packaging Manufacturing Company

Jakfat Haekal

PUBLISHED: 16 Apr 2022 (235-243)

https://doi.org/10.51542/ijscia.v3i2.15

Full Text

PDF

Quality Control Analysis of Pillow and Bolster Products with DMAIC And FMEA Method Approach in CV. Saiky Indonesia

Muhammad Kholil

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https://doi.org/10.51542/ijscia.v3i2.16

Full Text

PDF

Design of Lean Six Sigma to Reduce Waste in Aerophile Line Production Processes in The Chemical Industry Using DMAIC And VSM Approach

Muhammad Kholil

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Full Text

PDF

The Effect of Turmeric Flour in Combination with Various Levels of Peanut Flour on the Production Performance of KUB Hens

Cahya Purnamasari*, Franky M S Telupere, dan W Marlene Nalley

PUBLISHED: 17 Apr 2022 (259-262)

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Full Text

PDF

Elastic Strip Analysis of The Biharmonic Equation for Moments and Deflections of Simply Supported Rectangular Plates Developed from Finite Series Expression for A Suggested Valid Displacement Function

Orumu S. T.

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Full Text

PDF

Cupping Therapy's Role in Pain Management: A Literature Review

Arinda Putri Auna Vanadia[1], Hanik Badriyah Hidayati[2*]

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Raising Awareness for Pollution Prevention Measuring Individual Pollution Indicators

Bekim Fetaji[1*], Majlinda Fetaji[2], Monika Lutovska[3], Sani Demiri[4]

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Full Text

PDF

The Role of TGF-β in the Pathogenesis of Type 1 Diabetes Mellitus

Ike Wahyu Triastuti*, Roedi Irawan, Anang Endaryanto, Nur Rochmah, Muhammad Faizi

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Full Text

PDF

Prolonged Use of Noninvasive Ventilation in COVID-19 Geriatric Patients with Acute Respiratory Failure, can it be Tolerated?

Orizanov Mahisa[1], Bambang Pujo Semedi[2], Edward Kusuma[2]

PUBLISHED: 28 Apr 2022 (284-287)

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Full Text

PDF

Indonesian Parents' Evaluation of Developmental Status (PEDS) as Developmental Screening Tool for 0-3 Years Old Children

Amelia Sholikhah[1*], Irwanto[1], Budi Utomo[2]

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Full Text

PDF

Association of Chorioamnionitis with Neonatal Sepsis and Mortality Rate Among Preterm Infants: A Meta-Analysis

Ni Made Indah Dwijayanti Atmaja[1*], Martono Tri Utomo[1], Ernawati[2]

PUBLISHED: 28 Apr 2022 (292-298)

https://doi.org/10.51542/ijscia.v3i2.25

Full Text

PDF

Effect of Kinesio Taping with Fascia Manipulation Technique on Superficial Back Line Over Hamstring Fascia to Increase the Range of Motion – An Observational Study

Swapnil Mate*

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Full Text

PDF

Evaluating the Strategic Measures Responsible for Quality Concrete Elements in Buildings in Onitsha Anambra State, Nigeria

Okechukwu C.O[1*], Okolie K.C[1], Belonwu C. C[2], Okeke F.N[3]

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Cupping Therapy's Role in Pain Management: A Literature Review

Arinda Putri Auna Vanadia[1], Hanik Badriyah Hidayati[2*]

[1]Faculty of Medicine, Universitas Airlangga
dr. Soetomo General Hospital Surabaya, East Java, Indonesia

[2]Department of Neurology, Faculty of Medicine, Universitas Airlangga
dr. Soetomo General Hospital Surabaya, East Java, Indonesia

*Corresponding email: hanikhidayati@fk.unair.ac.id

ABSTRACT

Pain is most likely one of the most common symptomatic complaints. Despite advancements in therapy, many patients will continue to experience symptoms that are not adequately addressed by the conventional medicine provided. Patients frequently seek treatment outside of the usual scope of conventional medicine. Cupping is an alternative therapy that might be used to relieve pain. Although cupping has been used for thousands of years to treat pain and other disorders, its use has grown in popularity during the previous decades. Cupping therapy is being utilized all over the world for health promotion, prevention, and treatment of a variety of disorders. Doctors should understand the role of cupping as an alternative pain therapy in order to improve patient satisfactions.

Keywords: cupping therapy; pain; alternative medicine

INTRODUCTION

Pain was redefined by the International Association for the Study of Pain (IASP) in 2020 as an unpleasant sensory and emotional experience associated with potential or actual tissue damage.[1] They divides pain into categories based on the duration of onset (acute and chronic), the body area affected, or the system that may be triggering the pain (e.g., gastrointestinal, nervous).[2]

The majority of people experience severe pain at some point in their lives. At least one symptom directly related to pain is present in about 80% of all appointments to primary care.[3] Every year, at least 20% adults in the world suffers with pain, and 10% of the world's population being diagnosed with chronic pain. Patients in general practice settings in Asia, Africa, Europe, and the Americas reported a prevalence of persistent pain of 10 to 25%.[4,5] According to CDC, an estimated 50.0 million adults in the United States suffered from chronic pain, with the prevalence increasing with age.[6] In the United Kingdom, chronic pain affects between 13 and 50 percent of persons.[1]

While pain is often used to prevent additional injury, it is also acknowledged as a basic human right and an important component of excellent patient care.[3] Patients and their families bear a significant burden as a result of pain problems, particularly chronic pain. It has a negative impact on most patients' general perspectives of health, significantly interferes with daily activities, is related to depressive symptoms, and has a severe and unfavorable impact on relationships and interactions with others. The degree to which pain interferes with individual 's ability to function and well-being appears to be associated to the severity of the pain.[7]

For the effective management of pain, a variety of therapeutic approaches are used, including the use of medicines and alternative therapies.[8]

Non pharmacological interventions (e.g., physical therapy, ice, and immobilization) may be used first to treat acute pain, followed by nonopioid analgesics or a combination of nonopioid treatments. Opioids may not be required if these treatments are efficient in alleviating acute pain within the expected recovery period for that ailment.[9] Medication alone does not consistently alleviate chronic pain, physical therapy with active modalities or alternative modalities should be part of the treatment plan.[10] Non-pharmacological treatments have been found to be useful in lowering discomfort and controlling pain, enhancing analgesics and pain treatment options.[11] Cupping is one of non-pharmacological therapy that can be used to manage pain.[12] Cupping therapy has been used for a long time to treat a wide range of health problems.[13] Many recent literature reviews have shown that cupping is a useful method for relieving pain and enhancing function.[3,12,14]

Over the last few years, traditional and complementary medicine (TCM) is recommended by the World Health Organization (WHO) because of its broad range of health advantages, safety, and few adverse effects when compared to chemical agents. This type of medication is preferred by people in both developed and developing countries for a variety of reasons.[15] Even though cupping has been used as a therapy by numerous cultures and peoples for a long time, the mechanism of action is still unclear. However, interest in cupping has recently resurfaced, and as a result, various researches have begun to look at the mechanism that support cupping therapy.[16] Clinicians will gain more understanding into pain management by learning about cupping, which may help patients achieve greater results. Because this treatment is increasingly being utilized by individuals all over the world, it is crucial to understand cupping, including its history, benefits, and adverse effects.

HISTORY OF CUPPING THERAPY

Cupping has multiple definitions in the practice of traditional and complementary medicine from different cultures; nevertheless, one of its most prominent purposes is the removal of poisonous compounds (detoxification) from the body by putting suction cups on painful body areas to create negative pressure.[17-19] Cupping is known as Hijama in Arabic, which literally means "to shrink in size" and in general "to restore the body's natural status."[17]

Cupping therapy is used in a variety of traditional therapeutic systems, including Chinese, Unani, traditional Korean, Tibetan, and Oriental medicine.[20] It has been practiced globally for centuries. Cupping is broadly utilized in Europe as an integrative treatment for hospitalization care, the preventive and treatment program of numerous illnesses, and general health promotion. Cupping is a common treatment in South Korea, and the healthcare insurance provided by the Korean government covers it.[12] Cupping has been more popular in Western countries such as Europe and the United States in recent years. [21]

Cupping therapy (CT) is one of the earliest complementary therapies, dating back to the dawn of civilization. The Ancient Egyptians initially practiced it by around 5500 years ago, according to evidence, subsequently spread to the Greeks, Romans, and the rest of the world.[22] One among the earliest medical literature that describe cupping therapy is Eber's papyrus (1550 BC) from Ancient Egypt.[20] The book mentioned the use of cups for pain, vertigo, loss of appetite, fever, and bowel problem. It also discussed ways to use CT to speed up the "healing crisis" of diseases. Hippocrates advised CT for a variety of ailments in ancient Greece.[17]

In China, cupping therapy is a traditional medicine treatment that has been applied to alleviate pain for over two thousand years. It is based on the belief that pain is primarily induced by an imbalance (inadequacy or instability) of energy (qi) and blood flow, resulting in blood stagnation or qi obstruction in the organs, energy pathways, and other body parts.[3] The first evidence of cupping can be found in Bo Shu (an ancient book written on silk), that was recovered inside a Han Dynasty tomb in 1973.[23] Early Chinese books also mentioned several curative cupping procedures and treatment case records. Zhao Xueming, a Chinese physician who practiced over 200 years ago, wrote "Ben Cao Gang Mu Shi Yi," a book that detailed the background and origins of several types of cupping and cup forms, purposes, and usages.[17,23]

Cupping therapy was also a common therapy in Arabic and Islamic countries in the past. Arabic and Islamic physicians such Abu Bakr Al Razi (AD 854-925), Al Zahrawi (AD 936-1036), and Ibn Sina (AD 980-1037) supported it. Al Zahrawi detailed cupping sites and demonstrate cupping equipment with a diagram.[20] CT, also known as "hijama" in Muslim cultures, is a common treatment that falls under the category of "Prophetic Medicine." The Prophet Muhammad clearly acknowledged and encouraged hijama. "Hijama is the best of your cures," the Prophet said in one of his many "hadith" or prophetic sayings.[24]

During the Renaissance, which spanned from the 14th to the 17th century, the practice of cupping therapy expanded to Italy and, eventually, the rest of Europe. It was a popular therapy for gout and arthritis in Italy at the time.[20] During the nineteenth century (1800s–1900s), CT was widely used by European and American physicians. The most commonly utilized CT modality was wet cupping. CT was widely used all over the world, but it fell out of favor in the early twentieth century. CT's revival began in the mid-twentieth century.[17]

In China, there are 10 different cupping methods, including strong, medium, weak/light, empty/flash, full/bleeding, needle, moxa/hot needle, water, and moving cupping. The cup was conventionally created from glass, metal, or bamboo. Because conventional cups do not enable for complete cupping of large joint, Pulsatile cupping refers to the development of a revolutionary device that delivers a pulsatile pressure for complete cupping. Silicone cups enable for complete cupping for large joint as well as treatment flexibility.[19]

Cupping therapy is generally divided into two categories: dry and wet cupping.[20,25] Wet cupping is a technique in which before placing the cup, blood is obtained using puncture, whereas in dry cupping the puncture procedure is not performed before the cup is placed to create a negative pressure for suction.[12,13]

There are two main methods for applying wet cupping. CPC stands for cupping, puncturing, and cupping. Skin demarcation, sterilization, cupping, puncturing, cupping, and sterilization were the six processes followed by CPC. This approach is widely used in Arabic countries to manage a wide range of diseases. The five procedures of the puncturing and cupping (PC) method were skin demarcation, sterilization, puncturing, cupping, and sterilization. In China, Korea, and Germany, the PC approach is widely used. Practitioners must control the suction in this procedure by sliding the cup carefully in a single direction.[19]

Various instruments and equipment used in the practice of cupping in ancient civilizations, as an example animal horns, bones, bamboo, nuts, shells and gourds. The purpose of these instruments was to suck poisonous humors from sick persons.[17] Currently, there are several materials that can be used to make cups, including plastic, glass, rubber, bamboo, porcelain, metal, and silicone.[20] Non-disposable cups, on the other hand, require intensive sterilization and disinfection techniques before they can be reused, hence disposable cups are preferable. The size of the cup used is determined by the region in which it is used. In wet cupping, a sharp scalpel is typically applied to make lacerations on the surface.[13]

Cupping therapy can be utilized on a variety of anatomical areas, which are chosen dependent on the illness being treated. Cups are most commonly placed in areas with a lot of muscle tissue, such as the back, chest, abdomen, and buttocks. Anatomical areas having a lot of hair, minimal muscular tissue, or not enough surface area should be avoided to insert the cups.[13,19]

CUPPING AS AN ALTERNATIVE PAIN THERAPY

For effective pain management, a variety of therapeutic approaches are used, including the use of medicines and alternative treatments.[8,26] Cupping has been widely used to relieve pain in the treatment of lower back pain, neck and shoulder pain, headache, knee pain, facial paralysis, arm pain, carpal tunnel syndrome, and rheumatoid arthritis.[20,22]

After years of expansion, the amount of cupping researches has expanded, and its clinical trial procedures have improved.[14] A single dry cupping treatment session reduced pain and increased total and oxygenated hemoglobin levels in non-specific neck pain patients, according to a single-blind randomized controlled laboratory study (p=0.049).[27,28] A randomized controlled trial (RCT) evaluated the efficacy of two distinct methods of dry pulsatile cupping to on-demand medications in individuals who suffer from chronic low back pain (cLBP).

Within 4 weeks, both pulsatile cupping and minimum cupping were beneficial in individuals with persistent low back pain, with no significant differences when compared directly. Furthermore, only pulsatile cupping, but not minimum cupping, exhibited effects in lowering pain after 12 weeks when compared to a non-treatment control (p0.05).[27,29]

In a randomized clinical trial that compared cupping therapy and acupressure on mother experiencing low back pain related to lordosis caused by pregnancy and labor, even though the pain intensity in both study groups improved, the pain intensity reduction in the cupping therapy group was significant ($p<0.05$). As a result, both may help primiparous women reduce postpartum low back pain.[27,30] Another RCT that evaluated wet cupping's safety and efficacy as a primary therapy for prolonged nonspecific low back pain found statistically significant differences between the wet cupping and control groups. ($p=0.0001$).[27,31]

In addition, a randomized clinical trial investigated the effects of transcutaneous electrical nerve stimulation (TENS) and cupping therapy on improving female college students' performance by reducing pain. In terms of pain reduction, cupping therapy is as effective as TENS ($p<0.05$). TENS is more effective when the treatment is given for 5 minutes, while cupping is more beneficial when the therapy is given for 10 minutes.[27,32]

A randomized controlled trial revealed that cupping therapy in individuals with chronic nonspecific neck pain seems to be beneficial in relieving pain and improving functional abilty and quality of life ($p=.047$).[27,33] Aaccording to a randomized parallel-group trial, cupping therapy can be used safely in the office to relieve upper shoulder and neck pain. In the intervention group, there was a statistically significant decrease in pain score between pre- and post-test ($p=0.002$).[27,34] There is also a RCT about cupping therapy's effectiveness in treating chronic shoulder and neck pain showed there were statistically significant differences in skin surface temperature and neck pain between the groups ($p<0.001$).[18,27]

Otherwise, the findings of a quasi-experimental study evaluating the effect of 10 minutes of cupping on the thickness and stiffness of healthy volunteers' upper back muscles (paraspinals and middle trapezius) revealed that the groups did not differ significantly when it comes to thickness and stiffness ($p>0.05$).[27,35] A RCT on the effectiveness of cupping therapy for soccer players' low back pain also found that the experimental group's lumbar spine range of motion increased, although the pre-post results were insignificant ($p=0.651$).[27,36]

MECHANISM OF ACTION OF CUPPING THERAPY

(1) Pain-gate theory

According to this hypothesis, cupping might alleviate pain intensity by altering the pathways of pain perception to the brain and backward from a stimulated location.[22] Pain impulses are transmitted by both nociceptive nerve fibers: big diameter (A-beta) and small diameter (A-delta and C) to the synapse into a transmitter cell up to the spinal cord's dorsal horn, where pain is modulated by a network of interneurons and small presynaptic pain gate.[37] Cupping therapy might help with pain relief by having anti-nociceptive and anti-irritative effects.[16]

(2) Pain Modulation theory

Diffuse noxious inhibitory controls (DNIC) is other name for this pain modulation theory. It is predicated on the idea that pain eliminates pain or that one sort of pain conceals another type of pain. When this pain pathway is activated by a distant noxious stimulus, it causes the nociceptive spinal neurons to block primary pain. Cupping treatment may cause nociceptive stimulation, which stimulates DNICs by causing capillary vessels and skin local damage. This process requires a significant pain-attenuating conditioning stimulus, which may be somewhat reliant on a distracting effect, and it may function through inducing a DNIC or eliminating oxidants and lowering oxidative damage.[16,22,37]

(3) Reflex zone theory

External signs of a disease process that originates within the body are frequently recognized at a region distal to the damaged organ in conventional medicine. It is proposed that the interaction of nerve, muscular, and chemical pathways can be used to understand the concept of a connection between two components of the body.[16] External manifestations are determined by the organ that is causing them.[22] Some animal studies have shown that the skin or peripheral joints somatic stimulus can have a major impact on organ systems such the cardiovascular, urinary, and gastrointestinal systems. In regard to organ function, reflexes may be inhibitory or excitatory. Their primary mechanisms of action are spinal routes, supra spinal canters, and cortical canters.[22,37] When a dysfunctional organs send a stimulus toward the skin via the autonomic neurons, the skin reacts by becoming soft, painful, and swelled in cupping therapy. When cups are placed on the skin, skin receptors are activated. Through neurological connections, the overall process will lead in an increase in blood supply and circulation to the internal organ and skin.[16]

(4) Blood detoxification theory

This hypothesis describes how cupping therapy works by removing toxins and harmful materials from the body. It eliminates harmful elements in the location wherein the cups are placed. According to the concept of blood detoxification, uric acid, HDL, LDL, and numerous other hematological enzymes all decrease slightly.[37] From a physics perspective, cupping's negative pressure suction favors the toxic substance extraction formed by the suppurating fluid, exudate, and pathogens, as well as the histolytic enzyme. Cupping treatment also encourages the granulation tissue development and wound healing.[16]

Multiple research studies have found notable differences between venous and cupping blood in a variety of biochemical, hematologic, and immunologic markers. The circulation of blood in cupping leans to tear up obstacles and provide a pathway for the toxic substrate removal from the body. Many cups may be applied on a patient's body at once. Cupping might aid eliminate the old red blood cells. The uric acid, ammonia, triglyceride, and cholesterol levels in the wet cupping blood were all significantly higher. Increased blood circulation may induce the expulsion of toxins and wastes, improve local nutrients, and, as a result, boost metabolism, promoting health and removing pathogenic elements.[16,37]

SIDE EFFECT OF CUPPING THERAPY

In the studies that evaluated side effects, significant adverse events were not observed to be associated with cupping.[12] Ecchymosis is a common side effect of cupping and it will go away on its own in a few days, so there is no need for treatment. Ecchymosis, according to traditional and complementary medicine, improve blood circulation, and some researches show that cupping is more effective when ecchymosis occur. Increased discomfort or tingling were also noted as moderate side effects. Since there is no systematic research on the safety of cupping therapy to use as a guideline, clinicians should be aware of how long the cups remain on the skin and how strong the suction power is to prevent these side effects.[3]

One of the most common side effects of cupping was scar formation. However, side effects to cupping might vary depending on the practitioner's skill level, the procedure used, and the cleaning and sterilizing procedures used during the treatment.[12]

CONCLUSIONS

Cupping therapy is a type of complementary medicine that has been used for thousands of years to treat a range of ailments. Cupping may be beneficial in common painful disorders treatment, according to current evidence. The results of the analysis of several randomized controlled trials included in this study showed positive results in reducing neck and low back pain, as well as physiological pain parameters in adults, which contributed to the centralization of cupping treatment in the clinical condition of the targeted population, thus further improving quality of life. However, there were two studies that showed insignificant pre-post group differences. Further research is needed to understand the benefits and side effects of cupping as an alternative therapy because there are several limitations in this review.

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