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The Role of Al-Hijamah in Efforts to Prevent Heart Disease and Blood Vessels: A Systematic Review and Meta-analysis

Angki Perdiyana¹, Dian Andriani Ratna Dewi², Lila Irawati Tjahjo Widuri³, Arohid Allatib⁴, Kelvin Dewantara⁵, Ni Made Wiliantari⁶, Karina Rahmawati Editya Putri⁷, Lucy Laila Felicia⁸, Farida Ulfa⁹, Alexander¹⁰

¹ The Republic of Indonesia Defense University. Email: angki64@gmail.com

² The Republic of Indonesia Defense University; Indonesia Army Central Hospital Gatot Soebroto. Email: dianandrianiratnadewi@gmail.com

³ The Republic of Indonesia Defense University. Email: lilawiduri@gmail.com

⁴ The Republic of Indonesia Defense University. Email: latibrohid1945@gmail.com

⁵ The Republic of Indonesia Defense University. Email: kelvindewantara982@gmail.com

⁶ Ratna Dewi Principal Clinic, Indonesia. Email: nmwiliantari@gmail.com

⁷ Ratna Dewi Principal Clinic, Indonesia. Email: keditya@gmail.com

⁸ Ratna Dewi Principal Clinic, Indonesia. Email: lucylailafelicia@gmail.com

⁹ Ratna Dewi Principal Clinic, Indonesia. Email: ulfaallauw@gmail.com

¹⁰ Ratna Dewi Principal Clinic, Indonesia. Email: alexandersyams@yahoo.com

Correspondence: Dian Andriani Ratna Dewi. Email: dianandrianiratnadewi@gmail.com

Abstract

Background: Cupping therapy or Al-Hijamah is a traditional treatment the Prophet Muhammad SAW recommended. It has also become an effective alternative for ridding blood plasma of disease-causing substances, including cholesterol, which plays a role in cardiovascular disease. **Purpose:** To analyze the role of Al-Hijamah therapy or cupping in reducing cholesterol levels in the body as a preventive measure against heart disease and blood vessel disorders. **Methods:** Of the 513 articles collected, three articles were selected for analysis. Risk of Bias evaluated study quality for Randomized or RoB2 and ROBINS-I. Quantitative analysis using Review Manager 5.4.1, focusing on changes in total cholesterol, low-density lipoprotein, high-density lipoprotein, and triglycerides concentrations due to cupping therapy in healthy people. **Results and discussion:** Wet cupping therapy effectively reduced total cholesterol concentration (Pooled MD = -16.20, 95% CI (-16.20, -0.85), p=0.03, I² = 0%). Wet cupping effectively reduced low-density lipoprotein levels (Pooled MD = -17.48, 95% CI (-30.67, -4.30), p=0.009, I² = 0%), showing statistical significance. Wet cupping therapy effectively increased high-density lipoprotein levels (Pooled MD = 3.54, 95% CI (0.34,6.73), p=0.03, I² = 19%). Then, insignificant meta-analysis results for triglycerides concentration outcomes (Pooled MD = 3.58, 95% CI (-55.03,62.18), p=0.90, I² = 86%). **Conclusion:** Results from a systematic review and meta-analysis indicate that cupping therapy may be beneficial in managing cholesterol in healthy individuals, especially low-density lipoprotein. Further research with high-quality randomized control trials must confirm these findings and consider cupping a non-pharmacological intervention.

Keywords: Al-hijamah, Cholesterol, Low-Density Lipoprotein, High-Density Lipoprotein, Triglycerides, Cardiovascular Disease

1. Introduction

Cupping Therapy: Cupping in Arabic, known as Al-Hijamah, is a health therapy rooted in Islamic culture. The name Al-Hijamah itself comes from the word "Al-Haj," which means "to suck." The practice of Al-Hijamah or cupping has a special position in Islamic culture because cupping is a form of treatment recommended by the Prophet Muhammad SAW. Cupping therapy has even been around since the time of the Prophet Muhammad SAW, and this can be seen from the many hadiths that recommend Muslims to undergo cupping treatment (Umayyah, 2014). Cupping therapy is a historically popular treatment in Arab and Islamic countries. This therapy was recommended by Arab and Islamic doctors such as Ibn Sina (980-1037 AD) and Abu Bakr Al-Razi (854-925 AD) (Aboushanab & AlSanad, 2018).

The practice of cupping has become an integral part of Islamic medical practice, and this historical evidence illustrates the importance of cupping treatment in supporting the health and happiness of Muslims. As Rasulullah SAW said: "The medicine is found in three things, in cupping cuts, or drinking honey, or ironing tools (burning fire), and I forbid my people from ironing." (HR. Bukhari)(Muhammad Bin Isma'il Abu 'Abdullah Abu Al-Bukhari Al-Ja'fi n.d.). In another hadith, it is also said that Al-Hijamah (cupping) is the best treatment, as the Messenger of Allah SAW said: "Indeed the best method of treatment is cupping or the ideal method of treatment is cupping"(HR. At-Tirmidhi) (Ibnu et al.)

Al-Hijamah is a physical treatment method that acupuncturists and alternative medicine practitioners have long used. This method involves using glasses or plastic cups placed on the skin over the area requiring treatment or at specific acupuncture points. The main aim of this treatment is to create negative pressure by sucking air from the glass, which then produces a therapeutic effect. Cupping treatment has significant benefits that practitioners and patients generally accept. One of its main benefits is detoxification, which aims to eliminate waste materials and toxins from the body (S. Kim et al., 2018). This process is also seen as a harmonizing effort to overcome imbalances that may occur in the body system. Cupping is important in cleaning blood plasma from various disease-causing materials, such as free radicals, cholesterol, and other dangerous substances (Budi Sungkawa, 2019).

Two lipoproteins carry cholesterol throughout the body; low-density lipoprotein (LDL) cholesterol, sometimes called "bad" cholesterol, makes up most of the body's cholesterol. High levels of LDL cholesterol raise the risk of heart disease and stroke. High-density lipoprotein (HDL) cholesterol, sometimes called "good" cholesterol, absorbs cholesterol in the blood and carries it back to the liver. The liver then flushes it from the body. High levels of HDL cholesterol can lower your risk for heart disease and stroke. When the body has too much LDL cholesterol, the LDL cholesterol can build up on the walls of the blood vessels. This buildup is called "plaque," it can cause health problems, such as heart disease and stroke. Plaque is made up of cholesterol deposits. Plaque buildup causes the inside of the arteries to narrow over time. This process is called atherosclerosis. Triglycerides (TG) are a type of fat in the blood that the body uses for energy. The combination of high levels of TG with low HDL and high LDL cholesterol levels can increase the risk for health problems, such as heart attacks (Aryani et al., 2023) (Ayudia et al., 2023). Therefore, cupping treatment that can overcome cholesterol problems and cleanse the blood of harmful substances is important in maintaining body health and preventing cardiovascular diseases (CVDs) (Hidayat Fahrul, 2023).

2. Method

2.1 Research Methodology

We conducted this systematic review and meta-analysis research using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and the Cochrane Handbook for Systematic Reviews of Intervention, version 6.3, 2022.

2.2 Eligibility Criteria: Inclusion and Exclusion Criteria

Before starting the literature search, we formulated strict inclusion and exclusion criteria to identify relevant studies. Our inclusion criteria included: 1) Studies with a Randomized Controlled Trials design, 2) Patients included in the healthy population according to the WHO definition, 3) Exclusive use of cupping therapy interventions, and 4) Studies that measured Cholesterol, LDL, HDL, and TG levels. On the other hand, exclusion criteria included 1) Not using English or not using a compatible language and 2) Not providing access to the full text. The entire paper selection process was carried out by two independent researchers (AA, AP), with joint consultation with another researcher (KD) in resolving disagreements, which is explained further in our method development.

2.3 Reference Standard

Research with a Randomized Controlled Trial design showing the effects of cupping therapy in healthy populations is used as a reference.

2.4 Search Strategy

In the literature search effort, independent researchers (AA, AP, KD) conducted comprehensive searches in several leading databases, such as Cochrane, PubMed, Google Scholar, Embase, and Scopus. The literature search process was carried out from 30 September 2023 to 8 October 2023 by referring to terminology according to the Medical Subject Heading (MeSH) browser. Specific keywords are used by following the boolean operator keywords guidelines, namely: [((“Cupping Therapy” OR “Cupping” OR “Hijama Therapy”) AND (“Healthy” OR “Well-being” OR “Fitness”) AND (“Cardiovascular” OR “Cholesterol” OR “HDL” OR “LDL”) AND (“Randomized” OR “Randomised”))]. A complete description is available in (attachment 1).

2.5 Study Selection

From all the databases we used, we managed to collect 513 articles. We collect all these articles in confidence. After review, we found 131 duplicate articles, 123 articles that did not match the study because they were eBooks and books, and irrelevant articles. Furthermore, from the selection by reading all the articles, we excluded 257 articles because 84 of them did not use cupping therapy, 51 of them did not use healthy populations, 9 of them used incompatible language, 67 of them did not measure cholesterol concentrations (LDL, HDL, or TG), 26 of them did not have access to the full text, and 19 of them did not use a Randomized Controlled Trial (RCT) design. The final result of the literature selection was finding three articles that could be analyzed. The flow of literature selection that we carried out can be seen in (Figure 1).

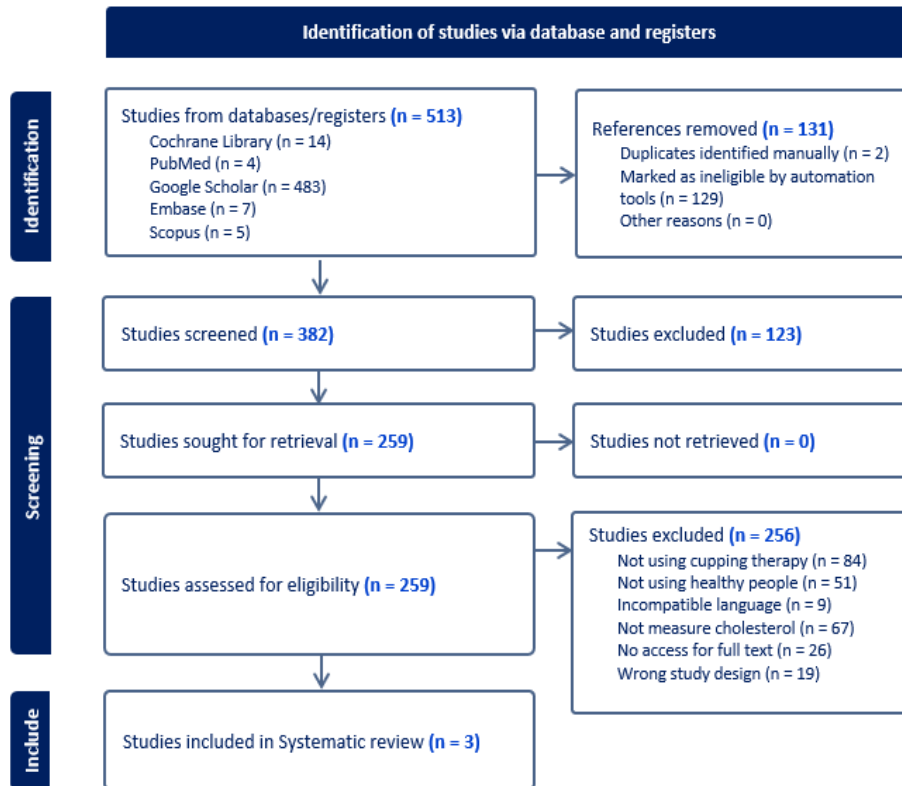


Figure 1: PRISMA Flow Diagram

2.6 Data Extraction and Analysis

A summary of the studies included in this review can be seen in Table 2. Data extracted from the selected studies were author, year, country, sample size, age, type of control, Number and location of cupping treatments, Treatment Sessions, Side Effects, Assessment Period, cholesterol concentration, LDL concentration, HDL concentration, and TG concentration. Meta-analysis was performed using RevMan version 5.4.

2.7 Risk of Bias in Individual Studies (Qualitative Synthesis)

The quality of the selected studies was assessed using the Risk of Bias for Randomized Trials (RoB2). RoB 2 consists of five domains and 28 questions that must be assessed. These questions refer to the randomization process, intervention, outcome data, and reported outcomes. The choices made are yes, maybe yes, maybe no, no, and not included, which, if added up, can be seen whether the researcher tends towards practicality, tends towards comparison, moves away from uncertainty, tends towards the unpredictable, and chooses no answer. Quality assessments were analyzed by three independent reviewers (AP, AA, KD). Scores are presented based on the RoB 2 algorithm and Robins, such as low risk, some concerns, and high risk. The bias assessment results showed that the two journals we used had several concerns. An indication of study quality is shown in (Figure 2).

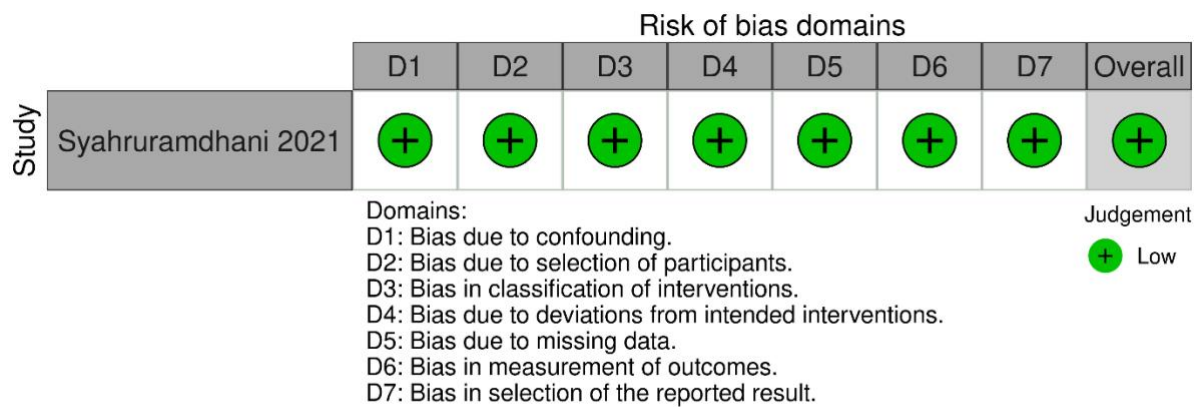
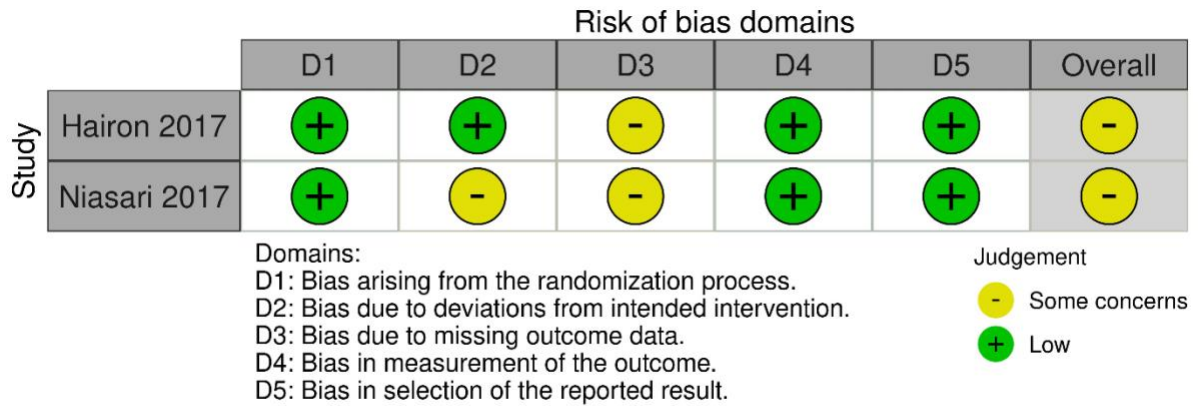


Figure 2: Risk assessment rob.2 and robins

2.9 Quantitative Data Synthesis (Meta-Analysis)

Review Manager 5.4.1. (The Nordic Cochrane Center, The Cochrane Collaboration, Copenhagen) was used for quantitative analysis of the data obtained. Mean differences (MD) and Standard Deviations (SD) for the intervention and control groups were extracted from previously included studies before and after treatment. The data used is continuous type. The statistical method used is inverse variance. Furthermore, the analysis model used is the fixed effect model (FEM) if the level of heterogeneity (I2) is < 50% and the random effect model (REM) if the level of heterogeneity (I2) is ≥ 50%. MD and SD for changes from baseline using cupping therapy for healthy individuals were assessed as primary outcomes guiding statistical analysis, as indicated by significant effects on LDL, HDL, and TG concentrations. Standardized mean differences (SMD) with study confidence intervals and a total is 95% (CI) were used to measure effects.

3. Results and Discussion

3.1 Screening Results and Study Characteristics

From all the inclusion articles we included, the number of participants reached 109 individuals who were divided into two groups: the intervention group, consisting of 54 participants, and the control group, which had 55 participants. The two studies came from Malaysia and Iran. The conclusions from each inclusion article can be seen in the extraction table in (attachment 2).

3.2 The Effect of Cupping on Cholesterol Levels Based on Type

A study (Sutriyono, 2019) states that cupping therapy has been proven to prevent cardiovascular disease (Rosyanti et al., 2020). This research shows that although cupping does not significantly reduce total cholesterol levels, it significantly reduces LDL levels and increases blood cholesterol levels HDL. So this can also reduce the risk of stroke (Wang et al., 2022). Significant meta-analysis results in the intervention group were obtained (Pooled MD = -16.20, 95% CI (-16.20,-0.85), p=0.03, I² = 0%) (Figure 3).

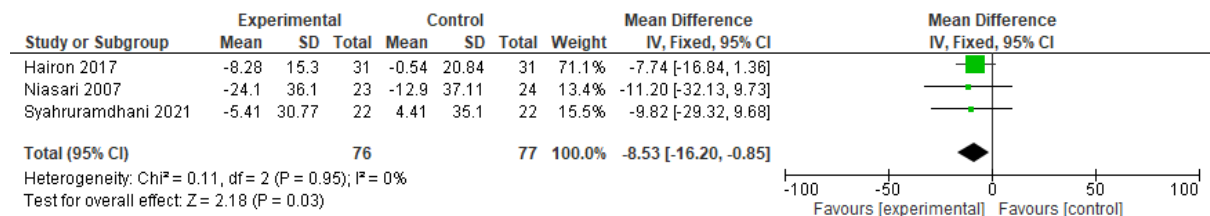


Figure 3: Meta-analysis for total cholesterol outcomes

In this review, we divided the meta-analysis into three subgroups to see more specific results regarding the data in the included articles. We have categorized the results of this meta-analysis based on the type of cholesterol component, namely Low-Density Lipoprotein (LDL), High-Density Lipoprotein (HDL), and Triglyceride (TG).

Cupping therapy is a method involving the removal of impure blood from the body through the skin's surface. This process is carried out by applying cupping therapy to specific meridian points, particularly on the right meridian points. This therapy significantly benefits reducing hypercholesterolemia, a condition characterized by elevated cholesterol levels in the blood. The administration of cupping therapy on the right meridian points has been proven to increase the number of leukocytes, lymphocytes, and the reticuloendothelial system. Additionally, this therapy stimulates the release of various substances such as ACTH, cortisol, endorphins, enkephalins, and other humoral factors. The effects of these releases include anti-inflammatory effects and reduction of serum fats, triglycerides, and phospholipids, especially LDL cholesterol. Furthermore, cupping therapy also stimulates the lipolysis of fat tissues and normalizes blood glucose levels. Thus, cupping therapy provides a holistic approach to addressing health issues related to cholesterol and fat metabolism. (Wibowo, et al. 2023)

3.3 The Effect of Cupping on Low-Density Lipoprotein (LDL) Levels

In the first subgroup, we assessed the effectiveness of wet cupping therapy in reducing low-density lipoprotein (LDL) levels. Significant meta-analysis results in the intervention group were obtained (Pooled MD = -17.48, 95% CI (-30.67, -4.30), p=0.009, I² = 0%). LDL levels need to be lowered because they can increase the risk of coronary heart disease, stroke, and diseases related to blood vessels (Figure 4) (Ayudia & Imran, 2023).

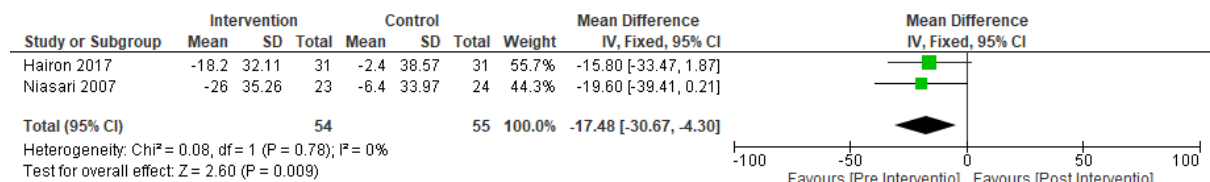


Figure 4: Meta-analysis of the effectiveness of cupping therapy in reducing LDL levels

Low-density lipoprotein (LDL) contributes to forming atherosclerotic plaques that block blood flow to vital organs, such as the heart and brain, which can ultimately cause a heart attack or stroke (KJ Kim et al., 2020). In addition, high LDL also stimulates arterial inflammation, which can worsen atherosclerosis and affect heart health in general. By lowering LDL levels, the risk of cardiovascular disease can be reduced, and overall heart health can be improved (Ayudia & Imran, 2023) (KJ Kim et al., 2020)

3.4 The Effect of Cupping on High-density Lipoprotein (HDL) Levels

In the second subgroup, we assessed the effectiveness of wet cupping therapy in increasing high-density lipoprotein (HDL) levels. We changed the position of the graph label for the outcome control on the left because a good outcome is an increase in HDL. Significant meta-analysis results in the intervention group were obtained (Pooled MD = 3.54, 95% CI (0.34,6.73), p=0.03, I² = 19%). HDL needs to be increased because HDL is a type of cholesterol that is often called good cholesterol (Figure 5) (Rampengan, 2015).

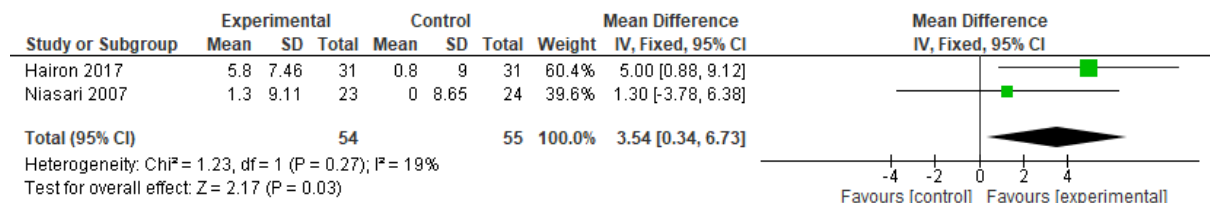


Figure 5: Meta-analysis of the effectiveness of cupping therapy in increasing HDL levels

Density Lipoprotein (HDL) helps transport excess cholesterol from the walls of the arteries and returns it to the liver to be excreted from the body (Rampengan, 2015). In other words, HDL helps clear cholesterol accumulated in the arteries, reduces atherosclerotic plaque formation, and improves blood flow. High HDL levels have been shown to protect against heart disease and stroke, so increasing HDL may reduce the risk of cardiovascular disease (Rampengan, 2015) (Kosmas et al., 2018)

3.5 The Effect of Cupping on Triglyceride (TG) Levels

We assessed wet cupping therapy's effectiveness in reducing triglyceride (TG) levels in the third subgroup. Insignificant meta-analysis results in the control group were obtained (Pooled MD = 3.58, 95% CI (-55.03,62.18), p=0.90, I² = 86%). However, the results of this forest plot cannot be concluded because the data is heterogeneous, and sensitivity analysis cannot be carried out because it will result in 1 article remaining being studied. This shows the need for other studies with homogeneous data to be able to conclude whether cupping can reduce TG levels to prevent cardiovascular disease. Triglycerides (TG) need to be reduced because high TG levels in the blood can increase the risk of cardiovascular disease, such as coronary heart disease (Figure 6) (Agung, 2021)

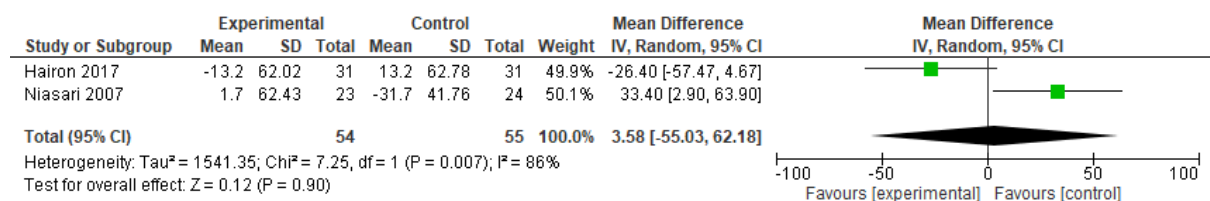


Figure 6: Meta-analysis of the effectiveness of cupping therapy in reducing triglyceride levels

Triglycerides are the main form of fat in the body, and the blood and high TG levels can lead to the formation of atherosclerotic plaque in the arteries. This plaque can narrow the arteries, restrict blood flow, and increase the risk of heart attack and stroke. In addition, high TG levels are also often associated with metabolic diseases, such as type 2 diabetes. By lowering TG levels, the risk of heart disease and health problems increases. Other related issues may be reduced (Aryani et al., 2023).

3.6 Implementation and Recommendations for Subsequent Implementation

Future implementation of cupping treatment offers enormous potential if it continues to be developed and implemented more widely. One of the main aspects that makes it stand out is the role of cupping as an effective alternative treatment for treating metabolic disorders in the body. According to the teachings of the Prophet, several essential points in the body are interconnected. When one point is cupped, it can provide a positive response that affects the other points. This concept became the basis for scientific developments in cupping treatment,

demonstrating the complex relationship between these points (Malik, 2015). Given the rich legacy of knowledge in cupping practice, further development and broader implementation may open up opportunities to provide health care to reduce Cholesterol, LDL, HDL, and Triglyceride levels and prevent the occurrence of Cardiovascular Diseases (CVDs). This development will allow cupping treatment to continue developing as a valuable alternative to maintaining health and overcoming various health problems.

3.7 Advantages and Limitations

Our study is the first meta-analysis study to discuss the effectiveness of cupping therapy to prevent increases in total cholesterol, LDL, and TG levels and increase HDL levels with significant results in reducing total cholesterol, LDL levels, and significantly increasing HDL concentration. In addition, this study uses RCT study references to obtain quality results. The limitations of this research are that the references used are very few, and the articles used have some bias concerns. It is hoped that several limitations of this research can serve as guidelines for future research.

4. Conclusion

A systematic review and meta-analysis indicate that cupping therapy positively affects cholesterol levels in healthy individuals. Although the results are significant, this research is limited in the number and quality of studies used. Therefore, further research with a high-quality Randomized Controlled Trial (RCT) design is needed to confirm these findings. In its application, cupping therapy has the potential to be an effective non-pharmacological intervention in managing cholesterol levels, especially in reducing total cholesterol, Low-Density Lipoprotein (LDL) levels, and increasing HDL concentration, and can be an alternative or addition to current pharmacological approaches in managing cholesterol.

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Conflict of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Not applicable.

References

- Aboushanab, Tamer S., & Saud AlSanad. (2018). 'Cupping Therapy: An Overview from a Modern Medicine Perspective.' *JAMS Journal of Acupuncture and Meridian Studies* 11(3): 83–87. <https://doi.org/10.1016/j.jams.2018.02.001>.
- Agung, Lovina Ramadhita. 2021. 'Influence of Bay Leaves (*Syzygium polyanthum*) Against Total Blood Triglyceride and Cholesterol Levels in Dyslipidemia Patients.' *Sandi Husada Health Scientific Journal* 10(2): 408–12.
- Aryani, Desi, Ninda Hanifah, and Ahmad Fitra Ritonga. 2023. 'The Relationship Between Triglyceride Levels and Hypertension in Coronary Heart Patients at Bhayangkara Tk Hospital. I R. Said Sukanto'. *Hutama Medica Journal* 04(02): 3359–65. <http://jurnalmedikahutama.com>.
- Ayudia, Putri, and Yudhisman Imran. 2023. 'Ldl Cholesterol Levels as a Predictor of Length of Treatment in Acute Ischemic Stroke Patients.' *Journal of Research and Scientific Work, Trisakti University Research Institute* 8(2): 310–20.
- Budi Sungkawa, Hendra. 2019. 'Reducing Total Cholesterol and Triglyceride Levels Using Cupping Techniques in Hypercholesterolemia Sufferers.' *Meditory: The Journal of Medical Laboratory* 7(1): 1–6.
- Hidayat Fahrul, Dkk. 2023. 'study of the correlation between diet and cholesterol levels in stroke patients.' 2: 31–41.
- Ibnu, Muhammad, Al-Dahhak, Al-Tirmiz, Sunan Tirmidz. *Juz IV*.

- Kim, Kyung Jin et al. 2020. 'Assessment of the Efficacy of Lowering LDL Cholesterol with Rosuvastatin 10 Mg in Four Korean Statin Benefit Groups as per ACC/AHA Guidelines (NewStaR4G)'. *Journal of Clinical Medicine* 9(4): 1–12.
- Kim, Seoyoun, et al. (2018). 'Is Cupping Therapy Effective in Patients with Neck Pain? A Systematic Review and Meta-Analysis'. *BMJ Open* 8(11): 1–13.
- Kosmas, Constantine E. et al. 2018. 'High-Density Lipoprotein (HDL) Functionality and Its Relevance to Atherosclerotic Cardiovascular Disease.' *Drugs in Context* 7: 1–9.
- Malik, M. (2015). 'The Relationship Between Science and Hijamah in the Perspective of the Hadith of the Prophet SAW.' *Tafsere* 3(1): 98–113.
- Muhammad Bin Isma'il Abu 'Abdullah Abu Al-Bukhari Al-Ja'fi, Sahih Al-Bukhari. *Dar Tauqi Al-Najah*.
- Rampengan, Starry H. 2015. 'INCREASING HDL CHOLESTEROL: A New Paradigm in the Prevention of Cardiovascular Disease.' *Biomedical Journal (BMJ)* 7(2): 89–98.
- Rosyanti, Lilin, Indriono Hadi, Askrening Askrening, and Maman Indrayana. 2020. 'Complementary Alternative Medicine: Combination of Cupping Therapy and Murotal Al-Quran on Changes in Blood Pressure, Glucose, Uric Acid, and Cholesterol.' *Health Information : Research Journal* 12(2): 173–92.
- Umayah. (2014). 'Living Hadits: The Cupping Phenomenon at the Eretan Indramayu Islamic Boarding School.' *Holistic* 15(02): 309–28.
- Wang, Jie et al. 2022. 'The Effect of Stimulation Position and Ear Canal Occlusion on Perception of Bone Conducted Sound.' *Trends in Hearing* 26.
- Wibowo, Thomas Ari et al. 2023 Cupping Therapy Reduce Total Cholesterol. *Jurnal Keperawatan Widya Gantari Indonesia Faculty of Nursing Faculty of Nursing Universitas Muhammadiyah Kalimantan Timur, Indonesia*1,2,3) Vol. 7 No. 2, Juli 2023

Attachment 1: Study Selection**Keyword:**

CENTRAL (Cochrane Library)

No	Search	Result
#1	MeSH descriptor: [Cupping Therapy] explode all trees	35
#2	Hijama therapy	13
#3	cupping	924
#4	#1 OR #2 OR #3	924
#5	Cholesterol OR Healthy OR Well-being OR Normal	309660
#6	Cardiovascular OR Cholesterol OR HDL OR LDL OR Triglycerides	160185
#7	#4 AND #5 AND #6	14

Total: 14

PubMed

No	Search	Result
#1	Cupping therapy [MeSH Terms]	92
#2	((healthy) OR (well-being)) OR (fitness)	10,029,118
#3	(((((cardiovascular) OR (cholesterol)) OR (HDL)) OR (LDL)) OR (CRP))	2,471,654
#4	#1 AND #2 AND #3	4

Total: 4

SCOPUS

TITLE-ABS-KEY (("Cupping Therapy" OR "Cupping") AND ("Healthy" OR "Well-being" OR "Fitness") AND ("Cardiovascular" OR "Cholesterol" OR "HDL" OR "LDL") AND ("Randomized" OR "Randomised"))

Total: 5

EMBASE

("Cupping Therapy" OR "Cupping") AND ("Healthy" OR "Well-being") AND ("Cardiovascular" OR "Cholesterol" OR "HDL" OR "LDL")

Total: 7

GOOGLE SCHOLAR

("Cupping Therapy" OR "Cupping") AND ("Healthy" OR "Well-being") AND ("Cardiovascular" OR "Cholesterol" OR "HDL" OR "LDL") AND ("Randomized" OR "Randomised") - Review -Systematic

Total: 483

Attachment 2: Data Extraction

Table 1. Data Extraction

Penulis, Tahun		Hairon et al., 2017	Niasari et al., 2007	Syahruramdhani et al., 2021
Country		Malaysia	Iran	Indonesia
Sample size, n (Trail/control)		62 (31/31)	47 (23/24)	44 (22/22)
Age (\pm SD) or Age Range	Trail	44.97 \pm 6.44	18 - 25	18-23
	Control	43.23 \pm 7.39	18 - 25	18-23
Type of Control		Untreated	Untreated	Untreated
Type of Cupping Therapy		Wet Cupping	Wet Cupping	Wet Cupping
Quantity (Cupping Location)		5 (in both scapulae, in both lumbar region and vertex region)	NI (interscapular area)	5 (across from T1-T3, two sites in mid-clavicular, and two sites in 3 cm from the vertebra)
Number of sessions of therapy		single session	single session	Single session
Adverse Event		-	-	-
Total cholesterol	Pre-Cupping	103.14 \pm 16.56	163 \pm 39.4	147.91 \pm 31.73
	Post-Cupping	94.86 \pm 13.68	138.9 \pm 31.5	142.50 \pm 29.71
	Pre-Placebo	104.4 \pm 21.6	147.3 \pm 39.2	154.45 \pm 39.46
	Post-Placebo	104.94 \pm 19.98	134.4 \pm 34.6	158.86 \pm 27.73
Triglyceride (Mean \pm SD)	Pre-Cupping	161.1 \pm 63.7*	116.2 \pm 57.2	N/A
	Post-Cupping	147.9 \pm 60.2*	117.9 \pm 66.6	N/A
	Pre-Placebo	141.7 \pm 58.4*	108.2 \pm 48.2	N/A
	Post-Placebo	154.9 \pm 66.4*	76.5 \pm 25.3	N/A
LDL-C (Mean \pm SD)	Pre-Cupping	136.5 \pm 33.2*	96.7 \pm 36.4	N/A
	Post-Cupping	118.3 \pm 30.9*	70.7 \pm 34	N/A

	Pre-Placebo	142.3 ± 42.5*	83.3 ± 35.8	N/A
	Post-Placebo	139.9 ± 32.8*	76.9 ± 31.8	N/A
HDL-C (Mean±SD)	Pre-Cupping	53.4 ± 6.6*	43.2 ± 9.4	N/A
	Post-Cupping	59.2 ± 8.1*	44.5 ± 8.8	N/A
	Pre-Placebo	53.7 ± 9.7*	42.4 ± 9.8	N/A
	Post-Placebo	54.5 ± 8.1*	42.4 ± 6.6	N/A
Results		The cupping group significantly improved Total Cholesterol, HDL-C, LDL-C, and triglycerides, while the control group showed no improvement.	Wet cupping may effectively reduce LDL cholesterol in men, potentially offering a preventive effect against atherosclerosis.	In the intervention group's post-test, the mean SBP and DBP were substantially different from the pretest (p = 0.01 and 0.03). Although there was no statistically significant difference in TC outcome, overall cholesterol decreased following an intervention.

NI = No Information

N/A = No Administered

* = After conversion to mg/dL