

Practices of Al-Hijama Practitioners at Cupping Community Centers in Qatar

Abstract

Background: Cupping therapy (CT) is an alternative healing method widely practiced in Asian and Middle Eastern cultures. **Materials and Methods:** An analytical cross-sectional study was conducted among 120 Al-Hijama practitioners working at five cupping community centers in Qatar. Data were collected using a self-administered questionnaire covering sociodemographic characteristics and safety practices. Statistical analysis was performed using SPSS software, applying Chi-square, independent *t*-test, and ANOVA tests, with statistical significance set at $P \leq 0.05$. **Results:** Approximately half of the practitioners demonstrated nonadherence to established safety guidelines. Critical safety practices, including hand hygiene, equipment sterilization, use of disposable lancets, and documentation, were frequently neglected. No statistically significant associations were found between practitioners' demographic characteristics and adherence to safety practices. **Conclusions:** The study revealed significant gaps in cupping therapy safety practices among practitioners in Qatar. Although adherence was observed in certain areas, the findings emphasize the need for regular training programs and standardization of safety protocols to improve practice quality and patient safety.

Keywords: Cupping therapy, hand hygiene, infection control

Introduction

Cupping therapy, particularly wet cupping (Al-Hijama), represents one of the oldest therapeutic practices in human history, with widespread acceptance across diverse cultural and religious communities, especially in Asian and Middle Eastern regions. Despite the global popularity of this ancient practice, it is crucial to adhere to stringent safety protocols. We must weigh the therapeutic benefits of cupping against potentially life-threatening risks when we neglect proper infection control measures.^[1]

The necessity for rigorous safety standards in cupping therapy stems from its invasive nature, particularly in wet cupping procedures where skin penetration creates direct pathways for pathogen transmission.^[2] By adhering to rigorous infection control measures and considering individual patient factors, cupping therapy can emerge as a valuable and safe therapeutic modality for addressing various health disorders and fostering the overall wellbeing of patients. However, the absence of standardized safety protocols and inadequate practitioner

training pose significant public health challenges that demand immediate attention.^[3]

Cupping has both a cultural and religious context, which explains its wide use, practice, and acceptance in Arab and Muslim countries. Several clinical studies suggest that cupping may be beneficial in managing pain-related conditions such as herpes zoster, facial paralysis, and acne.^[4]

In Qatar, the combination of traditional medicine and modern healthcare is becoming more popular. The Primary Health Care Corporation (PHCC) has started offering cupping (Hijama) therapy as a pilot program at the Umm Slal Health Center. This development illustrates the importance of comprehensive safety assessments and standardized protocols. The Gulf region's unique position as a cultural bridge between traditional practices and modern healthcare standards necessitates evidence-based approaches to ensure patient safety while respecting cultural preferences.^[5]

A substantial body of international research has documented alarming evidence linking cupping practices to bloodborne pathogen

Mohammed H. A. Ali¹,
Ekram M. A. Khalek²,
Asmaa K. Hassan³,
Safaa A. M. Kotb³

¹Department of Community Health Nursing, Faculty of Nursing, Assiut University, Assiut, Egypt, Corporate Quality and Patient Safety, Doha, Qatar; ²Department of Public Health and Community Medicine, Faculty of Medicine, Assiut University, Assiut, Egypt, ³Department of Community Health Nursing, Faculty of Nursing, Assiut University, Assiut, Egypt

Address for correspondence:

Mohammed H. A. Ali,
Department of Community Health Nursing, Faculty of Nursing, Assiut University, Doha, Qatar.
E-mail: mali51@hamad.qa

Access this article online

Website: <https://journals.iwwo.com/jnmr>

DOI: 10.4103/ijnmr.ijnmr_215_25

Quick Response Code:



How to cite this article: Ali MH, Khalek EM, Hassan AK, Kotb SA. Practices of Al-Hijama practitioners at cupping community centers in Qatar. Iran J Nurs Midwifery Res 2026;31:663-9.

Submitted: 29-May-2025. **Revised:** 14-Jan-2026.

Accepted: 05-Feb-2026. **Published:** 16-Jul-2026.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 License (CC BY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

transmission. A growing body of evidence suggests that the practice of Hijama carries a significant risk of bloodborne infections, including HIV, hepatitis B, and hepatitis C infections, establishing cupping as a definitive risk factor for hepatitis C transmission in multiple studies.^[1,2]

The epidemiological evidence from Saudi Arabia, a country where Hijama is routinely practiced, revealed that cupping was the mode of transmission in a substantial proportion of hepatitis C cases. Inadequate sterilization of equipment can lead to transmission through practices such as ear and body piercing, circumcision, tattooing, and cupping (Hijama). Similarly, growing evidence has implicated Hijama in HIV and hepatitis B transmission, creating a public health crisis in regions where safety protocols are inadequately implemented.^[3]

A community health nurse with specific licensing in cupping therapy plays a vital role in providing services, ensuring patient safety, and adhering to infection control measures. A licensed community health nurse is responsible for assessing patients before the procedure, identifying any contraindications, and ensuring suitability for cupping therapy. Additionally, the community health nurse plays a critical role in infection prevention and control by implementing proper hygiene practices, sterilizing equipment, and ensuring the safe disposal of used materials to minimize the risk of cross-contamination. By strictly following professional and regulatory standards, the community health nurse enhances patient safety and quality of care. Moreover, the community health nurse provides health education to patients on post-cupping care, possible side effects, and lifestyle modifications. When necessary, the community health nurse also facilitates referrals to specialized healthcare providers for further evaluation or management, ensuring a comprehensive and holistic approach to patient care in cupping therapy.^[3]

It is best to use disposable cups, surgical blades, and vacuum pumps whenever possible because they are less likely to get contaminated than when they are reused and cleaned.^[4] Cupping therapy adverse events were common but infrequently reported. Scar formation, hyperpigmentation, skin infection, dermatitis bullae, burns, and anemias were reported.^[5] Following infection control measures and providing good training to cupping practitioners can prevent most cupping adverse events. Cupping safety measures are essential not only for patients who visit cupping centers and clinics but also for the nurses and practitioners who perform the procedure.^[6] Cupping requires detailed safety measures for infection control that are vital for preventing infections from cupping therapy. Hand washing and wearing the appropriate protective equipment (gloves, mask, protective eyewear, and gown) are essential in preventing the spread of infection. Disinfecting beds or chairs used during treatment ensures a sterile environment.^[7,8] This study aimed to assess the actual practices of Al-Hijama practitioners in community

cupping centers across Qatar, with a specific focus on compliance with safety and infection control guidelines.

Materials and Methods

This analytical cross-sectional study was performed from December 2022 to May 2023 in the State of Qatar, a peninsula in the Arabian Gulf, encompassing approximately 11,600 square kilometers and a population of over 2.9 million throughout the study period. During the study, there existed 10 approved cupping therapy (Al-Hijama) centers regulated by the Ministry of Public Health (MOPH), which managed licensing to guarantee safe and evidence-based practices. A purposive sampling technique was utilized to choose centers that satisfied established operational requirements, guaranteeing stability, accessibility, and an adequate amount of practitioners for comprehensive data collection. This method selected centers with the greatest number of practitioners to enhance the representativeness of active practice environments while ensuring practicality. The inclusion requirements for centers comprised full licensure by the MOPH, operational capability for cupping therapy, established regular working hours from 06:00 to 18:00, a minimum of 12 months of uninterrupted operation, and the administration's readiness to participate and enable access. The exclusion criteria included centers that were still undergoing the licensing process or not fully functioning; those with inconsistent schedules, temporary closures, or restricted hours; centers that declined to participate; and those with significantly fewer practitioners, prioritizing resources for higher-volume settings. Five centers fulfilled all inclusion criteria and were selected due to having the highest number of practitioners; the other centers were rejected mainly because of fewer practitioners, continuing licensing issues, or operational abnormalities. The study population consisted of all Al-Hijama practitioners ($n = 120$) operating during regular hours (06:00–18:00) at the five designated centers. Practitioners were included provided they were actively practicing during the data collection period and attended scheduled appointments, with no further exclusion criteria beyond availability. A census sample technique was employed to achieve comprehensive coverage of the available practitioner population within the designated centers. The sample size was determined through power analysis using $z_1 = 1.96$ (for $\alpha = 0.05$), $z_2 = 0.84$ (for power = 0.80), and $r = 0.30$ (anticipated correlation coefficient, such as between adherence scores and years of experience), yielding a minimum requisite $n = 85$. However, due to the small and fully accessible total population, a census approach was utilized to encompass all 120 practitioners. Collaboration with central administrators and the arrangement of numerous scheduled visits facilitated shift patterns and guaranteed the inclusion of all qualified practitioners, achieving a 100% response rate.

Data were gathered utilizing a researcher-created semi-structured questionnaire conducted via direct

face-to-face personal interviews to improve accuracy, facilitate response explanation, and reduce missing data. The questionnaire comprised two sections: The first gathered sociodemographic information, including age, gender, marital status, job category, educational attainment, years of experience in cupping therapy, and other pertinent personal and professional details; the second evaluated practitioners' self-reported compliance with essential infection control practices through an 18-item scale. The adherence scale items were systematically created through a directed content analysis method, extracting predefined categories from recognized international and national infection prevention guidelines (e.g., hand hygiene, equipment sterilization, use of disposable materials, personal protective equipment, and standard precautions).^[7] Items were evaluated using a 5-point Likert scale: never (1), rarely (2), sometimes (3), frequently (4), and very often (5), with cumulative values spanning from 18 to 90. Scores were categorized into adherence (≥ 54) and nonadherence (< 54), with the cutoff denoting 60% of the maximum score—a threshold frequently employed in parallel adherence studies to signify adequate practice levels. A pilot research was performed on 10% of the sample (12 practitioners); no alterations to the tool were required, so pilot participants were incorporated into the final analysis. Content validity was determined by five specialists from the Community Health Nursing Department at Assiut University, resulting in a Content Validity Index (CVI) of 0.89. Reliability tests demonstrated substantial internal consistency (overall Cronbach's $\alpha = 0.88$; domain-specific alphas ranging from 0.71 to 0.82). The test-retest reliability over a 2-week period was outstanding (Pearson correlation coefficient = 0.87, $p < 0.001$; intraclass correlation coefficient = 0.85, 95% CI: 0.78–0.91). To reduce the potential social desirability bias linked to self-reported data in face-to-face interviews, sessions were held in quiet environments, anonymity was guaranteed, and participants were informed that their responses would not influence their employment or licensure status.

Data were analyzed using IBM Corp. (2022). IBM SPSS Statistics for Windows (Version 29.0) Computer software. Both descriptive and inferential statistical methods were employed to examine the data. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarize participants' sociodemographic characteristics and practice adherence scores.

To assess the level of adherence to cupping safety practices, an 18-item adherence questionnaire was utilized. Each item was rated on a 5-point Likert scale ranging from 1 (never) to 5 (very often), yielding a total possible score ranging from 18 to 90. The adherence score was further categorized into two groups: adherent (score ≥ 54) and nonadherent (score < 54).

Inferential statistics were applied to test associations between sociodemographic variables and adherence levels

using Pearson's Chi-square test for categorical variables and one-way ANOVA for continuous variables, depending on data distribution and measurement levels. A p -value of ≤ 0.05 was considered statistically significant. The adherence questionnaire demonstrated acceptable levels of validity and reliability and focused on core infection control practices, including hand hygiene, equipment sterilization, and standard precaution compliance.

Ethical considerations

Ethical approval for the study was obtained from the Ethical Committee of the Faculty of Nursing, Assiut University EG.AU. RESEARCH.REC. 4470025 on 21/09/2022, and the Corporate Quality Improvement and Patient Safety Research Assurance Committee at Hamad Medical Corporation, Qatar.QPS. RESEARCH.REC 4470025-1120230578. Additionally, official permissions were secured from the Dean of the Faculty of Nursing, Assiut University, and the directors of the selected cupping centers in Qatar.

Participation was voluntary, and written informed consent was obtained from all participants. Ethical principles were strictly followed, including ensuring participants' rights to withdraw from the study at any time without any consequences. Confidentiality and anonymity were maintained throughout data collection, and privacy was ensured during the administration of the questionnaire. The study was designed to pose no risk to the participants.

Results

Table 1 presents the sociodemographic and professional characteristics of the 120 Al-Hijama practitioners who were included in the study. The mean (SD) age was 34.94 (7.29) years indicating moderate variability around the average age. Male practitioners dominated the field (72.50%) compared to their female counterparts (27.50%). The majority were married (90.80%), and physicians constituted the largest professional group (63.30%), followed by nurses (18.30%) and trained licensed practitioners (18.30%). Educational attainment was universally high, with all practitioners having completed college- or university-level education. A total of (60.80%) had 10 or more years of professional experience, with a mean (SD) duration of experience was 10.00 (3.95) years.

Table 2 presents adherence levels to key cupping safety measures. Nonadherence was defined as reporting "Never" or "Rarely." Overall, (50.80%) of practitioners were nonadherent to the guideline threshold, indicating a pervasive gap in safety practice. The most critical shortfalls were observed in documentation of cupping sites (86.40% nonadherence), use of single-use disposable lancets (78.20%), and hand hygiene before patient contact (77.80%). Substantial deficits also appeared in bed/bed-surface sterilization (70.40%) and routine use of personal protective equipment (PPE) (67.80%). By contrast,

Table 1: Personal characteristics of Hijama practitioners at community cupping centers in Qatar, 2023

	<i>*n (%)</i>
Age (years)	
25–35	58 (48.30)
36–45	62 (51.70)
Mean (SD)	34.94 (7.29)
Range	25–50
Sex	
Male	87 (72.50)
Female	33 (27.50)
Marital status	
Single	11 (9.20)
Married	109 (90.80)
Specialty	
Nursing	22 (18.30)
Physician	76 (63.30)
Trained licensed Practitioner**	22 (18.30)
Education	
College/university	120 (100)
Years of experience (years)	
5–10	47 (39.20)
11–15	73 (60.80)
Mean (SD)	10.04 (3.95)
Range	5–16

Values are **n* (percentage); ** Trained licensed Practitioner: defined as (e.g., non-physician, non-nurse certified to perform cupping therapy under national regulations)

post-procedure patient monitoring showed comparatively better adherence (15% “frequent” and 11.30% “very often”), although most responses still fell below the optimal practice level, reflecting an overall protocol adherence gap in which 50.80% of practitioners were nonadherent compared to 49.20% who met the practice guidelines.

Table 3 presents no statistically significant relationships between personal characteristics and adherence to cupping guidelines among the 120 practitioners. Age, gender, marital status, specialty, and years of experience showed no statistically significant impact on adherence. Although physicians and nurses demonstrated numerically higher adherence rates than trained licensed practitioners, the differences were not found to be statistically significant. Overall, adherence was not influenced by demographic factors.

Discussion

This study indicates that, despite a mostly experienced and well-educated staff, there are significant deviations from essential safety standards among licensed Al-Hijama practitioners. The most significant deficiencies were observed in the documenting of cupping areas, the consistent utilization of single-use disposable lancets, and hand cleanliness, alongside further inadequacies in bed/bed-surface sterilization and PPE usage; in total, 50% of practitioners were deemed noncompliant. These

Table 2: Adherence to practice guideline items among Hijama practitioners, Qatar, 2023

Practice item	Nonadherent** <i>n* (%)</i>	Adherent*** <i>n (%)</i>
Environmental cleaning and disinfection		
I sterilized the cupping bed after each session.	85 (70.80)	35 (29.20)
I mopped the spill area using a chlorine solution.	89 (74.20)	31 (25.80)
Hand hygiene (7 steps)		
I washed my hands before handling each patient.	93 (77.50)	27 (22.50)
I washed my hands after handling each patient.	87 (72.50)	33 (27.50)
I washed my hands after exposure to blood or body fluids.	78 (65.00)	42 (35.00)
I washed my hands after removing gloves.	85 (70.80)	35 (29.20)
I wore a face mask during treatment.	81 (67.50)	39 (32.50)
Aseptic/sharps and procedure conduct		
I used a disposable lancet to prick the skin.	94 (78.40)	26 (21.60)
I cleansed the skin with 70% alcohol before scarification.	79 (65.80)	41 (34.20)
I applied each cup for no more than 15 minutes.	78 (65.00)	42 (35.00)
Monitoring and post-procedure advice		
I monitored the patient after the procedure to prevent excessive bleeding.	75 (62.50)	45 (37.50)
I advised the patient to refrain from work for up to 12 hours post-procedure.	83 (69.20)	37 (30.80)
Documentation		
I recorded the number of cups used.	86 (71.60)	34 (28.40)
I recorded the location of cups.	104 (86.60)	16 (13.40)
I recorded the estimated blood volume released.	92 (76.60)	28 (23.40)
I recorded any complications.	88 (73.40)	32 (26.60)

*Values are *n* (percentage); **Nonadherence: defined as “Never” + “Rarely.” Denominator per item: *n*=120. Where shown, 95% Confidence Intervals (CIs) are binomial (score <54); ***Adherent (score ≥54)

Table 3: The relationship between personal characteristics of participants and adherence guidelines, 2023

Personal characteristics	Not adherent* (n=59)		Adherent* (n=61)		p
	No.	%	No.	%	
Age: (years)					
25: 35	29	50.0	29	50.0	0.860**
36:45	30	48.4	32	51.6	
Sex:					
Male	42	48.3	45	51.7	0.751**
Female	17	51.5	16	48.5	
Marital status					
Single	4	36.4	7	63.6	0.373***
Married	55	50.5	54	49.5	
Specialty:					
Nursing	10	45.5	12	54.5	0.323**
Physician	35	46.1	41	53.9	
Trained licensed practitioner	14	63.6	8	36.4	
Years of experience:					
5:10	22	46.8	25	53.2	0.678**
11:15	37	50.7	36	49.3	

*Adherence categories (Not adherent/Adherent), **Chi-square test of independence, ***Fisher's exact test, Statistical significance was set at $p < 0.05$

deficiencies have significant consequences for infection prevention, traceability, and continuity of care, highlighting vulnerabilities in systems, workflows, and oversight rather than deficiencies of individual practitioners. Importantly, adherence was not correlated with age, gender, marital status, occupation, or years of experience. The absence of demographic gradients reinforces the notion that the issue is systemic; thus, targeted remediation based on practitioner profiles is improbable to achieve effectiveness.

The sociodemographic profile of practitioners in this study reflects the structured integration of cupping therapy within the Qatari healthcare context. The predominance of male practitioners and the high proportion of physicians are consistent with reports indicating that cupping therapy in Qatar has increasingly shifted from informal traditional settings to regulated clinical environments under the supervision of the Ministry of Public Health.^[5,7] Similar professional compositions were reported among physicians practicing cupping therapy in Saudi Arabia and the UAE, where medical doctors constitute a major provider group.^[9,10] The relatively young mean age and substantial years of experience observed in the present study suggest a stable workforce with prolonged exposure to clinical practice, which would theoretically support better adherence to safety standards. However, the findings indicate that experience alone does not guarantee compliance.

A major concern highlighted by this study is the high level of nonadherence to essential infection prevention and control measures. More than half of the practitioners failed to meet the guideline threshold, with critical deficiencies noted in documentation of cupping sites, hand hygiene, use of single-use disposable lancets, PPE utilization, and surface sterilization. These findings are in clear contrast with the

World Health Organization's minimum requirements for infection prevention and control, which emphasize hand hygiene, proper documentation, use of disposable sharp instruments, and environmental cleaning as non-negotiable components of safe practice.^[1] The observed nonadherence may increase the risk of blood-borne infections and cross-contamination, particularly given the invasive nature of wet cupping.

The poor adherence to hand hygiene and PPE use aligns with previous studies reporting inconsistent infection-control practices among traditional and complementary medicine practitioners.^[8,11,12] In Korea, Kim *et al.*^[11] found variability in cupping hygiene practices among Korean medicine doctors, with some deviations from recommended sterilization procedures. Similarly, Nur Ain and Zairina reported gaps in adherence to standardized cupping protocols among traditional medicine practitioners, highlighting the global challenge of enforcing uniform safety standards in complementary therapies.^[8] These findings collectively support the current study's results and suggest that safety lapses are not unique to Qatar but represent a broader issue in cupping practice.

In contrast, the present findings disagree with studies demonstrating improved compliance following structured education and training programs. Osman *et al.* and Liu *et al.*^[2,12] reported significant improvements in infection-control practices among healthcare providers after targeted educational interventions. More specifically, a recent intervention study conducted in Qatar showed that educational training programs significantly enhanced Al-Hijama practitioners' knowledge and adherence to safety measures.^[13] The discrepancy between those findings and the current results suggests that continuous training

and monitoring, rather than one-time educational exposure, may be required to sustain compliance in routine practice.

Interestingly, no statistically significant associations were found between adherence levels and practitioners' age, gender, profession, or years of experience. This finding agrees with previous research indicating that demographic characteristics alone are poor predictors of safe practice behaviors.^[8,14] Braun *et al.*^[14] emphasized that adherence to infection-prevention measures is more strongly influenced by organizational safety culture and system-level enforcement than by individual characteristics. The absence of significant differences between physicians, nurses, and trained licensed practitioners in the current study further supports this view, despite physicians and nurses demonstrating numerically higher adherence.

From a broader perspective, the findings raise concerns about the gap between the growing evidence base supporting the clinical benefits of cupping therapy and the insufficient implementation of standardized safety measures. While several clinical trials and reviews have demonstrated the effectiveness of cupping therapy for various conditions, including pain and dermatological disorders,^[3,4,6,15] inadequate infection-control practices may undermine these benefits and expose patients to preventable harm. This tension has also been highlighted in discussions about the challenges of incorporating cupping therapy into formal clinical practice guidelines.^[16-19]

In the context of Qatar, where cupping therapy has progressed toward official regulation and integration within the healthcare system,^[5] the current findings underscore the need for stronger regulatory oversight, standardized documentation systems, and routine audits.^[20,21] Aligning cupping practices with national health priorities and patient safety frameworks, as outlined in the Qatar Health Report, is essential to ensure safe and effective service delivery.^[7,22,23]

Despite notable strengths including total-population sampling across five cupping centers and the use of a validated adherence instrument, this study has limitations. Its cross-sectional design precludes causal inference and does not capture temporal variation, and reliance on self-reported data introduces potential recall and social-desirability biases. The relatively small sample and limited geographic scope may further constrain external validity.

To address these constraints, future research should employ longitudinal or panel designs or repeated cross-sectional surveys across seasons to characterize temporal trends and within-center change. Sampling should follow a stratified, multistage cluster approach that deliberately includes small and informal centers to reduce selection bias and enhance generalizability.

Conclusion

The findings indicate suboptimal adherence to essential

safety practices among licensed Al-Hijama practitioners in Qatar, particularly in hand hygiene, equipment sterilization, and clinical documentation, suggesting a measurable gap between practice scores and actual behaviors. Although this study provides preliminary evidence for the need to prioritize structured, training-centered approaches to improve adherence, the cross-sectional, self-reported design limits causal inference and may introduce recall or social-desirability bias. Future research should address these limitations by employing longitudinal or repeated cross-sectional designs across seasons, recruiting larger and more diverse samples that include smaller and informal centers through stratified, multistage sampling, and adopting mixed-method approaches that triangulate questionnaires with direct observation and record/audit review.

Acknowledgments

The authors thank the Al-Hijama practitioners, center administrators, and experts from the Community Health Nursing Department at Assiut University for their contributions. Ethical approval was obtained from the Ethical Committee of the Faculty of Nursing, Assiut University (EG.AU.RESEARCH.REC.4470025, 21/09/2022) and the Corporate Quality Improvement and Patient Safety Research Assurance Committee at Hamad Medical Corporation, Qatar (QPS.RESEARCH.REC.4470025-1120230578). Official permissions were secured from the Dean of the Faculty of Nursing, Assiut University, and directors of the selected cupping centers in Qatar.

Financial support and sponsorship

Nil.

Conflicting interest

Nothing to declare.

References

1. World Health Organization. Minimum Requirements for Infection Prevention and Control. Geneva: World Health Organization; 2019. Available from: <https://apps.who.int/iris/handle/10665/330080>. [Last accessed on 2025 Jul 16].
2. Osman FK, El Banna HM, Sharaf AY, Mohammed YF. The effects of educational interventions on nurses' knowledge and practices in haemodialysis unit regarding infection control practices. *Egypt J Hosp Med* 2021;84:1739-48. Available from: https://ejhm.journals.ekb.eg/article_182182.html. [Last accessed on 2025 Aug 31].
3. Al-Bedah AM, Elsubai IS, Qureshi NA, Aboushanab TS, Ali GI, El-Olemy AT, *et al.* The medical perspective of cupping therapy: Effects and mechanisms of action. *J Tradit Complement Med* 2019;9:90-7.
4. Tabatabaei F, Pasalar M, Tajadini H, Kamali M, Rampp T. Effectiveness of wet cupping on patients with facial acne vulgaris: A 12-week, randomized, single-blind, intervention-sham-controlled trial. *Complement Med Res* 2021;28:508-15.
5. AlMusleh Z, Aboushanab T. From regulation to official integration: The progress of cupping therapy in Qatar. *Integr*

- Med Discov 2023;7:e23035.
6. Choi TY, Ang L, Ku B, Jun JH, Lee MS. Evidence maps of cupping therapy. *J Clin Med* 2021;10:1750.
7. Ministry of Public Health Qatar. Qatar health report 2022 [Internet]. Doha: MOPH; 2022 (cited 2025 Aug 31). Available from: <https://www.moph.gov.qa/english/resources/reports/Pages/Qatar-Health-Report.aspx>.
8. Nur Ain N, Zairina E. Development and validation of cupping therapy adherence questionnaire among traditional medicine practitioners. *Complement Ther Med*. 2020;52:102474. doi: 10.1016/j.ctim. 2020.102474.
9. Aljawarneh Y, Rajab L, Alzeyoudi A, Alzeyoudi A, Ibrahim A, Alnaqbi N, *et al.* Knowledge, attitude, and practice toward complementary alternative medicine in the UAE: A cross-sectional study. *Eur J Integr Med* 2023;64:102310.
10. Al Zaabi M, Al Zuraiqi E, Al Dhanhani J, Al Yammahi M, Al Teniji M, Darwish E, *et al.* Knowledge and practice and attitude toward cupping therapy among physicians in Sheikh Khalifa Medical City. *J Family Med Prim Care* 2023;12:979-85.
11. Kim JY, Kim JH, Lim HS. An analysis of cupping therapy practices among Korean medicine doctors: a survey study. *BMC Complement Med Ther*. 2020; 20:224. doi: 10.1186/s12906-020-02979-8.
12. Liu J, Geng J, Wu J. Effectiveness of hygiene training among practitioners of traditional Chinese medicine. *Int J Hyg Environ Health*. 2021;235:113754. doi: 10.1016/j.ijheh. 2021.113754.
13. Ali MH, Khalek EM, Hassan AK, Kotb SA. Effectiveness of an educational training program on knowledge and practices regarding safety measures among Al Hijama practitioners in Qatar cupping community centers. *Assiut Sci Nurs J* 2025;13:349-59.
14. Braun BI, Chitavi SO, Suzuki H, Soyemi CA, Puig-Asensio M. Culture of safety: Impact on improvement in infection prevention process and outcomes. *Curr Infect Dis Rep* 2020;22:34.
15. De Castro Moura C, Chaves ED, Nogueira DA, Iunes DH, Corrêa HP, Pereira GA, *et al.* Effects of ear acupuncture combined with cupping therapy on severity and threshold of chronic back pain and physical disability: A randomized clinical trial. *J Tradit Complement Med* 2022;12:152-61.
16. Shin S, Park S. Current status and challenges of the evidence for cupping therapy in clinical practice guidelines in Korea. *Perspect Integr Med* 2024;3:74-85.
17. Almansour A, Alyami D, Alrashah A, Alyami MH, Al Hutaylah H, Masoud MA, *et al.* Knowledge and attitude towards complementary and alternative medicine in Najran city. *J Ecohumanism*. 2024;3:6284–94. doi: 10.46827/ejes.v3i1.6284.
18. Mushtaq A, Nini D, Zulfiqar B. Insight of Al Hijamah therapy among allopathic doctors of Karachi, Pakistan. *Eur J Theor Appl Sci* 2024;2:101-11.
19. Park JW, Song Y, Keum DH, Park SH. Survey of Korean Medicine Doctors' practices in treating shoulder pain: A cross-sectional study. *Healthcare (Basel)* 2025;13:1482.
20. Agency for Healthcare Research and Quality. Research findings and reports (Internet). Rockville (MD): AHRQ; (cited 2025 Aug 31). Available from: <https://www.ahrq.gov/research/findings/index.html>.
21. Aljohani SL. Knowledge attitude and practice of cupping hijamah therapy among patients visiting primary health centers in Tabuk city. *Rev Iberoam Psicol Ejerc Deporte* 2025;20:375-9.
22. Al-Yousef HM, Wajid S, Sales I. Knowledge, attitudes, and perceptions of cupping therapy (CT) in Saudi Arabia: A cross-sectional survey among the Saudi population. *Biomed Res (Aligarh)* 2018;29:3351-5.
23. Centers for Disease Control and Prevention. Radiation dose glossary (Internet). Atlanta (GA): CDC; (cited 2024 Jul 16). Available from: <https://www.cdc.gov/nceh/radiation/dose.html>.