Assiut Scientific Nursing Journal
http://asnj.journals.ekb.eg http://www.arabimpactfactor.com
DOI:10.21608/asnj.2025.388472.2098 http://olddrji.lbp.world/indexedJournals.aspx
https://vlibrary.emro.who.int/journals/assiut-scientific-nursing-journal

Effectiveness of an Educational Training Program on Knowledge and Practices Regarding Safety Measures among Al-Hijama Practitioners in Qatar Cupping Community Centers

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Abstract:
Background: Al-Hijama (cupping therapy) is a culturally significant alternative treatment widely practiced in Qatar. However, limited knowledge and poor adherence to safety measures among practitioners pose potential risks to both patients and staff. **Aim:** Evaluating the Impact of an Educational Training Program on Knowledge and Practices of Al-Hijama Practitioners Regarding Safety Measures in Cupping Therapy. **Methods:** A quasi-experimental research design was applied involving one hundred twenty practitioners from five cupping centers in Qatar. Practitioners' knowledge and safety practices were assessed through pre-test, immediate post-test, and a three-month follow-up assessment. The educational intervention comprised lectures, workshops, and practical sessions focusing on infection control, sterilization techniques, client assessment, and management of emergency situations. **Results:** The majority of practitioners participating in the study were Egyptians. There was a significant improvement in knowledge from pre-intervention assessments to immediate post-intervention assessments. Although a slight decline was noted during the three-month follow-up, overall improvement remained significant. Similarly, practitioners' adherence to safety practices significantly improved immediately following the educational training and remained substantially higher at follow-up. **Conclusion:** The educational training program effectively enhanced practitioners' knowledge and adherence to safety practices related to cupping therapy. **Recommendations:** Regularly conducted training sessions , supervision are essential to maintain and enhance safety standards in cupping therapy practice. Future educational initiatives should particularly emphasize practical skills, continuous monitoring, and robust policy frameworks to ensure ongoing safety and effectiveness of Al-Hijama procedures.

Keywords: Al-Hijama, cupping therapy, Knowledge, Practice & Safety measures.

Introduction:
Cupping therapy (Al-Hijama) has been practiced for thousands of years in the Arab World and dates back to ancient times globally. Herodotus, in 400 BC, listed wet and dry cupping as treatments for various ailments, including maldigestion, lack of appetite, and headaches. Hippocrates advocated cupping therapy for gynecological issues, back and extremity illnesses, pharyngitis, lung diseases, and ear ailments. Additionally, cupping therapy was documented in the famous Papyrus Ebers from Ancient Egypt (1550 BC) **(Aleyeidi et al ., 2015).** It is one of the therapeutic interventions nurses can perform following scientific standards and clinical guidelines. However, due to associated risks, practitioners must familiarize themselves with appropriate safety precautions **(Al Zaabi et al., 2023).**

Cupping has both a cultural and religious context which explains its wide use, practice, and acceptance in Arab and Muslim countries. There is some evidence that suggests that cupping may be beneficial for the treatment of pain-related diseases, such as herpes zoster, facial paralysis, and acne. There are many types of cupping therapy such as wet, dry, flash, and massage cupping **(Al Marshedi et al., 2019).** 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, gown) are essential in preventing the spread of infection. Disinfecting beds or chairs used during treatment ensures a sterile environment. Using disposable equipment for cups, surgical blades, and vacuum pumps is preferable to disinfecting **(De Castro Moura et al., 2022).** Cupping therapy adverse events were not rare but infrequently reported. Scar formation, hyperpigmentation, skin infection, dermatitis bullae, burns, and anemias were reported. Most cupping adverse events can be avoided by following infection control measures and good training of cupping practitioners **(Al Bedah et al., 2016).** Eastern and Western countries are using cupping therapy as a key intervention for different medical problems, examples

of those countries United Kingdom, South Korea, and the kingdom of Saudi Arabia **(Al Zaabi et al., 2023).** Patient safety is defined by the Institute of Medicine (IOM) as the prevention of harm caused by errors of commission and omission. Over the past 10 years, it has become a key priority for healthcare, and an important axis during the cupping process. **(Al-Yousef et al., 2018).** When new equipment is introduced, all members of the cupping team must be trained on and practice with the new equipment as appropriate for the extent of their involvement, and all personnel involved must be aware of all safety features, warnings, and alarms of the device. Whenever possible, the institution's medical engineering department should inspect the equipment and verify that it is functioning properly before the equipment is put into clinical use **(Al-Yousef, et al., 2018).**

Community nurses are working in cupping centers and clinics both as practitioners where they are practicing the different kinds of cupping and as registered nurses where they are helping cupping therapists during the pre-and post-cupping process, the cupping is considered a minor surgery that requires a comprehensive role from the nurses as preparing the cupping room, providing health education about the procedure, sterilizing the skin, and helping the practitioners during the procedure, ensure safety measures through following the international patient safety goals which include a selection of the right patient and right procedure at the right time, effective communication in addition to other clinical roles as applying the aseptic techniques, preparing nursing care plans according to the client needs **(Gyeltshen et al., 2021)**. The Ministry of Public Health **QMOPH (2022)** In Qatar, raised Al-Hijama registration/licensing standards in the state of Qatar and based on the recommendation of the Specialized Committee for Complementary Medicine in its 7th meeting dated 13/12/2020, MOPH has decided to limit the licensing of Al-Hijama practitioners to applicants with a health/medical background starting from June 1st, 2021 .

(Qatar Council for Healthcare Practitioners **(QCHP), 2021).** Some of the cupping therapy adverse events were preventable by following the general infection control guidelines, hygienic techniques, safety protocols, and rigorous training of cupping therapists. training programs regarding cupping therapy and its safety measures are considered important as they will lead to improving the knowledge and practices of nurses and technicians about it. So, the present study will be conducted **(Lee et al., 2019).**

Significance of the Study

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. According to Egyptian Labor Low of Occupational Safety and Health Work Environment security **(QCHP), 2021.** The workers have a right to a safe workplace and to know about all potential hazards in the workplace, their effect on their health, and to know how to protect themselves **(Egyptian Labor Law, 2018).** Some of the cupping therapy adverse events were preventable by following the general infection control guidelines, hygienic techniques, safety protocols, and rigorous training of cupping therapists. training programs regarding cupping therapy and its safety measures are considered important as they will lead to improve the knowledge, and practices of nurses and technicians about it.

Aim of the study:

Aim:

To evaluate the effect of an educational training program on the knowledge and practices regarding safety measures among Al-Hijama practitioners at Qatar Cupping Community Centers.

Research hypotheses:

Hypothesis: The educational training program will significantly improve the knowledge and practices regarding safety measures among Al-Hijama practitioners at Qatar Cupping Community Centers following its implementation.

Null hypothesis:

The training program had no effect on knowledge and practices about safety measures for Al-Hijama Practitioners at Qatar Cupping Community Centers after implementation.

Research Methods:

Research design:

A quasi-experimental research design with pre- and post- and follow-up tests was utilized in the present study.

Setting:

Qatar is a peninsula located in the Arabian Gulf, with an area of approximately 11,500 square kilometers. Its population is estimated at around 2.9 million people **(MOPH, 2022),** The State of Qatar has about 10 licensed centers for practicing cupping therapy, under supervision of Ministry of Public Health which ensures the safe and significantly based practice . Only five centers have the largest number of practitioners. The remaining five centers were excluded because the few numbers of practitioners and two centers were under process ,therefore excluded according to the research conduction rules set by the Ministry of public Health.

Study population:

The study population comprised all Al-Hijama practitioners (n=120) working from 6:00 A.M. to 6:00 P.M. at the five selected Qatar Cupping Community Centers. These centers were purposively chosen based on their operational stability and the presence of regularly practicing staff. A total population sampling technique was employed, involving all practitioners available during the data collection period. This approach represented full coverage of the accessible practitioner population

Tools of the study:

Following an extensive literature review, a structured interview questionnaire was developed to fulfill the study objectives. The tool captured participants' demographic characteristics (e.g., age, gender, education level, marital status, and occupation), their knowledge of cupping therapy and sources of information, adherence to safety practices, history of cupping therapy use, and reasons for its utilization. The purpose of the study was clearly explained to all participants, and informed consent was obtained prior to questionnaire administration.

Three tools were used in this study :

Tool (I): A self-administered structured questionnaire was developed by the researchers after reviewing the related literature to collect data from the participants. It included two parts:

Part (1): It included the demographic characteristics of Al-Hijama practitioners at the selected cupping centers, such as sex, age, marital status etc., and years of experience.

Part (2): This part was used to assess the knowledge of the study participants about cupping therapy techniques and its safety measures, including the general uses of cupping, indications and contraindications, adverse events, health effects of cupping therapy, sources of information about cupping therapy. **Al-Yousef et al. (2018)**

Tool (II): The clinical practice guidelines for Al-Hijama practitioners' adherence to cupping therapy self-administered questionnaire systematically developed criteria to help practitioners measure adherence to appropriate practices **(Nur Ain & Zairina, 2020).** This guideline mainly focuses on proper hygiene, handwashing, equipment sterilization, and standard precautions. The adherence questionnaire has acceptable validity and reliability; it consists of 18 items measuring adherence on a 5-point Likert scale ranging from 'never' to 'very often.

Tool (III): An observational checklist was adopted from **Australian Capital Territory Government (2021)**,includes pre-cupping procedures (e.g., preparation, aseptic techniques, and sterilization methods).

Scoring system of knowledge and practice:

A self-administered structured questionnaire was developed based on an extensive literature review and adapted from validated tools. The questionnaire included 42 items to assess practitioners' knowledge of cupping therapy and 18 items to evaluate adherence to appropriate cupping practices according to safety guidelines.

For the knowledge section, the items were adapted from Al-Yousef et al. (2018), which examined knowledge levels related to cupping therapy among practitioners. Each correct answer was awarded one point, and incorrect responses received zero. The total knowledge score ranged from 0 to 42. A score of 50% or more (≥21 points) was considered satisfactory, while scores below this threshold indicated unsatisfactory knowledge.

For the practice (adherence) section, the 18 items were adopted from Nur Ain and Zairina (2020), focusing on practitioners' adherence to safety measures in cupping therapy. A 5-point Likert scale was used to score responses: "never" = 1, "rarely" = 2, "sometimes" = 3, "frequently" = 4, and "very often" = 5. The total adherence score ranged from 18 to 90, and a cut-off point of 54 was used to categorize practitioners as either adherent (≥54) or non-adherent (<54).

Validity:

Five academic professionals from the Assiut University Nursing Faculty's community health nursing department verified the validity of the instruments. They checked the tools to make sure they were clear, thorough, appropriate, and comprehensible.

Reliability:

To ensure the internal consistency and reliability of the questionnaire, it was pretested on 12 Al-Hijama practitioners, who were also included in the final study sample. Their responses were used to assess the clarity, relevance, and structure of the tool, and no major modifications were required following the pilot.

The reliability of the knowledge section (consisting of dichotomous items) was evaluated using the Kuder–Richardson Formula 20 (KR-20), yielding a coefficient of 0.81, indicating good internal consistency.

For the practice (adherence) section, which employed a 5-point Likert scale, Cronbach's alpha was calculated and found to be 0.88, reflecting high internal consistency.

Methods:

Administrative phase:

Before conducting the study, an official permission letter was obtained from the Dean of the Faculty of Nursing Assiut University, the President of Assiut

University, as well as the corporate research assurance committee in Hamad Medical Corporation which approved introducing educational program by the researcher for the selected cupping centers. The letter included permission to carry out the study and explained the purpose and nature of the study.

Pilot study:

A pilot study was carried out on twelve practitioners who were included in the actual study because there are no modifications in the tools of the study ,to test the clarity of the tools and estimate the time needed for filling it.

Data collection phase:

The study was conducted in three sequential phases between December 2022 and May 2023. Phase (1): Assessment Phase (December 1st –25th , 2022) involved baseline evaluation of Al-Hijama practitioners' knowledge and adherence to safety measures through a self-administered questionnaire and anonymous observational checklists conducted at five selected cupping centers. Phase (2): Training Implementation Phase (January 3rd – February 7th , 2023) included two-day training sessions at each center, with Day 1 covering theoretical content on safety and best practices, Day 2 featuring practical demonstrations, and an immediate post-test administered at the end of training. Phase 3: Follow-Up Phase (May 1st –15th , 2023) assessed long-term knowledge retention and continued adherence using follow-up tests and observational checklists at each center.

Each participant took 20:30 minutes to complete the self-administered questionnaires, informed consent was obtained from studied practitioners to participate in this study, and a clarification of the purpose of the study was presented to the studied participants to get their cooperation before beginning of data collection. The teaching and training methods were explained to the practioniners before starting the program intervention. Data collection in the pre-test, immediate post-test, and follow-up test after three months of the training program implementation was done .

Description of the educational program:

The educational program was designed based on relevant literature and available resources to address the safety measures and best practices in cupping therapy. **Nur Ain & Zairina, (2020)**

Part (one): This section included foundational knowledge about cupping therapy, such as its cultural significance, types (e.g., dry, wet, fire, sliding, and silicon cupping), uses, side effects, indications ,contraindications, of cupping therapy.

Part (two): The practical part includes pre-cupping procedures (e.g., preparation, aseptic techniques, and sterilization methods), cupping techniques (e.g., proper placement, suction methods, and anatomical site identification), and post-cupping care (e.g., nutrition, hydration, and managing complications). **Asar & Abdullah (2023)**

The Training program:

The training program was developed by the researcher based on reviewing relevant literature and available resources. It was used to improve the knowledge and practices of Al-Hijama practitioners about cupping therapy's potential risks and its safety measures. A pretest was conducted to assess the practitioners' knowledge and practices before starting the training program. Post-test immediately after implementation of the training program to evaluate the impact of the training program on practitioners' knowledge and practices follow-up was repeated after three months.

Ethical and administrative considerations:

In the administration phase, official approval was obtained from the dean of the Assiut Faculty of Nursing and the directors of the selected cupping centers. Data collection adhered to ethical considerations, including approval from the Faculty of Nursing's Ethical Committee, ensuring no risk to subjects, and obtaining written consent while maintaining confidentiality and anonymity. Subjects had the right to refuse or withdraw from the study at any time. Privacy during data collection was prioritized. Additionally, a pilot study was conducted on 10% of practitioners to assess clarity and estimate time requirements, with necessary modifications made based on the results.

Statistical Analysis:

In this study, statistical analysis was conducted to analyze the data obtained from the pre-test, post-test, and follow-up assessments of Al Hijama practitioners' knowledge, practice scores regarding safety measures for cupping therapy. The completed questionnaires were revised, coded and a database was designed using the Statistical Package for the Social Sciences (SPSS) program version (29) .Descriptive statistics such as mean and standard deviation were calculated to summarize the central tendency and variability of the data across the three assessment points. Additionally, inferential statistics, including paired-samples t-tests, were employed to assess the significance of differences in mean knowledge scores between the pre-test, post-test, and follow-up assessments. Furthermore, correlation analysis, specifically Pearson's correlation coefficient, was utilized to examine the relationship between knowledge scores and various demographic variables or other relevant factors. Statistical Package for the Social Sciences (SPSS) software was employed for data entry, management, and analysis, facilitating efficient and accurate statistical computations.

Results :

Table (1): Demographic characteristics of Hijama practitioners: n=(120)

Demographic characteristics	No. (120)	%
Age: (years)		
< 35	58	48.3%
≥ 35	62	51.7%
Mean ± SD (Range)	34.94 ± 7.29 (25.0-50.0)	
Sex:		
Male	87	72.5%
Female	33	27.5%
Marital status:		
Single	11	9.2%
Married	109	90.8%
Background:		
Nursing	22	18.3%
Physician	76	63.3%
Trained licensed practitioner	22	18.3%
Nationality:		
Egyptian	65	54.2%
Yemeni	22	18.3%
Jordanian	11	9.2%
Pakistani	11	9.2%
Saudi	11	9.2%
Education:		
High school	0	0.0%
College/ university	120	100.0%
Graduate/ postgraduate	0	0.0%
Years of experience:		
< 10	47	39.2%
≥ 10	73	60.8%
Mean ± SD (Range)	10.04 ± 3.95 (5.0-16.0)	

Table (2):Mean knowledge of Al Hijama practitioners regarding safety measures for cupping therapyn=(120)

Knowledge items	Pre-test (n= 120) Mean ± SD	Post-test (n= 120) Mean ± SD	Follow-up (n= 120) Mean ± SD	P-value
Familiarity with history and origins of Hijama/cupping therapy	2.63 ± 1.53	3.77 ± 1.50	3.64 ± 1.35	0.000*
Understanding proposed mechanisms of action	2.75 ± 1.67	4.01 ± 1.16	3.90 ± 1.18	0.000*
Knowledge about different types of Hijama/cupping.	2.98 ± 1.48	3.85 ± 1.50	3.70 ± 1.31	0.000*
Main types of Hijama/ cupping therapy and key differences.	3.04 ± 1.43	3.71 ± 1.47	3.62 ± 1.42	0.001*
Determining appropriate number of sessions for a patient.	3.01 ± 1.55	4.01 ± 1.13	3.64 ± 1.36	0.000*
Screening and assessing patients prior to administering Hijama/ cupping.	2.79 ± 1.57	3.93 ± 1.36	3.69 ± 1.39	0.000*

Table (3):Total Score of Practitioners' practice regarding cupping safety measures. n=(120)

Safety Practice	Pre-test Done (%)	Post-test Done (%)	Follow-up Done (%)	P-value
Explains procedure and obtains informed consent	21.7	85.8	70.8	0.000*
Disposes biohazard materials in designated sharps containers	30.8	85.8	68.3	0.000 *
Has patient demonstrate understanding of aftercare instructions	32.5	86.7	71.7	0.000 *
Reports any major adverse events properly to regulatory agencies	35.8	85.8	78.3	0.000 *
Provides detailed aftercare instructions verbally and in writing	34.2	85.0	77.5	0.000 *
Checks Hijama equipment routinely for signs of damage or dysfunction	24.2	78.3	61.7	0.000 *
Only performs techniques in which they have received proper training	38.3	85.8	62.5	0.000 *
Uses anatomical Hijama point charts to guide site selection	35.8	70.8	50.8	0.000 *
Provides recommendations for hydration, rest, and self-care after sessions	36.7	65.0	67.5	0.000 *
Schedules appropriate follow-up visit timing	35	77.5	62.5	0.000 *

Table (4):Total score of knowledge level of Al Hijama practitioners regarding safety measures for cupping therapy. n=(120)

Knowledge level	Pre-test (n= 120)		Post-test (n= 120)		Follow-up (n= 120)		P-value[1]	P-value[2]
	No.	%	No.	%	No.	%		
Unsatisfactory	107	89.2	19	15.8	29	24.2	0.000*	0.000*
Satisfactory	13	10.8	101	84.2	91	75.8		
Mean ± SD	116.97 ± 10.94		158.29 ± 14.74		149.80 ± 14.09		0.000*	0.000*

Table (5): Level of practice of Al Hijama practitioners regarding safety measures for cupping therapy. n=(120)

Practice level	Pre-test (n= 120)		Post-test (n= 120)		Follow-up (n= 120)		P-value[1]	P-value[2]
	No.	%	No.	%	No.	%		
Adeherence	104	86.7	25	20.8	38	31.7	0.000*	0.000*
None-Adherence	16	13.3	95	79.2	82	68.3		
Mean ± SD	9.59 ± 4.07		24.24 ± 3.38		20.79 ± 3.91		0.000*	0.000*

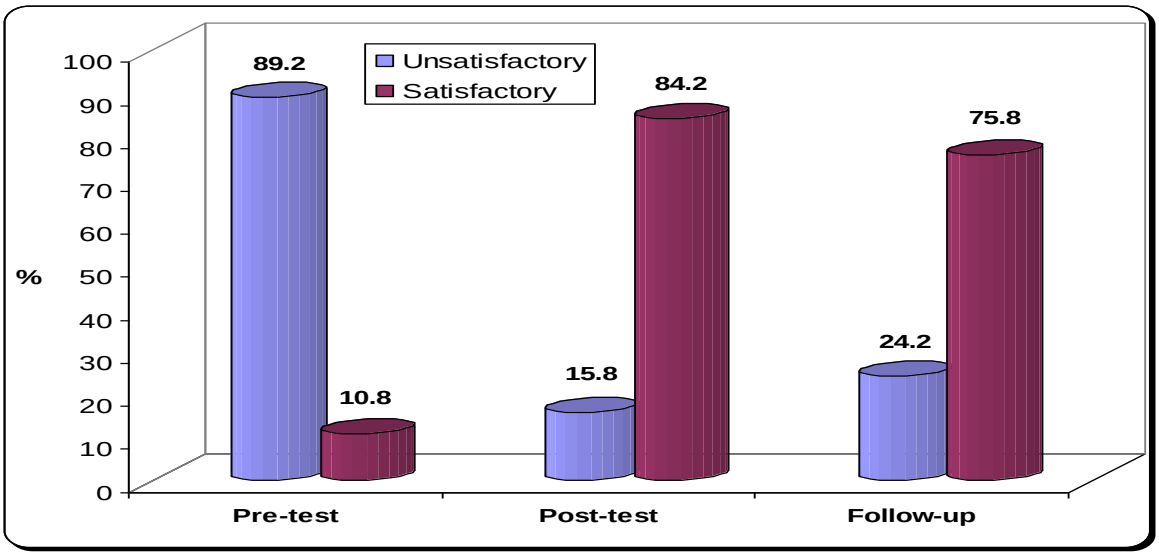
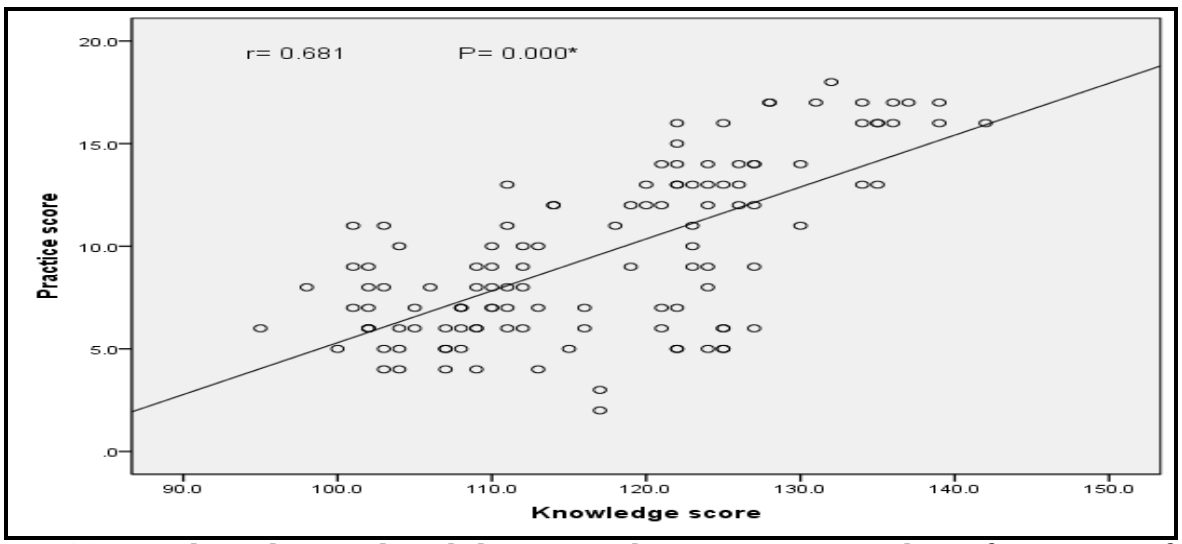


Figure (1): levels of Satisfaction with program regarding knowledge



Figure(2): Correlation between knowledge score and practice score regarding safety measures for cupping therapy. n=(120) (Pre-test)

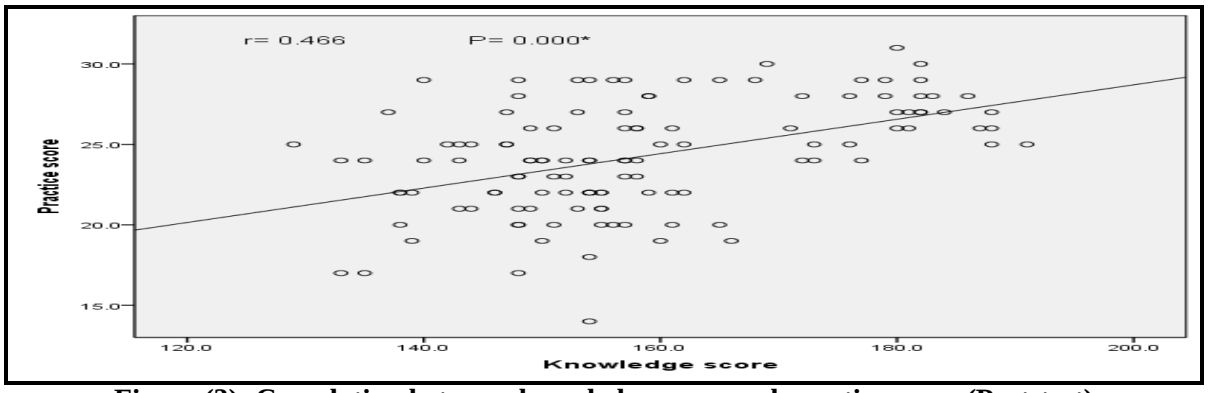


Figure (3): Correlation between knowledge score and practice score (Post-test)

Table (1): Shows the demographic analysis of 120 Hijama practitioners reveals a diverse profile within the profession. While overhalf (51.7%) are aged 35 or older, a significant proportion (48.3%) fall below this age, indicating a mix of experienced and relatively younger practitioners. Male practitioners dominate the field (72.5%) compared to their female counterparts (27.5%). The majority are married (90.8%), and physicians constitute the largest group (63.3%), followed by those with nursing backgrounds and trained licensed practitioners (both at 18.3%). Egyptian practitioners represent over half of the cohort (54.2%), reflecting a multi-national presence within the profession. Educational attainment is universally high, with all practitioners having completed college or university-level education. Experience-wise, a substantial proportion (60.8%) have 10 or more years of practice, with the mean experience being approximately 10.04 years.

Table (2): The table displays the mean knowledge scores of Al Hijama practitioners regarding safety measures for cupping therapy across three assessment points: pre-test, post-test, and follow-up. Significant improvements were observed from the pre-test to the post-test across all aspects, with mean scores increasing from 2.63 to 3.77. These improvements were maintained or slightly decreased in the follow-up assessment, with mean scores at 3.64. The improvements were statistically significant for all aspects ($p<0.05$). Specific areas of notable improvement included understanding proposed mechanisms of action (from 2.75 to 4.01), knowledge about different types of cupping (from 2.98 to 3.85), and knowledge of supplies and equipment needed (from 2.91 to 4.08). However, some areas, like determining appropriate numbers of sessions for a patient, showed lower improvements. These findings underscore the effectiveness of initial training but also highlight the need for continued education to sustain and enhance practitioners' knowledge over time.

Table(3): The table presents the practice of cupping safety measures among practitioners across three assessment points: pre-test, post-test, and follow-up. Significant improvements were observed in the implementation of safety measures from the pre-test to the post-test, with most measures showing a shift from "not done" to "done" ($p < 0.05$). However, in the follow-up assessment, while many safety measures remained improved compared to the pre-test, there was a slight decrease in some areas. For instance, the verification of patient eligibility through screening decreased from 70.8% in the post-test to (60.0%) in the follow-up. Similarly, explaining the procedure and obtaining informed consent decreased from (85.8%) in the post-test to (70.8%) in the follow-up. Other safety measures, such as using sterile, single-use lancets for skin puncturing and maintaining cleanliness and organization of the treatment room, remained consistently improved. These findings highlight the importance of continuous monitoring and reinforcement of safety protocols to ensure sustained adherence among practitioners.

Table(4): Illustrates the impact of an intervention on the knowledge levels of Al Hijama practitioners concerning safety measures for cupping therapy. Prior to the intervention, 107 out of 120 practitioners (89.2%) had an unsatisfactory level of knowledge, which significantly decreased to 19 (15.8%) immediately after the intervention and slightly increased to 29 (24.2%) at the follow-up assessment. Conversely, the proportion of practitioners with a satisfactory knowledge level increased from 13 (10.8%) pre-intervention to 101 (84.2%) post-intervention and 91 (75.8%) at follow-up. The mean knowledge score also significantly increased from 116.97 ± 10.94 pre-intervention to 158.29 ± 14.74 post-intervention and 149.80 ± 14.09 at follow-up. Both p-values for pre- and post-intervention as well as post-intervention and follow-up assessments were statistically significant ($p < 0.000$), indicating a significant improvement in knowledge levels after the intervention, though a slight decrease in retention at the follow-up.

Table (5): Show that the Al Hijama practitioners (86.7%) initially exhibited poor safety practices. However, interventions led to significant improvements, with the percentage of practitioners following unsatisfactory safety protocols dropping to 20.8% after the initial intervention and further decreasing to (31.7%) during follow-up. This statistically significant shift demonstrates the positive impact of the implemented interventions in promoting safe practices among Al Hijama practitioners.

Figure (1): The graph shows that the percentage of people who are satisfied with the program regarding knowledge increases after the post-test from(10.8%) to (84.2 %) and follow-up with (75.8%). The percentage of people who are unsatisfied with the program decreases after the post-test from (89.2%) to (10.8%) and follow-up to(24.2%) .

Figure (2): Shows A positive correlation exists between knowledge and practice scores across all three assessments, indicated by the positive R-values (0.681, 0.466, and 0.483). This means individuals with higher knowledge scores tend to have higher practice scores, and vice versa. The strongest correlation is observed in the pre-test (r=0.681), suggesting a clear link between knowledge and practice before any interventions. The correlation weakens slightly in the post-test (r=0.466) and follow-up (r=0.483), possibly indicating additional factors influencing practice scores beyond just knowledge. All p-values are 0.000 (significant)*, implying a statistically significant relationship between knowledge and practice scores at all assessment points. In essence, the table highlights a positive association between knowledge and practice, with the strongest link observed before any interventions.

Figure (3): Shows The correlation weakens slightly in the **post-test** (r = 0.466) and follow-up (r = 0.483), possibly indicating additional factors influencing practice scores beyond just knowledge.

Discussion:

Cupping therapy “Hijama” is a very common nonconventional therapy in the Arabic societies that has been used in the treatment of a wide range of conditions, such as hypertension; rheumatic conditions ranging from arthritis, sciatica, and back pain; migraine; anxiety; and general, physical, and mental well-being. The findings from the study on Al-Hijama practitioners' knowledge and practice regarding safety measures for cupping therapy reveal significant improvements post-training, with some areas showing sustained enhancement while others experienced a slight decline over time. The discussion of these results sheds light on the effectiveness of initial training and the necessity for ongoing education and reinforcement to maintain high standards of safety and practice among practitioners.

Most participants in the current study exhibit a varied profile within the profession. About half of the practitioners are aged 35 or older, while the remainder are below this age, showing a combination of experienced and relatively younger individuals. Male practitioners significantly outnumber female practitioners in the discipline. The majority of individuals are married, with physicians representing the largest group, followed by those with nursing credentials and trained licensed practitioners, each comprising a notable portion. In contrast to the earlier study conducted in Abu Dhabi by **Al Zaabi et al. (2023)**, over half of the participants in that research were female and UAE nationals. However, both studies agreed that most participants were physicians and married.The Current study revealed that Significant improvements were observed in the implementation of safety measures from the pre-test to the post-test, with most measures showing a shift from "not done" to "done in accordance with Several scholars have suggested that creating standardized practices for cupping therapy would make clinicians and researchers more willing to use the technique when exploring means of decreasing pain in patients**.** Not only would this standardization allow for more efficient research and treatment, but it may also reduce the number of adverse events that occur when cupping therapy is performed **(Bridgett et al., 2018).**

Findings from the current study are consistent with previous studies that report virtual professional development being effective in improving confidence and leading to knowledge transfer **(Gupta et al., 2022).**Participants also reported feeling that they gained knowledge and were more likely to use cupping therapy in their future clinical practice in accordance with study conducted in Germany, New Zealand and Saudi Arabia**. Mukhtar et al., (2018), Muhammed et al.,(2015).** In terms of age groups, no significant difference in mean practice scores was observed between those younger than 35 years and those aged 35 or older at the pre-test , but significant differences emerged at the post-test and follow-up assessments, indicating that older practitioners tended to have higher practice scores.

Previous studies on cupping therapy and Hijama practitioners have provided insights that align with the findings of the current study regarding safety measures and practice as A study on Hijama therapy (wet cupping) highlighted its potential to complement healthcare practices by enhancing oral and dental health. **Lee et al., (2019).** some previous research has reported challenges in implementing safety measures among Al-Hijama practitioners on contrast of A case study on the practice of cupping (Hijama) and the risk

of bloodborne infections highlighted the challenges in implementing safety measures among practitioners. This study underscores the need for targeted interventions and quality assurance mechanisms to address areas of concern and sustain improvements in safety measures over time. **Rehman et al., (2014).**

The current study presents the average knowledge scores of Al Hijama practitioners concerning safety measures for cupping therapy across three assessment points: pre-test, post-test, and follow-up. Notable enhancements were noted from the pre-test to the post-test. However, some aspects, like determining appropriate session numbers for patients, showed lesser improvements. These findings underscore the effectiveness of initial training while underscoring the necessity for ongoing education to uphold and improve practitioners' knowledge levels over time. Conversely, **Daneshfard et al., (2025)** explores the knowledge and attitudes of participants towards cupping therapy, particularly in managing neurological and chronic diseases, and dermatological conditions like urticaria. The study participants exhibited substantial knowledge but limited awareness regarding cupping therapy's effectiveness in treating certain dermatological conditions.

The interventions implemented in the study resulted in significant improvements, as evidenced by a decrease in the number of practitioners following unsatisfactory safety protocols after the initial intervention and a further reduction during follow-up. This statistically significant shift highlights the positive impact of the interventions in promoting safe practices among Al Hijama practitioners. This finding aligns with a study conducted by **Zhao et al. (2024),** which demonstrated the positive impact of a telemedicine education program on practicing healthcare workers during the COVID-19 pandemic in Ontario, Canada.

In the current study Al Hijama practitioners initially exhibited poor safety practices. However, the implemented interventions led to significant improvements, with a noticeable reduction in the number of practitioners following unsatisfactory safety protocols after the initial training and during the follow-up period. This statistically significant shift highlights the effectiveness of the interventions in promoting safe practices among Al Hijama practitioners.

These findings are aligned with previous research, including a study by **Al Marshedi et al. (2019),** which explored healthcare professionals' attitudes toward complementary medicine. A survey conducted in the United States indicated that many medical staff had experience using complementary and alternative medicine (CAM), and a considerable proportion supported the need to educate physicians about cupping therapy. Notably, physicians who had personally tried cupping therapy were more likely to recommend it to their patients.

In contrast to studies focusing primarily on attitudes and usage patterns of CAM, the present findings provide evidence of the effectiveness of targeted educational interventions in improving safety compliance among practitioners, thus contributing a practical dimension to existing literature.

The observed positive correlation between knowledge and practice scores across all three assessments in our study aligns with numerous studies in the field of health education and practice. For instance, a study by **Al Bedah et al. (2016)** found a strong correlation between the knowledge of complementary and alternative medicine (CAM) and the practice of safe procedures among practitioners, supporting the notion that higher knowledge levels are associated with better practice outcomes.

Similarly, a meta-analysis conducted by **Lee et al. (2019)** on the effectiveness of educational interventions in improving healthcare practices highlighted a positive correlation between knowledge acquisition and practical application. This is consistent with our findings, where individuals with higher knowledge scores tend to have higher practice scores.

However, the slight weakening of the correlation in the post-test and follow-up observed in our study indicates additional factors influencing practice scores beyond just knowledge. This observation is somewhat at odds with findings from **Kim et al. (2020),** who reported a consistent strong correlation between knowledge and practice in their longitudinal study on cupping therapy practitioners. They attributed sustained strong correlations to continuous education and reinforcement.

One potential explanation for this discrepancy could be the intensity and frequency of follow-up training sessions. Our study's follow-up period might have been insufficient to reinforce the knowledge gained during the initial training, leading to a slight decrease in practice scores despite maintained knowledge levels. **Park et al. (2017)** also emphasized the importance of ongoing professional development in maintaining high standards of practice, suggesting that without continuous support, the initial positive impact of education might diminish over time.

Contextual differences such as regional healthcare policies, cultural attitudes towards continuous education, and access to resources might also explain the variance in correlation strength observed across studies. **Liu et al. (2021)** discussed how contextual factors significantly influence the effectiveness of educational interventions, highlighting the need for

tailored approaches based on specific regional and cultural contexts**.**

Conclusion:

This study demonstrated the positive impact of an educational training program on Al-Hijama practitioners' knowledge and application of safety measures in cupping therapy. Participants showed significant improvements in understanding key aspects such as the mechanisms of action, appropriate equipment use, sterile technique, and treatment room hygiene. These improvements were evident immediately after the intervention, indicating the effectiveness of the training in enhancing both theoretical knowledge and practical safety behaviors.

Recommendations:

In the light of the study finding, the researcher is recommending that:

- Conduct regular training sessions to maintain and enhance safety standards in cupping therapy practice.
- Provide supervision to maintain and enhance safety standards in cupping therapy practice.
- Emphasize practical skills particularly in future educational initiatives.
- Implement continuous monitoring and robust policy frameworks to ensure ongoing safety and effectiveness of Al-Hijama procedures.

Limitations:

The study participants may not represent the target population as we apply it on a convenience sample. Participants interested in cupping therapy may be more likely to accept participating in the study. This effect could bias the results by revealing greater knowledge and more favorable attitudes towards cupping

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