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RESEARCH ARTICLE

The Public Perceptions on Wet Cupping Therapy (Hijama) in Saudi Arabia

Suhaib Ibrahim Alkhamaiseh[1,2,*], Amjad H. Bazzari[3], Abdel Hadi Al jafari[1], Firas H. Bazzari[1]

[1]Faculty of Pharmacy, Jerash University, Al-Urdon St., Jerash, Jordan
[2]Department of Pharmaceutical Chemistry, College of Pharmacy, University of Hail, Hail, Saudi Arabia
[3]Department of Basic Scientific Sciences, Faculty of Arts & Sciences, Applied Science Private University, Amman, Jordan

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Correspondence to
Suhaib Ibrahim Alkhamaiseh
Suhaib Ibrahim Alkhamaiseh, Faculty of Pharmacy, Jerash University, Al-Urdon St., Jerash, Jordan
E-mail s.alkhamaiseh@jpu.edu.jo, s.alkhamaiseh@gmail.com

Background: Wet cupping (Hijama), a form of alternative medicine, is widely practiced in Middle Eastern countries, especially Saudi Arabia. Although considerable effort has been put into increasing public awareness about the safe and proper practice of wet cupping, studies on the attitudes, knowledge, and awareness levels of the Saudi Arabian public are lacking.
Objectives: This study evaluated public attitudes toward the effectiveness, safety, and expected standards of practicing wet cupping.
Methods: This cross-sectional study was conducted using an online questionnaire and involved 909 complete responses. The respondents were Saudi adults with a mean age of 30.43 ± 11.4 years (males: 42.1%, females: 57.9%).
Results: The study revealed that most participants believed that although wet cupping is a beneficial (84.6%), well-known form of alternative medicine (82.4%) without harmful side effects (63.9%), it is not suitable for treating all diseases (72.3%) or everyone (66.8%). Most participants prefer wet cupping to be done at specialized centers (84.6%) by practitioners with confirmed qualifications (88.6%) using valid and sterile instruments (88.9%). The main demographic factor influencing participant responses was age, which was associated with more positive perceptions. Female, single, college-educated, and middle-aged respondents had more cautious attitudes.
Conclusion: Our results indicate that Saudis support the use of wet cupping as an alternative medicine for select diseases and that individuals have adequate awareness of the practice's safety standards to avoid potential risks.

Keywords: Wet cupping therapy, Public awareness, Complementary medicine, Alternative medicine, Saudi Arabia, Patient education

INTRODUCTION

Wet cupping (Hijama in Arabic) is a widely practiced therapeutic technique and part of the Unani system of medicine [1]. It involves the combination of a negative pressure created by dry cupping and bloodletting from acupoints on the skin, which are created using disposable sterile surgical blades or micro-lancets [2]. To minimize the risk of blistering and other potential side effects, the procedure is usually done within 10 minutes [3]. Although the origin of cupping therapy is unclear, its historical records date back to early Egyptian and Chinese medical practices [4]. Currently, wet cupping is widely practiced in many Middle Eastern and Asian countries [5].

The popularity of wet cupping is attributed to its perceived benefits (including improved quality of life) as an alternative medicine for the treatment of various conditions, which is supported by several studies. For instance, wet cupping is thought to be beneficial for the management of rheumatoid arthritis [6], Hashimoto's thyroiditis [7], tension-type and migraine headache [8], hypertension [9], and nonspecific neck and upper shoulder pain [10]. It is also considered to effectively lower the serum levels of low-density lipoprotein cholesterol, thereby reducing the risk of atherosclerosis [11]. The mechanisms underlying the beneficial therapeutic effects of wet cupping are thought to include a local increase in blood and lymph flow, which is suggested to contribute to myofascial pain relief and improved soft tissue healing [12]. Middle Eastern culture also strongly influences the popularity of wet cupping. A previous study by Al-Hashel et

al. indicates that because of cultural beliefs, 69.9% (n = 195) of Kuwaitis with headache disorders initially seek various forms of traditional medicine, including wet cupping (47.3%) before visiting the clinic [13].

However, wet cupping is associated with several adverse events, such as scarring, burns, headache, pruritus, dizziness, tiredness, muscle tension, anemia, nausea, bullae formation, small hematomas, abscesses, skin infections, insomnia, hyperpigmentation, and vasovagal attacks [14]. Furthermore, it is contraindicated in those with organ failure, active infections, anemia, cancer, varicose veins, medical emergencies, recent cupping sessions or blood donation, as well as those on anticoagulant treatments and pregnant or menstruating patients [15,16]. Nonetheless, if performed by a professional under good sanitary conditions, wet cupping is a cost-effective therapeutic technique without major adverse effects [1]. Therefore, to minimize the risks associated with wet cupping, several Middle Eastern countries, including Saudi Arabia, have developed national guidelines on the safety standards for wet cupping [17].

Current studies, which have mainly focused on the rates of using complementary and alternative medicine and the associated demographics, have offered recommendations on how to increase the general population's awareness. However, few studies have examined the general public's levels of awareness, knowledge, and attitudes about the therapeutic and correct practices of wet cupping. This study assessed the attitudes and general knowledge of wet cupping among Saudis to determine the level of public awareness and identify the areas of public education and safety that need improvement.

MATERIALS AND METHODS

1. Sampling and ethical considerations

A validated online questionnaire was developed using Google® Forms and shared through popular social media platforms in Saudi Arabia, including Facebook®, Twitter®, and WhatsApp® [18]. Only Saudi Arabian citizens aged > 18 years old were eligible to participate in the study. Using the equation below (95% confidence level, 5% margin of error) [19] for sample size calculation, the study required a minimum representative sample size of 385.

$$\text{Sample size} = \frac{\frac{z^2 \times p\,(1-p)}{e^2}}{1 + \frac{z^2 \times p\,(1-p)}{e^2 N}}$$

A total of 988 responses were received and after excluding 79 incomplete questionnaires, 909 valid responses were obtained.

The study was approved by the Department of Pharmacy Council of Jerash University (approval number: 4/I/2023) and strictly adhered to the declaration of Helsinki guidelines on anonymity, voluntary participation, and data protection [20]. Participants were informed that no personal identifying information would be collected and that the collected data would be only used for scientific research purposes. Participation was voluntary without pay or compensation.

2. Questionnaire domains

The questionnaire included the following main domains: (1) description and consent, (2) demographics, and (3) attitudes and knowledge.

The description and consent domain included a brief description of the study's aim, significance, and ethical approval. This was followed by informed consent, whereby participants confirmed that they met the study's eligibility criteria and understood that participation was voluntary and without compensation, that no personal identifying information would be requested, that all collected data would remain confidential and that the study results would be published in a scientific journal.

The demographics domain included the following questions: (1) age (years), (2) gender (male or female), (3) marital status (single, married, or divorced), and (4) education level (uneducated, primary level, secondary level, or college level).

The attitudes and knowledge domain included the following (nine) "agree" or "disagree" questions to assess the attitudes and general knowledge about wet cupping: (1) "Do you think that wet cupping (Hijama) therapy is a beneficial/useful practice?", (2) "Do you think that wet cupping (Hijama) therapy can lead to side effects?", (3) "Do you think that wet cupping (Hijama) therapy is suitable for every disease?", (4) "Do you think that wet cupping (Hijama) therapy is a well-known form of alternative medicine?", (5) "Do you think that wet cupping (Hijama) therapy should be done in specialized centers only?", (6) "Do you think that checking the practitioner's qualifications and experience is important before undergoing wet cupping (Hijama) therapy?", (7) "Do you think it is important to confirm that all instruments used are valid and sterile?", (8) "Do you think that wet cupping (Hijama) therapy is a short-duration treatment alternative?", and (9) "Would you recommend wet cupping (Hijama) therapy to anyone?".

3. Statistical analyses

Data analyses were done using the JASP software (Version 0.16.2, www.jasp-stats.org). All results are presented as mean ± standard deviation (SD) or as counts (n) and proportions (%). The dependence between participant demographic variables and participant responses was assessed using the Chi-square

test. Layer classification was used to account for the impact of confounding variables, such as age group. Parametric data, such as age in years, were compared using a t-test for independent samples. The rank distribution of participant demographics and responses was assessed using the Mann–Whitney U test after data coding into ordinal variables. The effect sizes for the t-test and U test results were assessed by calculating Cohen's D and rank biserial correlation coefficients, respectively. For all statistical tests, $p < 0.05$ indicates statistically significant differences (*).

RESULTS

1 Participant demographics

A total of 988 responses were received and after excluding 79 incomplete questionnaires, 909 (male: 42.1%, female: (57.9%) valid responses were obtained. The participants' demographic data are summarized in Table 1. The participants' mean age was 30.43 ± 11.4 years (range: 18-75 years). The male participants had a higher mean age than the female participants (32.79 ± 12.86 vs. 28.71 ± 9.86 years, $p < 0.01$) but the effect size was moderate (Cohen's D = 0.364). Based on age, the participants were further categorized into the early (18-39 years, 79.3%), middle (40-59 years, 18.1%), and senior (≥ 60 years, 2.6%) adult life stages. The age variable distribution was higher for males ($U = 81{,}892$, $p < 0.01$) and was therefore dependent on gender ($\chi^2 = 25.595$, $p < 0.01$), indicating that age was a potential confounding variable. The effect of education level and marital status on participants' perceptions of wet cupping (Hijama) was also assessed. Most participants had college-level education (68.65%) and the rates of college-level education were 62.14% and 73.38% for males and females, respectively. About 20.57%, 5.39%, and 5.39% of the participants had secondary-level education, primary-level education, and no education, respectively. Education level was dependent on gender ($\chi^2 = 14.56$, $p < 0.01$) and it exhibited an overall higher rank distribution among females ($U = 111{,}337$, $p < 0.01$), although the effect size was small, with a low rank-biserial correlation coefficient ($r_{rb} = 0.105$). However, marital status was independent of gender ($p > 0.05$) and there were almost equal proportions of single (47.63%) and married (48.73%) participants, and a small proportion of divorced participants (3.63%). Interestingly, marital status and education level were dependent variables ($\chi^2 = 62.488$, $p < 0.01$). However, upon correction for age group, this association was not apparent in senior and middle adulthood ($p > 0.05$), but remained significant in the early adulthood group ($p < 0.01$), with a higher rate of higher education level (college) being observed in single participants (59.6%) than in married (37.4%) and divorced (3%) participants.

2 Participants' perceptions of wet cupping (Hijama)

The questionnaire included nine questions to assess the participants' attitudes toward the expected standards of practice, the therapeutic benefits, and the potential risks of wet cupping. First, in response to the question of whether they considered wet cupping to be beneficial or useful, most participants (84.6%) responded in agreement (Table S1). This was true across demographic groups and the response was independent of gender, education level, and marital status ($p > 0.05$) but dependent on age ($p < 0.01$), with more older participants agreeing when compared with younger participants ($U = 46{,}078$, $p < 0.01$). Indeed, the mean age of the participants who agreed that wet cupping is beneficial (31 ± 11.75 years) was higher than that of the disagreeing participants (27.4 ± 8.65 years, $p < 0.01$, D = 0.313).

Table 1. Participant demographics

Variable	Total	Males	Females	*p*-value
Age in years: mean (SD)	30.43 (11.4)	32.79 (12.86)	28.71 (9.86)	< 0.001[a,*]
Age group: count (%)				< 0.001[b,*]
Early adulthood (18-39)	721 (79.3%)	277 (72.3%)	444 (84.4%)	
Middle adulthood (40-59)	164 (18.1%)	87 (22.7%)	77 (14.6%)	
Senior adulthood (≥ 60)	24 (2.6%)	19 (5%)	5 (1%)	
Marital status: count (%)				0.38[b]
Single	433 (47.64%)	173 (45.17%)	260 (49.43%)	
Married	443 (48.73%)	197 (51.44%)	246 (46.77%)	
Divorced	33 (3.63%)	13 (3.39%)	20 (3.8%)	
Education level: count (%)				0.002[b,*]
Uneducated	49 (5.39%)	22 (5.74 %)	27 (5.13%)	
Primary level	49 (5.39%)	23 (6.01%)	26 (4.94%)	
Secondary level	187 (20.57%)	100 (26.11%)	87 (16.54%)	
College level	624 (68.65%)	238 (62.14%)	386 (73.38%)	

*Significant difference between genders ($p < 0.05$), [a]t-test, [b]Chi-square test.

Consistent with the high agreement that wet cupping is useful, most participants (63.92%) did not think that wet cupping has the potential to cause harm or side effects (Table S2). Additionally, the responses were also influenced by age, with 70.2% of the participants aged ≥ 40 years disagreeing with the statement that wet cupping can cause harm when compared to 62.3% among younger adults ($p < 0.05$). Thus, older age was associated with the perception that wet cupping was not harmful. Response to this question was also dependent on gender, with more females (39%) believing that wet cupping can lead to side effects than males (32.1%). However, the association between gender and responses was not apparent after correcting for the age variable ($p > 0.05$). Additionally, participant responses were independent of education level and marital status ($p > 0.05$). Nonetheless, the rates of cautious perception about the safety of wet cupping did not differ significantly between single (39.7%) and divorced respondents (27.3%) when compared with married (33.2%) participants, or between college-educated (38.8%) respondents vs. those with lower education levels (30.2%).

In response to the question of whether wet cupping is suitable for treating every disease, most (72.28%) participants, across all demographic groups disagreed (Table S3). Responses to this question were independent of all collected demographic factors ($p > 0.05$). A similar pattern was observed in response to the question about whether wet cupping is a well-known form of alternative medicine (Table S4), with most participants responding in agreement (82.4%). Additionally, demographic factors did not influence the distribution of responses ($p > 0.05$). Similarly, most respondents (84.6%) agreed that wet cupping should be performed at specialized centers (Table S5). The response distribution was dependent on age group ($p < 0.05$) and education level ($p < 0.01$). However, the age group was a confounding variable. The responses from participants in the early adult group (79.3%) still varied across education levels ($p < 0.05$), with higher education levels in this group being associated with a stricter and more cautious attitude, resulting in a preference for specialized centers.

Consistently, most participants (88.6%) agreed that it is necessary to confirm the educational qualifications and experience of wet cupping practitioners before undergoing a session (Table S6). The highest rates of agreement were observed among the female (91.1%), middle adult (90.2%), single (91.5%), and college-level education (90.5%) groups. Response distribution was dependent on all collected demographic factors including gender ($p < 0.01$) and marital status ($p < 0.05$). The overall impact of gender, marital status, and education level was not apparent upon adjustment for age ($p > 0.05$), indicating overall cautious attitudes about the need to confirm the practitioner's qualifications across the groups, except senior participants, of whom only 50% agreed. However, it should be noted that in the middle adulthood group, education level still influenced responses ($p < 0.05$) with 98.4% of those with college education, 90% of those with secondary education, 84% of those with primary education, and 82.6% of participants without education, requiring qualification confirmation. However, in the early adult group, females (91.4%) were more cautious than males (86.3%, $p < 0.05$).

The response rate to the questions was highest in response to the question of whether the participants need to confirm that wet cupping instruments are valid and sterile, with 88.9% of participants indicating they require confirmation (Table S7). Furthermore, none of the demographic factors exhibited influence on response distribution ($p > 0.05$). The highest response rates to this question came from females (90.1%) and middle adulthood participants (90.2%), although they did not reach statistical significance, and this response pattern was consistent with the response distributions for all three questions about expected standards of practice. However, the highest rate of agreement that instrument validity should be confirmed was observed in the primary education group (93.9%) and not the college-level group (89.7%, $p > 0.05$).

Next, in response to the question about their views on the use of wet cupping as an alternative therapeutic option for shorter treatment durations (Table S8), the participants' overall agreement rate was 56.55% and was almost equal across the two sexes ($p > 0.05$). However, the agreement rates varied significantly across other demographic categories ($p < 0.01$). Upon correction for age, the impact of marital status and education level in the early adult group remained significant ($p < 0.05$). The highest agreement rates were observed in younger, single, and college-educated participants.

Finally, the assessment of the participants' willingness to recommend wet cupping as a therapeutic option to anyone revealed the most variable responses (Table S9), with an overall agreement level of 33.22%. However, the responses to this question varied by gender (27.6% in females vs. 41% in males, $p < 0.01$) and age group (29.3% in the early adulthood group vs. 75% among senior adulthood participants, $p < 0.01$. Furthermore, responses varied by marital status (21.2% of divorced vs. 41.8% of married participants, $p < 0.01$), and education level (30% of secondary level vs. 55.1% of uneducated participants, $p < 0.01$). Marital status and gender still influenced responses in the early and middle adulthood groups even after correcting for age ($p < 0.05$), but interestingly, the association between education level and participants' responses to this question was lost upon correction for age ($p > 0.05$).

The wet cupping perception questions, participant responses, and the influence of the demographic variables on response distribution are summarized in Table 2.

Table 2. Impact of participant demographics on their wet cupping perceptions

Questions and responses (%)		Impact of participant demographics (p-value[a])			
		Gender	Age group	Marital status	Education level
Do you think that wet cupping (Hijama) therapy is a beneficial/useful practice?					
Yes	84.6%	0.062	0.001*	0.125	0.985
No	15.4%				
Do you think that wet cupping (Hijama) therapy can lead to side effects?					
Yes	36.1%	0.033*	0.047*	0.074	0.067
No	63.9%				
Do you think that wet cupping (Hijama) therapy is suitable for every disease?					
Yes	27.7%	0.186	0.17	0.109	0.262
No	72.3%				
Do you think that wet cupping (Hijama) therapy is a well-known form of alternative medicine?					
Yes	82.4%	0.325	0.52	0.052	0.164
No	17.6%				
Do you think that wet cupping (Hijama) therapy should be done in specialized centers only?					
Yes	84.6%	0.455	0.034*	0.153	0.002*
No	15.4%				
Do you think that checking practitioner's qualifications and experience is important before performing wet cupping (Hijama) therapy?					
Yes	88.6%	0.005*	< 0.001*	0.024*	< 0.001*
No	11.4%				
Do you think it is important to confirm that all instruments used are valid and sterile?					
Yes	88.9%	0.168	0.272	0.129	0.153
No	11.1%				
Do you think that wet cupping (Hijama) therapy is a short-duration treatment alternative?					
Yes	56.5%	0.45	0.002*	0.001*	0.016*
No	43.5%				
Would you recommend wet cupping (Hijama) therapy to anyone?					
Yes	33.2%	< 0.001*	< 0.001*	< 0.001*	0.002*
No	66.8%				

*Significant ($p < 0.05$), [a]Chi-square test.

DISCUSSION

To our knowledge, this is the first study to assess the awareness, knowledge, and attitudes of the general Saudi Arabian population toward the therapeutic use, safety, and practice of wet cupping. Our results indicate that in the sample population, various demographic groups strongly support wet cupping as a form of legitimate alternative medicine with therapeutic value for some diseases and individuals. Although most of the participants believed wet cupping does not have side effects, most agreed that methodological validation through the use of specialized centers, valid and sterile instruments, and qualified practitioners is essential. Our data show female, single, midlife, and college-educated participants were generally more cautious about the implementation of wet cupping but not its perceived usefulness and inherent benefits. Across all demographics, age had the strongest influence on responses and was more associated with positive perceptions about wet cupping.

The sample group in this study was collective in relation to participant demographic variables that could influence wet cupping perceptions, whether about its effectiveness and safety or cultural and educational influence. Although the distribution of the responses to some components of the questionnaire was dependent on all demographic variables, most depended on the age group variable. Despite the statistically significant influence of age, it did not impact most of the responses about the perceived effectiveness and safety of wet cupping. Additionally, many of the questionnaire components were completely independent of demographic factors, including age. These findings support the general agreement of the samples across a wide range of demographic variations. However, the willingness to recommend wet cupping to anyone can be argued to be an exception to this general pattern. This question aimed to assess the level of support for wet cupping and determine if most participants blindly support its usefulness or whether they genuinely believed that it is useful for some but not all individuals. Despite the variations in responses, most participants (66.78%) indicated they would not recommend wet cupping to anyone, which is consistent with the majority (72.28%) who disagree that it is suitable for all diseases.

The results of this study are consistent with previous findings. Previous studies indicate that when compared with young individuals, older individuals frequently practice multiple forms of complementary and alternative medicine and that they have more positive perceptions towards them, including wet cupping [21,22]. Multiple factors have been associated with the higher prevalence of positive attitudes that elderly individuals have towards complementary medicine, including the coexistence of multiple conditions, decreased functional activity, the assumption of a better safety profile when compared with conventional medicines, and perceived therapeutic benefits [23]. Females have been found to be more cautious and knowledgeable about the contraindications and adverse effects of wet cupping [24]. Wet cupping is very widely practiced in Saudi Arabia and a large proportion of the patients, especially those with chronic illnesses, have a good knowledge of various types of complementary and

alternative medicine and use it as primary treatment or in combination with prescribed conventional medications [25]. When considering the use of any form of complementary or alternative medicine, good communication between patients and their physicians is necessary to avoid potential adverse events [26,27]. However, this is complicated by the fact that most individuals tend to seek information about complementary and alternative medicine from mass media, family members, or friends [28]. Furthermore, individuals may also be reluctant to share and discuss information regarding complementary and alternative medicine with their physicians [28]. There should also be strict monitoring of the facilities, clinics, or centers that offer wet cupping therapy to ensure that they adhere to national guidelines and good practices, which can significantly reduce potential risks. For instance, an observational study among blood donors in a hospital in Saudi Arabia found that 24% of hepatitis B-positive samples had a history of wet cupping [29]. Finally, the efforts by the Saudi government to develop national standards for the safe use of cupping therapy equipment as well as the implementation of simulation during cupping training are commendable [30]. However, further steps should focus more on public education, monitoring, and maintaining good practices, as well as conducting more robust clinical trials to evaluate the effectiveness and safety of wet cupping in various conditions.

This study has some limitations. Because the study involved an online survey on several social networking sites, it did not reach those who do not-use social media. Moreover, the inclusion of additional demographic factors and individual characteristics, such as economic status and religious background, may provide further insight into public attitudes and knowledge on wet cupping.

In conclusion, our data show that the Saudi Arabian public considers wet cupping to be beneficial in the treatment of some diseases and individuals and believes that wet cupping is generally free of side effects. Moreover, there is a general awareness that good wet cupping practices are key to avoiding potential risks.

SUPPLEMENTARY MATERIAL

Supplementary data to this article can be found online at https://doi.org/10.51507/j.jams.2023.16.5.176

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AUTHORS' CONTRIBUTIONS

Conceptualization, Alkhamaiseh S.I. and Al Jafari A.H.; Methodology, Alkhamaiseh S.I. and Al Jafari A.H.; Software, Bazzari A.H. and Bazzari F.H.; Formal analysis, Bazzari A.H. and Bazzari F.H.; Investigation, Alkhamaiseh S.I. and Al Jafari A.H.; Data curation, Bazzari A.H. and Bazzari F.H.; Writing—original draft preparation, Bazzari A.H. and Bazzari F.H.; Writing—review and editing, Alkhamaiseh S.I. and Al Jafari A.H.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ORCID

Suhaib Ibrahim Alkhamaiseh, https://orcid.org/0000-0002-5336-0849
Amjad H. Bazzari, https://orcid.org/0000-0002-4645-795X
Abdel Hadi Al jafari, https://orcid.org/0009-0008-5116-3631
Firas H. Bazzari, https://orcid.org/0000-0002-7128-4720

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