

# Evaluation of cupping therapy as an adjuvant therapy in a smoking cessation program

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**Background** Despite the methods available to aid smoking cessation, it still remains a major problem; thus, there is a need for a new alternative approach to control smoking. This study was carried out to evaluate the effectiveness of cupping therapy as an adjuvant therapy in a smoking cessation program.

**Participants and methods** This pilot randomized study included 46 male smokers attending the outpatient smoking cessation clinic. Patients were divided into two matched groups: the first group included 20 male smokers subjected to a smoking cessation program, whereas the second group included 26 male smokers subjected to the same smoking cessation program as group I in addition to a monthly bloodletting cupping session for 3 consecutive months as an adjuvant. All the smokers included attended three follow-up monthly visits for assessment of outcomes and frequency of withdrawal symptoms.

**Results** The success rate was the highest in the first follow-up compared with the second and the third follow-up in group II. There was no significant difference between both groups in the frequency of withdrawal symptoms during the first follow-up. During the second follow-up, there was a significant decrease in the frequency of occurrence of headaches and in the frequency of anxiety in the patients in group II compared

with the patients in group I. During the third follow-up, there was a significant decrease in the frequency of occurrence of headache, weight gain, and tiredness in group II compared with group I. There was no significant difference between the outcomes of groups I and II; however, the success rate in group I was higher than that in group II. No significant differences were detected between the outcome in both groups in terms of age and smoking index. There was a significant difference in the effect of the number of cupping therapy sessions in the ability to quit smoking in group II.

**Conclusion** Bloodletting cupping therapy, which is not harmful if performed appropriately, is a simple procedure, economic, practical, and may be effective as an adjuvant in a smoking cessation program. *Egypt J Broncho* 2015 9:276–282 © 2015 Egyptian Journal of Bronchology.

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**Keywords:** cupping therapy, smoking cessation, smoking

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## Introduction

The effects of smoking on human health are severe and in many cases, deadly. There are ~4000 chemicals in cigarettes, hundreds of which are toxic. The ingredients in cigarettes affect everything from the internal functioning of organs to the efficiency of the body's immune system. The effects of cigarette smoking are destructive and widespread and nicotine reaches the brain within 10 s after smoke is inhaled [1].

Smoking cessation is the process of discontinuing the practice of inhaling a smoked substance.

Cupping is an ancient treatment in which evacuated cups are applied to intact or scarified skin to draw blood toward or through the skin [2]. Traditionally, cupping therapy has been practiced in most cultures in one form or another. The practice of cupping has been part of Middle-Eastern cultural practice for thousands of years, with citations dating back to the time of Hippocrates (400 BC). Moreover, ancient Egyptians were the first to embrace cupping therapy and the oldest recorded medical textbook, *Ebers Papyrus*, written in ~1550 BC in Egypt mentions cupping [3].

In view of the above, this study was carried out to evaluate the effectiveness of cupping therapy as an adjuvant therapy in a smoking cessation program.

## Participants and methods

This pilot randomized study included 46 male smokers selected from among those attending the outpatient smoking cessation clinic of Giza Chest Hospital. The patients were divided into two matched groups: the first group included 20 male smokers who were subjected to a smoking cessation program according to the American Cancer Association (ACA), the WHO, and the Egyptian Ministry of Health and the second group included 26 male smokers who were subjected to the same smoking cessation program as the first group in addition to bloodletting cupping therapy as an adjuvant. Each smoker in the second group received

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a monthly cupping session for 3 consecutive months as an outpatient procedure. Those sessions were conducted on the 17th, 19th, and 21st of the lunar months.

For all patients, the following were documented: detailed medical history and thorough clinical examination. All included smokers attended three follow-up monthly visits for assessment of outcome and the frequency of the withdrawal symptoms. All recruited smokers were provided with information detailing the research procedure before commencing the study and provided a written consent. The study was approved by the institutional ethical committee.

### Bloodletting cupping therapy

A specific protocol for medical bloodletting cupping therapy was applied according to the modern bloodletting cupping procedure [4].

Bloodletting cupping was performed on four basic points that were selected according to traditional Arab medicine [5]:

- (1) The first point is 'Al-Kahel' between the shoulders (seventh cervical spine); Ibn Al-Koff stated that cupping on the shoulders relieves dyspnea [5].
- (2) The second and third points are on the region between the two shoulder blades [5].
- (3) The fourth point is the 'Al-Auzon' area behind the ear; cupping on this area relieves headache and heaviness in the head.

### Preparation

- (1) The room was kept warm and comfortable.
- (2) The procedure was explained thoroughly to the patient.
- (3) The patient was made to sit on the examination bed (cupping can be performed with the patient lying down in the case of weak or frightened patients or if the patient is likely to suffer from circulatory complications. Otherwise, cupping is performed in the sitting position).
- (4) The back of the patient was completely bare.

### Bloodletting cupping procedure [4]

A high-quality and durable cupping set was used (Fig. 1). It had a vacuum pump (suction pump) and cups that were light weight, breakage resistant, and made of antiaging plastic. These cups are supplied in different sizes and come with a detailed user's manual.

- (1) It ensured that the inside of the cup was clean and the handle was completely unfastened.
- (2) The skin of the patient was dried, cleaned by an antiseptic solution, and the hair was shaved in

Fig. 1



Cupping set.

the selected area of the skin for ideal maximum performance of the cups.

- (3) An appropriate size or type of cup was selected. The cup was placed on the previous four points selected. With the rim of the cup facing downward, press tightly with one hand and screw the handle of the vacuum with the other until the cup sucks onto the skin.
- (4) The handle of the cup was screwed or unscrewed to adjust the pressure inside the cup.
- (5) The cups were left for a few minutes until the skin engorged, and then it was removed.
- (6) The skin and under-the-skin tissues of the selected points were scarified with a very small incision (2 cm) in the longitudinal direction from upright downwards.
- (7) The cup was again placed on the previous four points selected and the handle of the cup was screwed or unscrewed to adjust the pressure inside the cup (within 15 min, the bleeding stops).
- (8) The cup was removed when it was one-third to two-thirds full and another cup was placed on the area.
- (9) A large sterilized gauze was placed under the cup with one hand. Pressing the upper edge of the cup with the other hand, the cup was removed in an upright motion, ensuring that cup remained covered with the gauze at all times.
- (10) The cupping procedure was repeated until the scarified indurations no longer bled.
- (11) The cups were unscrewed after the desired time.
- (12) The small wound was gently rubbed with an antibiotic ointment and then covered with a sterile bandage that had to be left for 1 day.

It is worth mentioning that if the incision is sufficient, between 30 and 60 ml of blood can be expected to be drawn into one cup. Bleeding more than once a month is acceptable, but not more than an average of 100 ml at any one time.

In this study, plastic, disposable vacuum and sterilized scalpels were used for the process.

Every smoker recruited had been informed that following the cupping session, his skin would show the following abnormal features [6]:

- (1) Blood speckles appear on the skin, which will dissipate in a few days, and the skin would become red because of the congestion of blood flow.
- (2) Blisters might appear on the skin where the cup was attached.

### Statistical analysis

Numerical data were expressed as mean  $\pm$  SD, minimum, maximum, and range, whereas non-numerical data were expressed as number and percentage. A  $\chi^2$ -test was used to perform comparisons between two qualitative variables. The Student *t*-test was used to perform a comparison between the means of two quantitative variables. Statistical significance was set at *P* value less than 0.05. Statistical analyses were carried out utilizing the statistical package for the social sciences software (SPSS, version 10.0; SPSS Inc., Chicago, Illinois, USA) for Windows.

### Results

Forty-six male smokers were included in this study. The increase in nicotine withdrawal symptoms was

related to the outcome in groups I and II. The success rate was the highest in the first follow-up compared with the second and the third follow-up in group II (Tables 1 and 2).

There was no statistically significant difference between both groups in the frequency of withdrawal symptoms during the first follow-up (*P* > 0.05) (Table 3).

During the second follow-up, there was a statistically significant decrease in the frequency of occurrence of headache and in the frequency of anxiety (irritability) among smokers in group II compared with smokers in group I, whereas there was no statistically significant difference (*P* > 0.05) among smokers in both groups in terms of the rest of the withdrawal symptoms (Table 4).

During the third follow-up, there was a statistically significant decrease in the frequency of occurrence of headache, weight gain (irritability), and tiredness among smokers in group II compared with smokers in group I, whereas there was no statistically significant difference (*P* > 0.05) among smokers in both groups in terms of the rest of the withdrawal symptoms (Table 5).

There was no statistically significant difference between the outcome of groups I and II. However, the rate of success in group I was higher than that in group II (Table 6 and Fig. 2).

**Table 1 Frequency of nicotine withdrawal symptoms in group I in relation to the outcome**

Nicotine withdrawal symptoms in group I	Follow-up 1 [N (%)]		Follow-up 2 [N (%)]		Follow-up 3 [N (%)]	
	Success	Failed	Success	Failed	Success	Failed
Dizziness	2 (10)	14 (70)	0 (0)	2 (10)	0 (0)	1 (5)
Headache	4 (20)	16 (80)	2 (10)	11 (55)	2 (10)	11 (55)
Anxiety (irritability)	2 (10)	15 (75)	1 (5)	11 (55)	0 (0)	11 (55)
Boredom	1 (5)	10 (50)	0 (0)	7 (35)	0 (0)	6 (30)
Tiredness (fatigability)	1 (5)	10 (50)	0 (0)	5 (25)	0 (0)	6 (30)
Chest tightness	1 (5)	7 (35)	0 (0)	5 (25)	0 (0)	5 (25)
Weight gain	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Sleep disturbance	0 (0)	2 (10)	0 (0)	2 (10)	0 (0)	1 (5)
Cough	0 (0)	4 (20)	0 (0)	2 (10)	0 (0)	2 (10)

**Table 2 Frequency of nicotine withdrawal symptoms in group II in relation to the outcome**

Nicotine withdrawal symptoms in group II	Follow-up 1 [N (%)]		Follow-up 2 [N (%)]		Follow-up 3 [N (%)]	
	Success	Failed	Success	Failed	Success	Failed
Dizziness	5 (19.23)	12 (46.15)	0 (0)	0 (0)	0 (0)	0 (0)
Headache	5 (19.23)	16 (61.54)	0 (0)	0 (0)	0 (0)	0 (0)
Anxiety (irritability)	3 (11.54)	16 (61.54)	0 (0)	2 (7.69)	0 (0)	2 (7.69)
Boredom	2 (7.69)	9 (34.62)	0 (0)	3 (11.54)	0 (0)	2 (7.69)
Tiredness (fatigability)	1 (3.85)	11 (42.31)	0 (0)	1 (3.85)	0 (0)	1 (3.85)
Chest tightness	2 (7.69)	7 (26.92)	0 (0)	0 (0)	0 (0)	0 (0)
Weight gain	0 (0)	2 (7.69)	1 (3.85)	1 (3.85)	2 (7.69)	1 (3.85)
Sleep disturbance	0 (0)	2 (7.69)	0 (0)	0 (0)	0 (0)	0 (0)
Cough	2 (7.69)	2 (7.69)	0 (0)	0 (0)	0 (0)	0 (0)

No statistically significant differences were detected between the outcomes in both groups in terms of age and smoking index (Table 7).

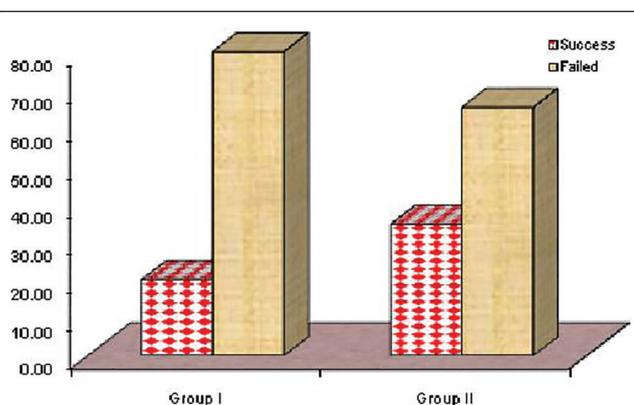
There was a statistically significant difference ( $P < 0.05$ ) in the effect of the number of cupping therapy sessions on the ability to quit smoking among smokers in group II (Table 8 and Fig. 3).

## Discussion

Smoking cessation represents the single most important step that smokers can take to enhance the length and quality of their lives. Over time, an individual becomes physically dependent on and emotionally addicted to nicotine. Studies have shown that smokers must deal with both the physical and the mental dependency on nicotine in order to quit and not resume. Physically, the body reacts to the absence of nicotine, causing unpleasant withdrawal symptoms. Mentally, the smoker is faced with giving up a habit, which calls for a major change in behavior, making it difficult to stay away from nicotine. Both the physical and the mental factors must be addressed for the quitting process [7].

The Global Adult Tobacco Survey (GATS) estimated that overall, 19.4% (9.7 million) of adults in Egypt currently smoke tobacco: 37.7% men and 0.5% women. 95% of current smokers are daily smokers. Manufactured cigarettes are the most popular type of product smoked by men (31.7%), with an average of 19.4 cigarettes/day, followed by Shisha (6.2%); 42.2% smoke one session/day and 69.9% smoke two or fewer rocks/session. However, with respect to women smokers, 0.2% smoke manufactured cigarettes and 0.3% smoke Shisha, and the use was highest in rural Upper Egypt (0.9%) and among those with no formal education (0.7%) [8].

Fig. 2



Comparison between groups I and II in the outcome.

The value of bloodletting cupping in healing is well documented in Islamic culture, where Al-Bukhari narrated in his Sahih that the Prophet (Sallallaahu Ālayhi Wasallam) said: 'Healing is in three things: drinking honey, the incision of a cupper, and cauterizing with fire, but I forbid my Ummah to use cauterizing'. In modern medical practice, Eisenberg *et al.* [9] reported that 60% of medical schools in the USA including Harvard and John Hopkins Medical Centers have

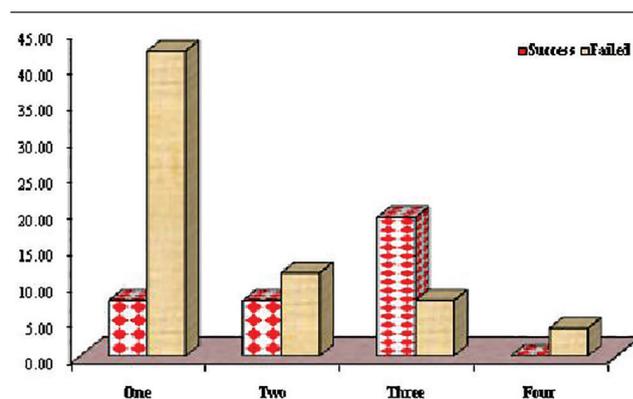
Table 3 Comparison of the frequency of nicotine withdrawal symptoms among smokers in groups I and II during the first follow-up

First follow-up	N (%)		$\chi^2$	P
	Group I	Group II		
Dizziness	16 (80)	17 (65.38)	0.030	0.862
Headache	20 (100)	21 (80.77)	0.024	0.867
Anxiety (irritability)	17 (85)	19 (73.08)	0.111	0.739
Boredom	11 (55)	11 (42.31)	0.000	1
Tiredness (fatigability)	11 (55)	12 (46.51)	0.043	0.835
Chest tightness	8 (40)	9 (34.62)	0.059	0.808
Weight gain	0 (0)	2 (7.69)	0.182	0.176
Sleep disturbance	2 (10)	2 (7.69)	0.000	1
Cough	4 (20)	2 (7.69)	0.667	0.414

Table 4 Comparison of the frequency of nicotine withdrawal symptoms among smokers in groups I and II during the second follow-up

Second follow-up	N (%)		$\chi^2$	P
	Group I	Group II		
Dizziness	2 (10)	0 (0)	0.333	0.564
Headache	13 (65)	0 (0)	10.286	0.01
Anxiety (irritability)	13 (65)	2 (7.69)	8.067	0.04
Boredom	7 (35)	3 (11.54)	1.600	0.206
Tiredness (fatigability)	5 (25)	1 (3.85)	2.667	0.102
Chest tightness	5 (25)	0 (0)	2.667	0.102
Weight gain	0 (0)	2 (7.69)	0.333	0.564
Sleep disturbance	2 (10)	0 (0)	0.333	0.564
Cough	2 (10)	0 (0)	0.333	0.564

Fig. 3



Comparison between the outcome of group II in terms of the number of cupping therapy sessions.

**Table 5 Comparison of the frequency of nicotine withdrawal symptoms among smokers in groups I and II during the third follow-up**

Third follow-up	N (%)		$\chi^2$	P
	Group I	Group II		
Dizziness	1 (5)	0 (0)	0.000	1.000
Headache	13 (65)	0 (0)	10.286	0.001
Anxiety (irritability)	11 (55)	2 (7.69)	6.231	0.013
Boredom	6 (30)	2 (7.69)	2.000	0.157
Tiredness (fatigability)	6 (30)	1 (3.85)	3.571	0.049
Chest tightness	5 (25)	0 (0)	2.667	0.102
Weight gain	0 (0)	3 (11.54)	7.073	0.008
Sleep disturbance	1 (5)	0 (0)	0.000	1.000
Cough	2 (10)	0 (0)	0.333	0.564

**Table 6 Comparison between groups I and II in the outcome**

Outcomes	N (%)		
	Group I	Group II	Total
Success	4 (20)	9 (34.62)	13 (28.26)
Failed	16 (80)	17 (65.38)	33 (71.74)
Total	20 (100)	26 (100)	46 (100)
$\chi^2$	1.219		
P	0.270		

**Table 7 Comparison between age (years) and smoking index (pack years) of groups I and II in the outcome**

Groups	Success (mean $\pm$ SD)		Failed (mean $\pm$ SD)		P
	Group I				
Age	36.250 $\pm$ 17.017	41.688 $\pm$ 13.705	0.505		
Smoking index	58.125 $\pm$ 48.793	33.406 $\pm$ 26.002	0.171		
Group II					
Age	47.778 $\pm$ 10.060	46.882 $\pm$ 13.738	0.865		
Smoking index	36.722 $\pm$ 25.176	46.941 $\pm$ 38.420	0.480		

**Table 8 Comparison between the outcome of group II in the number of cupping therapy sessions**

Number of cupping sessions in group II	Outcome [N (%)]			$\chi^2$	P
	Success	Failed	Total		
One	2 (7.69)	11 (42.31)	13 (50)	7.273	0.044
Two	2 (7.69)	3 (11.54)	5 (19.23)		
Three	5 (19.23)	2 (7.69)	7 (26.92)		
Four	0 (0)	1 (3.85)	1 (3.85)		
Total	9 (34.62)	17 (65.38)	26 (100)		

begun teaching cupping as a part of complementary medicine. In addition, classes are now advertised in most towns in the UK. Moreover, as Abdel-Aal *et al.* [10] stated, cupping therapy is a complementary, traditional technique and, although not yet evidence based, it is nevertheless a simple procedure that can be practiced by any medical practitioner. Ullah *et al.* [11] also reported that complementary and alternative medicine is becoming more popular with the public and gaining credibility within biomedical healthcare.

The results obtained showed that there was no statistically significant increase in the success rate of quitting among smokers in group II, who were subjected to the same smoking cessation program as the first group in addition to bloodletting cupping therapy as an adjuvant, compared with those of group I. Yet, the success rate of quitting was higher among smokers in group II compared with those of group I (34 and 20%, respectively). Also, there was a significant positive statistical correlation between the number of cupping sessions received and the success rate among smokers in group II. This increase in the success rate of quitting among group II smokers might be attributed to the effect of cupping sessions that they received as an adjuvant and this effect is likely to be cumulative. This assumed effect of cupping can be attributed to the anti-inflammatory effect of cupping that was mentioned by Chirali [12], who reported that cupping eases the interruption of blood circulation and congestion and stops the inflammatory extravasation of fluids from the tissues and as smoking is known to trigger an inflammatory response, it may be concluded that cupping may ease and lessen such an inflammatory response. Also, Sack and Fye [13], Cadwell [14], and Ullah *et al.* [11] assumed that puncturing the skin increases the release of the adrenocortical hormones, known for their anti-inflammatory effects, into the circulation.

In the present study, the nicotine withdrawal symptoms were most notable in the first follow-up among smokers in both groups, but without statistically significant differences between both groups, whereas during the second follow-up, there was a statistically significant decrease in the frequency of occurrence of headache and in the frequency of anxiety among smokers in group II compared with smokers in group I. The third follow-up showed a statistically significant decrease in the frequency of occurrence of headache, weight gain, the frequency of anxiety, and tiredness among smokers in group II compared with smokers in group I. Whether or not these results might be attributed to the adjuvant cupping therapy received by smokers in group II remains an intriguing question.

Several studies in the literature have studied the effect of wet cupping mainly on headache, Duo [15], Azizkhani [16], and Ahmadi *et al.* [17], to name a few. Ahmadi *et al.* [17] concluded that it seems plausible that the mechanism of wet cupping is dominated by influences in neural, hematological, and immune system functioning, all of which contribute toward the overall well-being of an individual. In the neural system, the main effect is likely regulation of neurotransmitters and hormones such as serotonin, dopamine, endorphin, calcitonin gene-related peptide, and acetylcholine. Moreover, it seems

that wet cupping has an effect on the negative charge of neuronal cells. In the hematological system, the main effect likely occurs through two pathways:

- (a) Regulate coagulation and anticoagulation systems (e.g. decrease the level of hematological elements such as fibrinogen) and
- (b) Decrease the hematocrit and then increase the flow of blood and increase the end organ oxygenation.

In the immune system, the main effect likely occurs through three pathways:

- (a) Irritation of the immune system by inducing an artificial local inflammation, and then activating the complementary system and increasing the level of immune products such as interferon and tumor necrosis factor;
- (b) Affecting the thymus; and
- (c) Increasing the flow of lymph in lymph vessels.

However, the significant decrease in some of the withdrawal symptoms only handled the physical aspect of nicotine addiction and the mental addiction to nicotine remains, which may be more powerful than physical addiction in some smokers and subsequently lead to their failure to quit. This could explain the statistically nonsignificant increase in the success rate between the two groups despite the statistically significant decrease in some of the withdrawal symptoms among smokers of group II. Also, smokers who were addicted to other substances, especially to Hashish, had a very high rate of failure because the nicotine withdrawal symptoms were markedly aggravated and could not be overcome by cupping or by other conventional therapies.

In the present study, no statistically significant correlation was found between the success rate and the occupation of smokers in both groups, although employed smokers had the highest success rate, which might be attributed to the fact that employees are better educated and may be more aware of the hazards of smoking, which could be a good motive to quit. This was in agreement with the study commissioned by the National Institute for Health and Clinical Excellence (NICE) and carried out by the UK Centre for Tobacco Control Studies (UKCTCS), which reviewed published studies between 1990 and 2007 to establish success rates for the smoking cessation services and reported that smokers are more likely to be manual workers and may experience multiple barriers that make it harder to stop smoking in the long term.

In the current study, there was no statistically significant correlation between success rate and marital status of

smokers in both groups. This was not in agreement with Reitzel *et al.* [18], who suggested that social cohesion may facilitate smoking cessation among Black smokers through desirable effects on psychosocial mechanisms that can result from living in a community with strong interpersonal connections.

In this study, there was no statistically significant correlation between the age of the smokers and the success rate of cessation, which is not in agreement with the findings of GATS [8], which showed that quitting in the past 5 years decreased with age, from 89.2% for ages 15–24 years to 22.7% for ages 65 years and older. However, the study by Messer *et al.* [19] suggested that young adults were more likely than older adults to quit smoking successfully and explained that young adults have more widespread interest in quitting, higher prevalence of smoke-free homes, lower levels of dependence, and different social norms.

Also, the present study found no statistically significant correlation between smoking index and smoking cessation among smokers in both groups and this is in agreement with Dennis and Scott [20] in the national health survey that was conducted in Canada, and showed that measures of nicotine dependence such as the Heaviness of Smoking Index (HSI) have yielded mixed success in predicting cessation. The HSI score, on its own, does not adequately identify smokers who are not able to quit. The HSI may be less effective for explaining quitting behavior for a general population.

Finally, it would not be accurate to discuss the possible mechanisms of cupping without mentioning the possibility of a placebo effect. The effect of placebos remains controversial in the literature, but there is consensus at least that placebos may help patients improve. Unlike most placebos, which have biological effects (e.g. a 'sugar pill'), cupping influences the neurological, hematological, circulatory, and immunological systems. Therefore, cupping is also an important tradition in Islamic culture; thus, it would be fair to surmise whether or not religious beliefs may play a role.

In fact, researches in understudied fields such as this one often inspire more questions than they answer. There is a need for a case-control design to test the efficacy of cupping in comparison with other, more empirically supported techniques and in comparison with placebo or nontreatment groups.

It remains unclear as to how cupping works. Hypotheses on its effects on various body symptoms have been proposed, but further research on this topic is needed.

Finally, cupping should be tested in other cultures and, in particular, among individuals who are not familiar with the technique and therefore perhaps not biased by any long-held cultural or spiritual placebo influences.

Despite these remaining questions, wet cupping remains an appealing treatment option because it is easy to administer, requires only basic low-cost technology, and offers an inexpensive remedy with no significant side effects.

In conclusion, bloodletting cupping therapy, which may not be harmful if performed appropriately under complete aseptic conditions, is a simple procedure, economic, practical, easy to apply, and may be effective as an adjuvant in a smoking cessation program. It plays an important role in decreasing the physical withdrawal symptoms resulting from nicotine craving and actually leads to failure of cessation. Moreover, it may enable tissues to eliminate toxins and can be considered as a filter to retain the beneficial elements in the body. The procedure of bloodletting cupping does not seem to be harmful if performed appropriately.

Finally, the frequency of cupping sessions can be varied from one smoker to another depending on the decrease in the smoking dose until permanently quitting. Still more researches are required to establish the beneficial role of bloodletting cupping therapy in a smoking cessation program and probably other diseases, and to study the usefulness of its application and exact mechanisms of action.

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#### Conflicts of interest

There are no conflicts of interest.

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