FACT Focus on Alternative and Complementary Therapies

ORIGINAL ARTICLE

Focus on Alternative and Complementary Therapies
Volume 19(2) June 2014 64–69

DOI 10.1111/fct.12102
ISSN 1465-3753

Does wet cupping on the interscapular region improve depression and anxiety?

Seyed Kazem Farahmand, Li Zhi Gang, Seyed Ahmad Saghebi, Maryam Mohammadi, Shabnam Mohammadi, Ghazaleh Mohammadi, Gordon A Ferns, Majid Ghanbari, Gholamreza Ghayour Razmgah, Zahra Ramazani, Majid Ghayour-Mobarhan, Habibollah Esmaily, Hoda Azizi

Abstract

Background Metabolic syndrome is characterised by at least three of the following clinical features: abdominal obesity, dyslipidaemia, high blood pressure and glucose intolerance; it has also been associated with depression and anxiety. Cupping has been shown to benefit psychological well-being by alleviating anger, hostility, depression and anxiety.

Objectives To investigate the effects of wet cupping on depression and anxiety in patients with metabolic syndrome.

Methods Altogether 136 patients with metabolic syndrome (aged 18–65 years) were included. Ten patients were excluded owing to a history of haemophilia, systemic disorder, infectious disease, stroke, heart attack, type 1 diabetes, secondary dyslipidaemia, renal dysfunction, epilepsy and drug therapy. Patients were randomly divided into an experimental group (n=63), which received dietary advice with wet cupping, and a control group (n=63) receiving dietary advice alone. Treatment was administered for 3 months. Depression and anxiety were assessed using the Beck Depression Inventory at 0, 6 and 12 weeks after treatment. Data were analysed using ANOVA.

Results There were no statistically significant correlations between depression and anxiety and weight, BMI and lipid profile (P>0.05). However, there was a statistically significant association between the psychological parameters and blood pressure, age and gender (P<0.05). There was a significant variation in scores between assessment points of P<0.001 for both anxiety and depression, but these did not differ significantly between groups (P=0.78 and P=0.69, respectively).

Conclusion Wet cupping on the interscapular region does not appear to be useful for the treatment of anxiety and depression in patients with metabolic syndrome.

Keywords

Anxiety • depression • metabolic syndrome • wet cupping

Introduction

Metabolic syndrome is characterised by a cluster of clinical and metabolic characteristics consisting of hypertension, glucose intolerance and abdominal adiposity. Metabolic syndrome is associated with an increased risk of cardiovascular events[1–3] and its prevalence is increasing globally, with recent information indicating 25% in North America,[4] 6–29% in Europe[5] and 10–30% in Asia.[6] Metabolic syndrome is also prevalent in Iran, with reported prevalence rates of 33.7% in Tehran[6,7] and 38.9% in Razavi Khorasan.[8]

Many studies have demonstrated an association between depression, anxiety and metabolic syndrome.[9–12] In addition, psychological features such as anger, depression and anxiety are shown to increase the risk of cardiovascular events.[13,14] Some studies have shown that cupping improves

symptoms of depression.[15,16] The aim of this study was to investigate the effects of wet cupping on depression and anxiety in patients with metabolic syndrome.

Methods

Subjects

This study was approved by the Mashhad University of Medical Sciences Ethics Committee, Iran. Altogether 136 patients (58 men/78 women, aged 18–65 years) with diagnosed metabolic syndrome were enrolled in the study. To be eligible to participate, patients had to be (a) aged 18–65 years, (b) have a diagnosis of metabolic syndrome and (c) have no history of infectious disease or bleeding disorder. Patients meeting any of the following criteria were excluded: (a) history of haemophilia, systemic disorder, stroke, heart attack, type 1 diabetes, secondary dyslipidaemia or renal dysfunction, (b) taking medicine or dietary advice and (c) pregnant. Overall, 10 patients were excluded from the study because they met one or more of these criteria.

On enrolment, patients were advised to commence an isocaloric diet for 2 weeks. They were then randomly assigned to the control group (n=63) or experimental group (n=63). The control group received dietary advice that provided a 500 kcal per day deficit in total energy expenditure for 3 months. The experimental group was given the same dietary advice and, in addition, received three sessions of wet cupping at baseline, 6 and 12 weeks after recruitment (Figure 1).

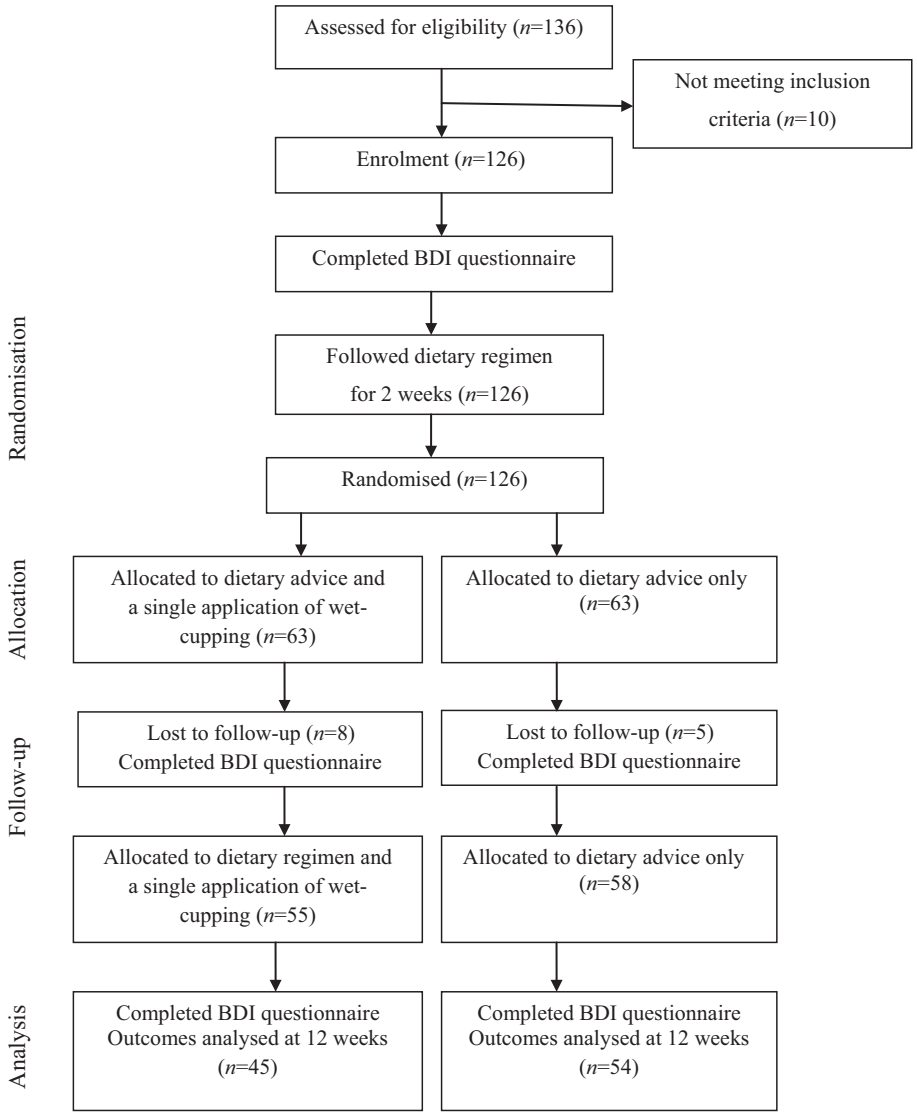

Figure 1 Trial flow chart. BDI, Beck Depression Inventory.

Eight patients from the experimental group, and five from the control group, were lost to follow-up (Figure 1).

Depression and anxiety were assessed using the Beck Depression Inventory (BDI). This questionnaire contains a 21-item depression and a 21-item anxiety questionnaire. All responses followed a four-point Likert-scale format. The sum of scores for the depression questionnaire range from 0–33, with normal scoring 0–9, mild 10–19, moderate 20–29 and high 30–33. The sum of scores for the anxiety questionnaire ranged from 0–63, with scores organised into four levels: normal (0–7), light (8–15), intermediate (16–25) and severe (26–63).

Wet cupping

A single doctor carried out wet cupping on all participants. The cupping treatment was based on TCM theory. We matched our patients based on their TCM pattern differentiation. A small round cup was applied between the spinal process of the first and third thoracic vertebrae. A partial vacuum was caused by electromechanical suction. Multiple superficial incisions were made by a sterile razor and blood was drawn by the vacuum into the round cup. After 5–10 min, the cup was removed and the skin beneath the cup was bandaged. The interval between the two wet-cupping treatments was 6 weeks.

Statistical analysis

Data were analysed using SPSS software (version 15). Comparisons between groups were assessed by two-way ANOVA. Values were given as means ± standard deviations (SDs). Any *P*-values <0.05 were considered statistically significant.

Results

Tables 1 and 2 report the correlations between the anthropometric characteristics and the physiological factors in each group. We found no correlation between depression and anxiety and weight, BMI, HDL-C, total cholesterol, triglyceride, LDL-C or fasting blood glucose ($P>0.05$). However, there was a statistically significant relationship between depression and anxiety and blood pressure, age and gender ($P<0.05$).

Table 3 shows the mean anxiety and depression scores in the experimental and control groups. The mean anxiety score was 13.93±9.43 in the control group at baseline, 9.87±10.11 at 6 weeks and 7.96±9.27 at 12 weeks, while the mean anxiety scores

Table 1 Correlation of the anthropometric characteristics with anxiety and depression at baseline

	Anxiety		Depression	
	Diet	Diet + cupping	Diet	Diet + cupping
Age (years)	0.107	–0.03	0.264[a]	0.141
Sex	0.220	0.124	0.070	0.058
Weight (cm)	–0.102	–0.168	0.026	0.011
BMI (kg/m^2)	–0.057	–0.130	0.096	0.057
BP-systolic (mmHg)	–0.029	0.085	0.063	0.273[a]
BP-diastolic (mmHg)	0.080	0.253[a]	0.034	0.181
FBG (mg/l)	0.027	0.134	0.005	0.168
TC (mmol/l)	0.147	–0.181	–0.005	0.002
TG (mmol/l)	0.197	–0.092	0.084	–0.001
HDL-C (mmol/c)	–0.011	–0.034	–0.093	0.162
LDL-C (mmol/)	0.057	–0.159	–0.065	–0.008

BP, blood pressure; FBG, fasting blood glucose; TC, total cholesterol; TG, triglycerides.
[a]Correlation is significant at the 0.05 level (two-tailed).

Table 2 Correlation of the anthropometric characteristics with anxiety and depression

	Anxiety				Depression			
	Diet		Diet + cupping		Diet		Diet + cupping	
	6 weeks	12 weeks	6 weeks	12 weeks	6 weeks	12 weeks	6 weeks	12 weeks
Age (year)	0.170	0.134	0.176	–0.001	0.140	0.131	0.240	0.105
Sex	0.142	0.346	0.024	0.125	0.242	0.294[a]	0.048	0.173
Weight (cm)	0.034	–0.288	–0.005	–0.160	0.006	–0.048	0.078	–0.100
BMI (kg/m^2)	0.159	0.021	0.074	–0.033	0.190	0.042	0.142	0.065

[a]Correlation is significant at the 0.05 level (two-tailed).

Table 3 Comparison of psychological factors between the experimental and control groups

	Cupping Mean ± standard deviation			Diet + cupping Mean ± standard deviation			*P*-value	
	0 weeks	6 weeks	12 weeks	0 weeks	6 weeks	12 weeks	Time-point	Group
Anxiety	13.93±9.43	9.87±10.11	7.96±9.27	15.18±11.20	10.07±11.80	7.92±9.26	<0.001	0.788
Depression	12.63±8.35	8.58±8.13	6.79±7.74	14.16±9.44	10.75±9.52	8.75±9.47	<0.001	0.693

in the experimental group at baseline, 6 weeks and 12 weeks were 15.18±11.20, 10.07±11.80 and 7.92±9.26, respectively. There was a statistically significant difference between time-points in each group ($P<0.001$) but no statistically significant difference between groups ($P=0.78$). Mean depression scores in the control group were 12.63±8.35, 8.58±8.13 and 6.79±7.74 at baseline, 6 weeks and 12 weeks, respectively, compared to 14.16±9.44, 10.75±9.52 and 8.75±9.47 in the experimental group. The difference between time-points in each group was statistically significant ($P<0.001$), but there was no statistically significant difference between groups ($P=0.69$).

Discussion

This research aimed to investigate the effects of wet cupping on depression and anxiety in patients with metabolic syndrome. Our results showed that dietary advice may improve depression and anxiety in both experimental and control groups. However, wet cupping did not have a significant effect beyond this.

In the Healthy Women study, 425 American women aged 42–50 years were followed for 15 years. Depression was measured using the BDI. The researchers found that depressive symptoms were associated with features of the metabolic syndrome.[17] Similarly, in a study of 172 male twins, an association was found between depression (as assessed by the Centre for Epidemiological Studies–Depression Scale) and triglyceride, blood glucose, blood pressure, BMI and waist-to-hip ratio.[12] In another study, 5698 men and women (mean age 31 years, without diabetes and coronary heart disease) were followed for depressive symptoms, as defined by the BDI. The researchers reported no significant association between metabolic syndrome and depression and anxiety.[9] Our results also showed there was no correlation between metabolic syndrome risk factors and depression and anxiety in the experimental group, whereas blood pressure was found to be associated with depression and anxiety in the control group.

The mechanisms of action of wet cupping are currently unknown. It seems that cupping has immune, haematological and psychological effects.[18]

Strengths and limitations of the study

There has been little research investigating the effects of cupping on depression and anxiety in patients with metabolic syndrome, until now. This contribution to the evidence base is important as wet cupping could potentially be used as a complementary therapy in patients with metabolic syndrome as it has few complications and can be administered at low cost. In addition, cupping could be used in place of drug therapy to minimise the risk of drug side-effects. Nevertheless, our study showed that wet cupping did not have a significant effect on anthropometric or biochemical indices above those of diet alone. Owing to ethical considerations, we were also unable to treat with wet cupping alone, which would have been helpful in showing the effects of cupping separately. Future studies should therefore examine different methods of wet cupping in patients with metabolic syndrome.

Conclusion

Cupping on the interscapular region does not appear to be effective for the treatment of depression and anxiety in subjects with metabolic syndrome.

Funding

This work was supported by a research grant from the Office of the Research Deputy of Mashhad University of Medical Sciences, Iran.

Conflict of interest None declared.

References

1 Rodríguez A, Delgado-Cohen H, Reviriego J, Serrano-Ríos M. Risk factors associated with metabolic syndrome in type 2 diabetes mellitus patients according to World Health Organization, Third Report National Cholesterol Education Program and International Diabetes Federation definitions. *Diabetes Metab Syndr Obes* 2011; **4:** 1–44.

2 Wang W, Luo Y, Liu Y *et al*. Prevalence of metabolic syndrome and optimal waist circumference cut-off points for adults in Beijing. *Diabetes Res Clin Pract* 2010; **88:** 209–16.

3 Ervin RB. Prevalence of metabolic syndrome among adults 20 years of age and over, by sex, age, race and ethnicity, and body mass index: United States, 2003–2006. *Natl Health Stat Report* 2009; **13:** 1–7.
4 Ford ES, Li C, Zhao G. Prevalence and correlates of metabolic syndrome based on a harmonious definition among adults in the US. *J Diabetes* 2010; **2:** 180–93.
5 Tonkin A. The metabolic syndrome – a growing problem. *Eur Heart J Suppl* 2004; **6** (Suppl. A): A37–A42.
6 Azizi F, Salehi P, Etemadi A, Zahedi-Asl S. Prevalence of metabolic syndrome in an urban population: Tehran Lipid and Glucose Study. *Diabetes Res Clin Pract* 2003; **61:** 29–37.
7 Delavari A, Forouzanfar MH, Alikhani S *et al*. First nationwide study of the prevalence of the metabolic syndrome and optimal cutoff points of waist circumference in the Middle East: the national survey of risk factors for noncommunicable diseases of Iran. *Diabetes Care* 2009; **32:** 1092–7.
8 Nezhad MA, Ghayour-Mobarhan M, Parizadeh SM *et al*. Metabolic syndrome: its prevalence and relationship to socio-economic parameters in an Iranian population. *Nutr Metab Cardiovasc Dis* 2008; **18:** e11–e12.
9 Herva A, Nen PRS, Miettunen J *et al*. Co-occurrence of metabolic syndrome with depression and anxiety in young adults: the Northern Finland 1966 Birth Cohort Study. *Psychosom Med* 2006; **68:** 213–16.
10 Cohen BE, Panguluric P, Beeya N, Whooley MA. Psychological risk factors and the metabolic syndrome in patients with coronary heart disease: findings from the Heart and Soul Study. *Psychiatry Res* 2010; **175:** 133–7.
11 Takeuchi T, Nakao M, Numora K, Yano E. Association of metabolic syndrome with depression and anxiety in Japanese men. *Diabetes Metab* 2009; **35:** 32–6.
12 McCaffery JM, Niaura R, Todaro JF *et al*. Depressive symptoms and metabolic risk in adult male twins enrolled in the National Heart, Lung, and Blood Institute twin study. *Psychosom Med* 2003; **65:** 490–7.
13 Jiang W, Glassman A, Krishnan R *et al*. Depression and ischemic heart disease: what have we learned so far and what must we do in the future? *Am Heart J* 2005; **150:** 54–78.
14 Shimbo D, Davidson KW, Haas DC *et al*. Negative impact of depression on outcomes in patients with coronary artery disease: mechanisms, treatment considerations, and future directions. *J Thromb Haemost* 2005; **3:** 897–908.
15 Li CD, Fu XY, Jiang ZY *et al*. Clinical study on combination of acupuncture, cupping and medicine for treatment of fibromyalgia syndrome. [In Chinese] *Zhongguo Zhen Jiu* 2006; **26:** 8–10.
16 Jang ZY, Li CD, Qiu L *et al*. Combination of acupuncture, cupping and medicine for treatment of fibromyalgia syndrome: a multi-central randomized controlled trial. [In Chinese] *Zhongguo Zhen Jiu* 2010; **30:** 265–9.
17 Räikkönen K, Matthews KA, Kuller LH. The relationship between psychological risk attributes and the metabolic syndrome in healthy women: antecedent or consequence? *Metabolism* 2002; **51:** 1573–7.
18 Ahmadi A, Schwebel DC, Rezaei M. The efficacy of wet-cupping in the treatment of tension and migraine headache. *Am J Chin Med* 2008; **36:** 37–44.

Seyed Kazem Farahmand, PhD, Assistant Professor of Traditional Medicine, Department of Traditional Medicine, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
E-mail: farahmandk@mums.ac.ir
Li Zhi Gang, PhD, Assistant Professor of Traditional Medicine, Department of Traditional Medicine, School of Medicine, University of Pecan, China.
E-mail: Zhigang.Li@dartmouth.edu
Seyed Ahmad Saghebi, PhD, Associate Professor of Traditional Medicine, Department of Traditional Medicine, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
E-mail: SaghebiA@mums.ac.ir
Maryam Mohammadi, MSc Student (Biochemistry), Biochemistry Department of Nutritional Research Center, Avicenna Research Institute, Mashhad University of Medical Science, Mashhad, Iran.
E-mail: mohammadim3@mums.ac.ir
Shabnam Mohammadi, PhD, Assistant Professor of Anatomy, Department of Basic Sciences, Faculty of Medicine, Gonabad University of Medical Sciences, Gonabad; Neurogenic Inflammation Research Centre, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
E-mail: shabnammhmmd@yahoo.com
Ghazaleh Mohammadi, PhD Student (Molecular Medicine), Ghazvin University of Medical Science, Ghazvin , Iran.
E-mail: soltani.proma@gmail.com
Gordon A Ferns, MSc, DSc, MD, FRCP, FRCPath, Visiting Professor of Metabolic Medicine, Institute for Science & Technology in Medicine, Faculty of Health, University of Keele, Staffordshire, UK.
E-mail: g.ferns@bsms.ac.uk

Majid Ghanbari, MD, Biochemistry Department of Nutritional Research Center, Avicenna Research Institute, Mashhad University of Medical Science, Mashhad, Iran. E-mail: Ghanbarim@mums.ac.ir

Gholamreza Ghayour Razmgah, MD, Biochemistry Department of Nutritional Research Center, Avicenna Research Institute, Mashhad University of Medical Science, Mashhad, Iran.
E-mail: ghayourGH1@mums.ac.ir

Zahra Ramazani, MSc Student (Biochemistry), Biochemistry Department of Nutritional Research Center, Avicenna Research Institute, Mashhad University of Medical Science, Mashhad, Iran.
E-mail: Ramazaniz@mums.ac.ir

Majid Ghayour-Mobarhan, MD, PhD, Associate Professor of Nutrition, Biochemistry and Nutritional Research Center, Avicenna Research Institute, Mashhad University of Medical Science, Mashhad, Iran. Department of Nutrition and Nutritional Research Center, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
E-mail: Ghayourm@mums.ac.ir

Habibollah Esmaily, PhD, Associate Professor of Biostatistics, Department of Biostatistics and Epidemiology, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran.
E-mail: EsmailyH@mums.ac.ir

Hoda Azizi, PhD, Assistant Professor of Traditional Medicine, Department of Traditional Medicine, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
E-mail: AziziH@mums.ac.ir