



Acupuncture for obesity: a systematic review and meta-analysis

報告醫師：R2 李炎東

指導醫師：鄭淑臻醫師/顏宏融 醫師



English Terminology of Chinese Medicine

English Terminology of Chinese Medicine

- ❖ Channel, Meridian 經脈
- ❖ Greater yang 太陽
- ❖ Yang brightness 陽明
- ❖ Lesser yang 少陽
- ❖ Greater yin 太陰
- ❖ Lesser yin 少陰
- ❖ Reverting yin 厥陰

English Terminology of Chinese Medicine

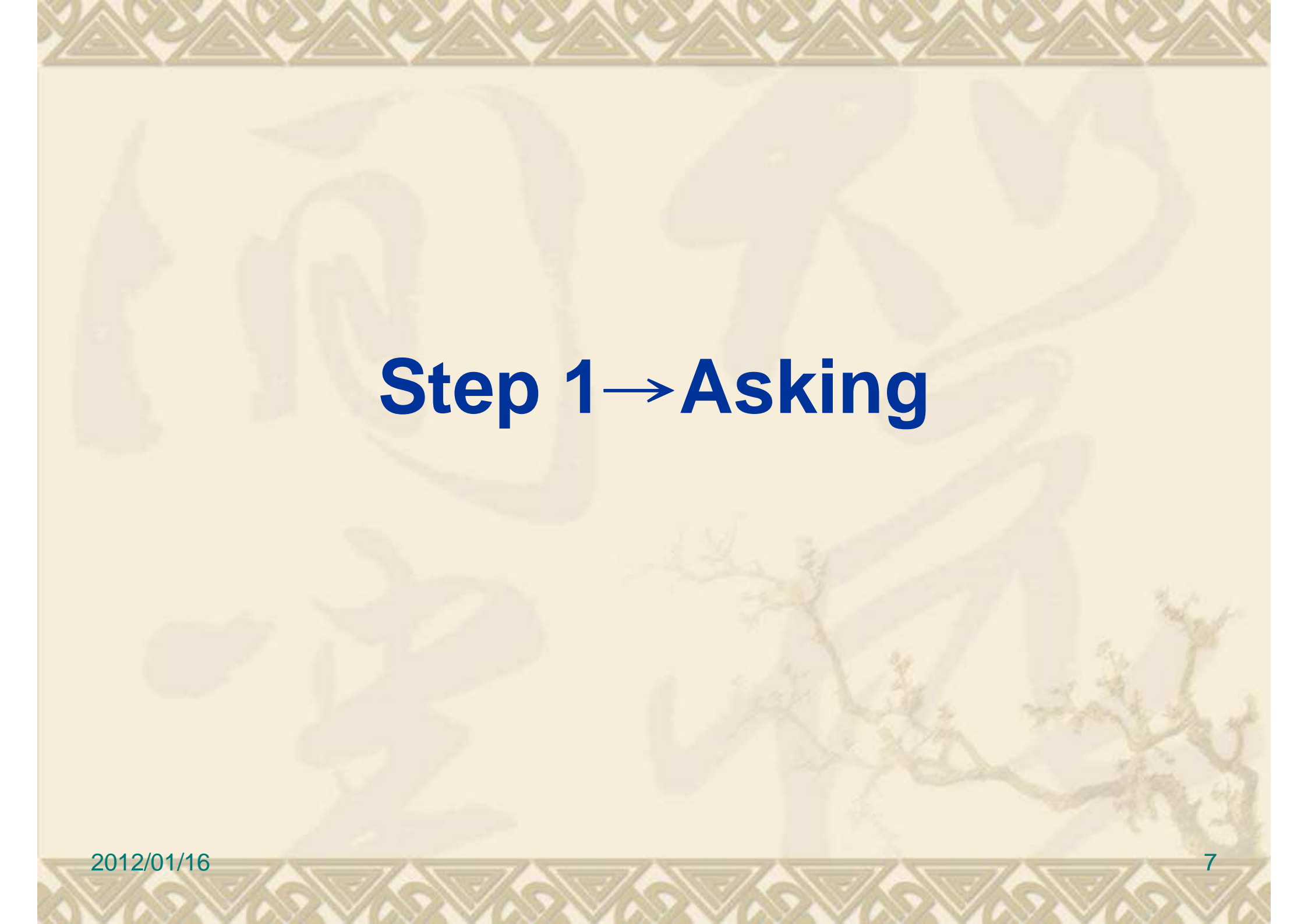
- ❖ Controlling vessel 任脈
Conception vessel
- ❖ Governing vessel 督脈
Governor vessel
- ❖ Acupuncture point 穴位
- ❖ Body inch 同身寸
- ❖ Five transport points 五輸穴

English Terminology of Chinese Medicine

- ❖ Acupuncture 針
- ❖ Moxibustion 灸
- ❖ Filiform needle 毫針
- ❖ Electroacupuncture 電針
- ❖ Moxa pole 艾條
- ❖ Moxa cone 艾粒

Case

- ❖ **A big and corpulent postpartum woman came to the traditional medical outpatient service to ask for the acupuncture treatment. She said, “Overweight result in my postpartum depression. I really worry about my figure inflicting my happiness. I tried a lot of ways to lose weight, but they have never improved on it. Doctor, I want to know what would be the result to take this therapy. Does it have influence of sequelae? By the way, I persist in the safest way to be a slender lady.”**



Step 1→Asking

Was Acupuncture for Obesity Effective

P	Problem	Obesity
I	Intervention	Acupuncture
C	Comparison	Placebo
O	Outcome	Weight loss

Definition

- ❖ **Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health**

Prevalence

- ❖ Worldwide obesity has more than doubled since 1980.
- ❖ In 2008, **1.5 billion** adults, 20 and older, were overweight. Of these over **200 million men** and nearly **300 million women** were obese.
- ❖ 65% of the world's population live in countries where overweight and obesity kills more people than underweight.
- ❖ Nearly 43 million children under the age of five were overweight in 2010

Classification

- ❖ Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a **person's weight in kilograms divided by the square of his height in meters (kg/m^2).**
- ❖ a BMI greater than or equal to 25 is overweight
- ❖ a BMI greater than or equal to 30 is obesity.

Prevalence in Taiwan

- ❖ **Obesity in Taiwan: 44.1%**
- ◆ **Male: 50.8%**
- ◆ **Female: 36.9%**
- ◆ **Obese children: 25%**

**From: Nutrition And Health Survey in Taiwan, 2008
Ministry of Education, 2008**

Prevalence in Taiwan

- ❖ **Seven of ten leading causes of death related to obesity**
- ◆ **Cancer(colon cancer, breast cancer)**
- ◆ **Heart disease**
- ◆ **Cerebrovascular diseases**
- ◆ **Diabetes mellitus**
- ◆ **Chronic lower respiratory disease**
- ◆ **Chronic liver disease and cirrhosis**
- ◆ **Nephritis, nephrotic syndrome and nephrosis**

Prevalence in Taiwan

- ❖ **Obesity leading to:**
 - ◆ **Osteoarthritis**
 - ◆ **Metabolic syndrome**

insulin resistance

hypertension

cholesterol abnormalities

Classification in Taiwan

- ❖ **$\text{BMI} \geq 35$: severe obesity (重度肥胖)**
- ❖ **$30 \leq \text{BMI} < 35$: moderate obesity (中度肥胖)**
- ❖ **$27 \leq \text{BMI} < 30$: mild obesity (輕度肥胖)**
- ❖ **$24 \leq \text{BMI} < 27$: overweight (過重)**

Step 2→Assessing

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6	 	DynaMed	Database	EBSCO	
7	 	EBM Reviews (ALL)	Database	OVID	
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10	 	EBMR--Cochrane Database of Systematic Reviews	Database	OVID	
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Lau, Lam Hoi. Kwong, SW Joey. Yeung, Fai. Chau, Hing Pui. Woo, Jean.

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Centre for Reviews and Dissemination.

EBM Reviews - Database of Abstracts of Reviews of Effects

Database of Abstracts of Reviews of Effects. Issue 4, 2011.

[Miscellaneous]

AN: 00125498-1000000000-21595

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Abstract and Commentary for:Cho S H, Lee J S, Thabane L, Lee J. Acupuncture for obesity: a systematic review and meta-analysis. International Journal of Obesity. 2009;33(2):183-196.

2. ☐ Acupuncture and obesity

Kuruvilla A

EBM Reviews - Cochrane Central Register of Controlled Trials

Med Acup. 14(2):32, 2003.

AN: CN-00672412

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3. ☐ The effect of auricular acupuncture in obese women: a randomized controlled trial.

Hsu CH, Wang CJ, Hwang KC, Lee TY, Chou P, Chang HH

EBM Reviews - Cochrane Central Register of Controlled Trials

Journal of women's health (2002). 18(6):813-8, 2009 Jun.

[Journal Article. Randomized Controlled Trial. Research Support, Non-U.S. Gov't]

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4. ☐ Observation on therapeutic effect of acupuncture on obesity patients

Su X, Zhang R, Wu Y

EBM Reviews - Cochrane Central Register of Controlled Trials

China Tropical Medicine. 7(5):768, 770, 2007.

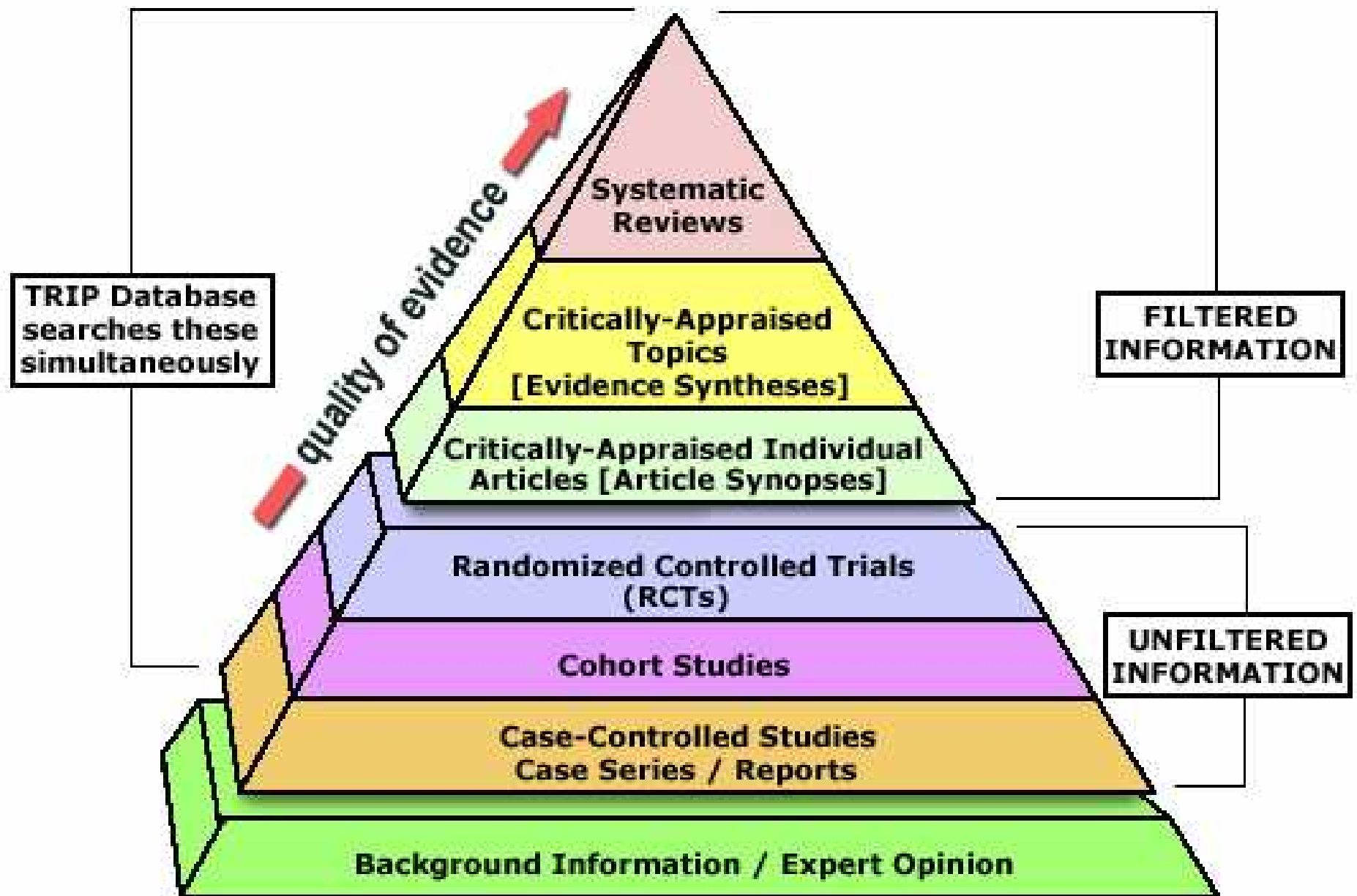
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Date of Most Recent Amendment	2009
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Language	English
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Acupuncture for obesity: a systematic review and meta-analysis

SH Cho, JS Lee, L Thabane... - International journal of obesity, 2009 - nature.com

Methods: RCTs for acupuncture compared either with placebo controlled or with comparator intervention were considered. Studies' methodological qualities were assessed using the Jadad scale. If no evidence of heterogeneity existed across study results, statistical ...

被引用 22 次 - 相關文章 - ProQuest Fulltext - 全部共 8 個版本

Step 3→Appraising

Acupuncture for obesity: a systematic review and meta-analysis

S-H Cho¹, J-S Lee², L Thabane^{3,4} and J Lee^{2,4}

International Journal of Obesity (2009) 33, 183–196
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¹Hospital of Korean Medicine, Kyung Hee University Medical Center, Seoul, Korea; ²Department of Biostatistics, College of Medicine, Korea University, Seoul, Korea; ³Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ontario, Canada and ⁴Biostatistics Unit, FSORC, St. Joseph's Hospital Hamilton, Hamilton, Ontario, Canada

Method: objectives

- ❖ Primary objective: assess whether acupuncture are not only more effective than placebo but also as effective as conventional therapies to treat obesity.
- ❖ Secondary objective: describe the frequency and types of adverse events or adverse reactions of acupuncture reported in clinical trials.

Method: data source

- ❖ **Cochrane Library:**
 - ◆ **Cochrane Central Register of Controlled Trials**
 - ◆ **MEDLINE**
 - ◆ **EMBASE**
 - ◆ **Allied and Complementary Medicine Database (AMED)**
 - ◆ **CINAHL**
 - ◆ **PsycInfo**

Method: data source

- ❖ **Korean medical databases:**
 - ◆ **the National Assembly Library**
 - ◆ **KoreaMed**
 - ◆ **Korean Studies Information Service System**
 - ◆ **DBpia**
 - ◆ **CINAHL**
 - ◆ **Korea Institute of Science Technology Information and Research Information Service System**

Method: data source

- ❖ **Japanese database**
 - ◆ **Japan Science and Technology Information Aggregator Electronic**
- ❖ **Chinese database**
 - ◆ **China Academic Journal**
 - ◆ **Century Journal Project**
 - ◆ **China Doctor/Master Dissertation Full Text**
 - ◆ **China Proceedings Conference Full Text DB**

Method: data source

- ❖ **Databases of clinical trials**
 - ◆ **Current Controlled Trials**
(<http://www.controlled-trial.com>),
 - ◆ **National Centre for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH)**
(<http://nccam.nih.gov/>)
 - ◆ **Complementary and Alternative Medicine Specialist Library at the NHS National Library for Health** (<http://www.library.nhs.uk/cam/>).

Inclusion and exclusion criteria

- ❖ Restricted to RCTs: compared acupuncture with a control group
- ❖ In defining overweight or obese status, criteria using either **BMI cutoff points** or **percentage of weight excess** compared with ideal weight/height tables were accepted
- ❖ Including all ages of participant
- ❖ Excluding pregnant women and patients with serious medical conditions

Intervention

P	Problem	Obesity
I	Intervention	Acupuncture
C	Comparison	Placebo
O	Outcome	Weight loss

Intervention

❖ Intervention:

- ◆ Classical acupuncture, electroacupuncture, laser acupuncture, acupressure, auricular acupuncture, auricular acupressure, auricular electroacupuncture
 - ◆ Excluded: Moxibustion, acupuncture and massage therapy, acupuncture and moxibustion therapy
 - ◆ Excluded: compared different forms of acupuncture to each other
- ## ❖ Comparison
- ◆ No treatment, placebo treatment, pharmacological or nonpharmacological treatments

Potentially relevant articles identified and retrieved for more detailed evaluation (n = 99)

Excluded (n = 60)

- Animal or in vitro studies (n = 6)
- Case studies, not a clinical trial (n = 8)
- Healthy subjects (n = 1)
- Patients with serious medical conditions or drug-induced obesity (n = 4)
- Obesity not the primary outcome measure (n = 1)
- Intervention not acupuncture alone (e.g., moxibustion, massage, etc.) (n = 14)
- Comparing different forms of acupuncture to each other (n = 26)

Further evaluation regarding randomization (n = 39)

Excluded (n = 8)

- Not a randomized trial (n = 8)

RCTs included in the systematic review (n = 31)

Excluded (n = 2)

- Insufficient data (n = 2)

RCTs included in meta-analysis (n = 29)

Table 1 Characteristics of RCTs of acupuncture for obesity

First Author (pub. year, location)	Subjects' mean age (s.d.)	Number of patients randomized/analyzed	Type of design; blinding	Jadad score ^a	Intervention type	Treatment frequency (treatment period)	Treated acupoints	Type of control group	Outcome measure, reported P-value	Adverse events reported (n)
Richards and Mailey (Australia) ³⁸	44.1 (11.7)	60/60	Parallel; DB	5	Auricular electroacupoint stimulation	2 per day (4 wks)	Shenmen, stomach	Placebo (on thumb no acupuncture points)	IQ, <0.05	Intercurrent illness (1)
Kim (Korea) ³⁹	38.6 (5.7)	60/33	Parallel; DB	4	Acupuncture	3 per wk (12 se.)	LR1, SP1, LU8, SP5	(1) Kim sham plus diet (2) Diet	BW, 0.093	NR
Edler et al (USA) ⁴⁰	47.6 (10.6)	92/81	Balanced; SB	3	Acupressure	1 per day (24 wks)	GB21, BL1, YingTang	(1) Qigong (2) Self-directed support	BW, 0.09	NS
Li and Wang (China) ⁴¹	16.0 (1.38)	90/85	Parallel; open	3	Electroacupuncture plus diet	1 per day (60 se.)	SP6, ST36, ST25	(1) Auricular electroacupuncture (acupressure) plus diet (2) Diet	BW, BMI, <0.05	NR
Hsu et al (Taiwan) ⁴²	41.5 (11.2)	54/46	Crossover; open	3	Electroacupuncture	2 per wk (6 wks)	RBN6, RBN9, ST28, KI4, ST26, ST40, SP6	Sit up exercise	BW, 0.001 BMI, 0.003	Echymosis (2) Abdominal discomfort (1)
Hsieh (2007, Taiwan) ⁴³	18–20 (NR)	70/55	Parallel; SB	2	Auricular acupressure	1 per wk (8 wks)	Shenmen, mouth, stomach, endocrine, small intestine	Placebo (adhesive tape)	BMI, <0.001	NR
Kim et al (Korea) ⁴⁴	34.7 (11.9)	91/58	Parallel; SB	2	Auricular acupuncture	Retained (8 wks)	Shenmen, stomach, spleen, hunger, endocrine	(1) Auricular hunger (2) Placebo	BW, 0.003 BMI, 0.002	NR
Dong (China) ⁴⁵	35 (NR)	60/58	Parallel; open	2	Acupuncture	1 per day (40 se.)	ST22, SP10, BL20, BL21, CV12	Sibutramine 10mg/qd	BW, NS	Control, 42.9% Intervention, 16.7%
Mi (China) ⁴⁶	38.4 (NR)	120/120	Parallel; open	2	Acupuncture plus diet	1 per 2 days (3 mths)	ST10, ST6, ST44, ST34, ST37, ST39, ST25, SP15, CV12, BL20, BL21, LR13, PC6, CV6, ST40, CV4, K3, TE6	Diet (2520 kJ per day)	IQ, <0.05	NR
Alison et al (USA) ⁴⁷	44.5 (12.7)	96/69	Parallel; SB	2	Auricular acupressure	Placed (12 wks)	Six strategically placed points	Placebo (wrist acupressure device)	BW, 0.37	Mild redness, pain, discomfort, bleeding in ears
Stäner et al (USA) ⁴⁸	42.7 (12.6)	78/57	Parallel; open	2	Acupuncture	1 per wk (8 wks)	LI4, ST45, SP5, GB34/lung, stomach, hunger, mouth, endocrine, shenmen	(1) Sham acupuncture (2) Waiting list (3) Behavior modification	BW, <0.05 compared to (2)	None
Gao et al (China) ⁴⁹	30.31 (5.50)	50/50	Parallel; open	1	Electroacupuncture, auricular acupressure	1 per 2 days (2 mths)	ST40, CV4, SP6, ST40, ST36 and adjunctive points/endocrine, spleen, stomach, triple energy, large intestine	Sibutramine 10mg/qd	IQ, NS	NR
Luo (China) ⁵⁰	44 (NR)	60/60	Parallel; open	1	Electroacupuncture plus diet	1 per 2 days (2 mths)	CV12, ST36, ST37 ST25, CV4, SP6 and adjunctive points	Diet (2520 kJ per day)	IQ, <0.05	NR
Luo and Li (China) ⁵¹	34.10 (8.89)	60/60	Parallel; open	1	Acupuncture	1 per 2 days (27 se.)	ST35, SP14, ST34, SP10, SP4, ST44 and so on	(1) Electroacupuncture (2) Waiting list	IQ, <0.01	NR
Nie et al (China) ⁵²	35 (NR)	150/150	Parallel; open	1	Acupuncture	1 per 2 days (30 se.)	CV8, CV4 and adjunctive points	Sibutramine 10mg/qd	BW, 0.097 BMI, 0.07 IQ, 0.608 IQ, <0.01	NR
Su et al (China) ⁵³	16–56 (NR)	240/240	Parallel; open	1	Acupuncture, auricular acupressure	1 per 2 days (30days)	CV4, SP6 and adjunctive points/shenmen, spleen, endocrine and adjunctive points	TCM foment	IQ, <0.01	NR
Zhang and Cui (China) ⁵⁴	32.52 (4.28)	64/64	Parallel; open	1	Electroacupuncture plus diet	5 per wk (2 mths)	CV4, CV12, LI25, CV9, CV7, KI6, ST36, SP10, BL15, BL17, BL20 and adjunctive points	Diet	IQ, <0.01	NR
Li and Wu (China) ⁵⁵	30.5 (8.97)	160/160	Parallel; open	1	Acupuncture plus auricular acupressure	2–4 per wk (90 days)	ST25, SP15, CV12, CV10, CV6, CV4, ST23, ST27, GB26, SP9, SP40 and adjunctive points/sympathy, abdomen, brain, subcortex, hunger, large intestine, spleen, stomach, mouth	Waiting list	BW, BMI, <0.01	NR
Tong et al (China) ⁵⁶	32 (NR)	41/41	Parallel; SB	1	Acupuncture plus diet	1 per 2 days (40 se.)	Abdominal 8 points, ST36, SP9	Sham acupuncture plus diet	BMI, <0.01	NR
Ma et al (China) ⁵⁷	33.76 (1.30)	150/150	Parallel; open	1	Acupuncture	1 per 2 days (90 days)	LI11, ST25, ST29, ST36, ST41, CV12 and adjunctive points	Sibutramine 5mg/bid	IQ, <0.01	NR

Table 1 (continued)

First Author (pub. year, location)	Subjects' mean age (s.d.)	Number of patients randomized/analyzed	Type of design; blinding	Jadad score ^a	Intervention type	Treatment frequency (treatment period)	Treated acupoints	Type of control group	Outcome measure; reported P-value	Adverse events reported (n)
Wang and Cheng (China) ⁵⁴	25–60 (NR)	59/59	Parallel; open	1	Electroacupuncture plus Exercise plus benazepril 10 mg	1 per 2 days (8 wks)	GV20, LI11, LR4, ST36	Exercise plus benazepril 10 mg	BW, BMI, <0.01	NR
Yang et al. (China) ⁵⁵	18–50 (NR)	50/50	Parallel; open	1	Electroacupuncture, auricular acupressure	1 per 2 days (2 mths)	ST25, CV4, ST40, ST36 and adjunctive points/endocrine, large intestine, triple energy (Tri-jiao), stomach, spleen, brain	Sibutramine 10 mg/qd	IQ, NS	NR
Zeng and Nie (China) ⁵⁶	18–50 (NR)	50/50	Parallel; open	1	Catgut implantation, electroacupuncture, auricular acupressure plus diet	1 per 2 days (2 mths)	ST25, CV12, CR6, SP14, SP15, SP6, ST40, ST36 and adjunctive points/shenmen, endocrine, spleen, stomach, trienergy, large intestine, brain and adjuvant acupoints	Diet	IQ, <0.05	NR
Fan et al. (China) ⁵⁷	47 (NR)	100/100	Parallel; open	1	Acupuncture	1 per 2 days (30 days)	SP10, SP6, ST25, ST36, LI4 and adjunctive points	Diet	IQ, <0.05	NR
Lee (Korea) ⁵⁸	36.63 (5.42)	24/24	Parallel; open	1	Electroacupuncture	2 per wk (6 wks)	12 points on abdomen	(1) Ultrasound therapy (2) ultrasound plus electroacupuncture	BW, NS	NR
Wang (China) ⁵⁹	34.3 (12.4)	149/149	Parallel; open	1	Acupuncture, auricular acupressure plus diet	2 per wk (8 wks)	CV12, CV6, ST24, ST26, ST36, ST40, SP6, SP9, ST34, LI11, LI3, KI3/shenmen, endocrine, spleen, kidney, hunger, constipation, esophagus, thyroid gland, brain stem, tri-energy	Fenfluramine 20 mg/qd plus diet	IQ, <0.05	NR
Xy (China) ⁶⁰	13–62 (NR)	307/307	Parallel; open	1	Electroacupuncture plus auricular acupressure	1 per day (60 se.)	SP6 and adjunctive points/endocrine and adjunctive points	TCM ferment	IQ, <0.01	NR
Li and Deng (China) ⁶¹	38.18 (NR)	123/123	Parallel; open	1	Electroacupuncture plus auricular acupressure	1 per 2 days (20 se.)	BL20, BL21, BL22, ST25, ST28, CV12, CV6, SP15, ST36, ST40, SP9, SP6/lung, spleen, kidney, endocrine, abdomen, tri-energy	TENS	IQ, <0.05	NR
Wang (China) ⁶²	13–52 (NR)	120/120	Parallel; open	1	Acupuncture	1 per 2 days (15 se.)	ST25, ST24, ST26, CV10, GWS and adjuvant points	Kang Er Shou diet tea plus noncarbohydrate food	BMI, <0.05 IQ, <0.01	NR
Sun and Xu (China) ⁶³	34.0 (9.3)	161/161	Parallel; open	1	Acupuncture, acupressure	1 per 3–5 days (90 days)	ST25, ST36, ST40, SP6, mouth, stomach, esophagus, abdomen, hunger, lung, shenmen, endocrine	Herbal supplement (oenothera erythrosepalae oil)	BW, <0.01	NR
Mok et al. (USA) ⁶⁴	NR (NR)	24/24	Crossover; SB	1	Auricular acupuncture	Retained (9 wks)	Mouth, stomach (bilateral points)	(1) Auricular acupuncture (mouth, stomach unilateral points), (2) placebo	% above ideal BW, 0.24	None

Abbreviations: BMI, body mass index; BW, body weight; DB, double blind; IQ, Improvement in obesity; mths, months; NR, not reported; NS, not significant; SB, single blind; se., sessions; wks, weeks.

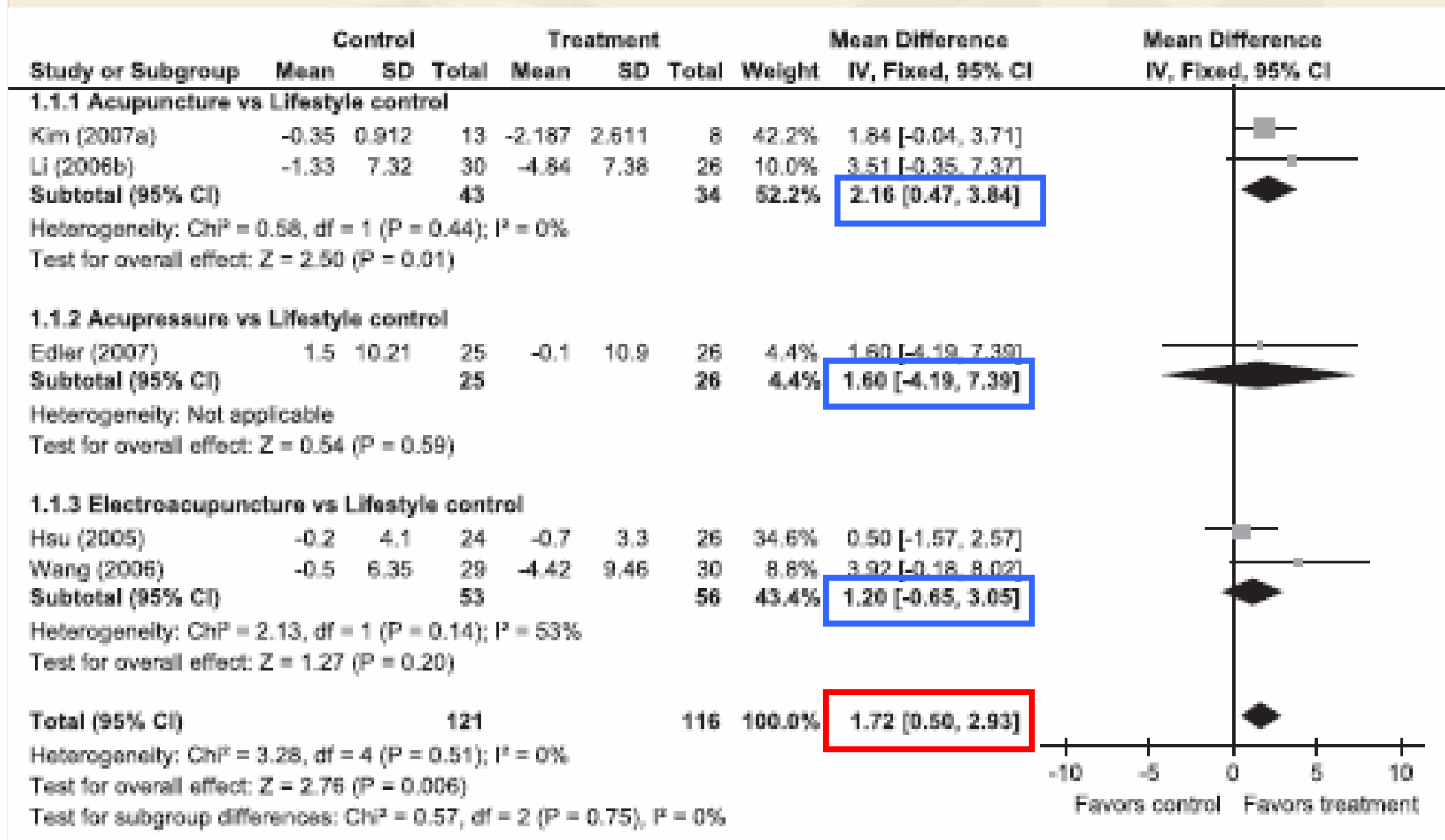
^aQuality score; based on the Jadad scale (with maximum points of 5).

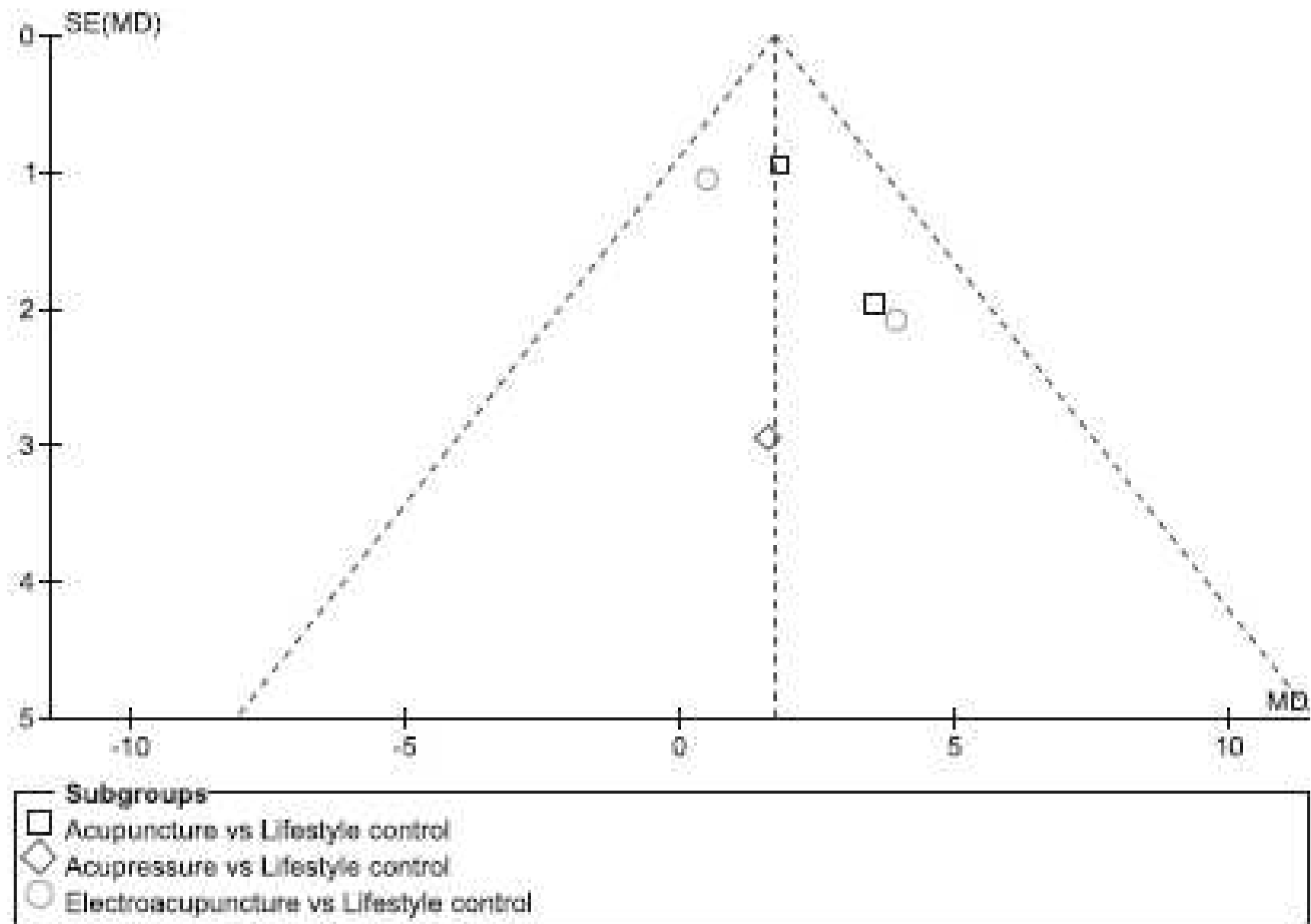
First Author (pub. year, location)	Subjects' mean age (s.d.)	Number of patients randomized/analyzed	Type of design, blinding	Joel's score ^a	Intervention type	Treatment frequency (treatment period)
Richards and Mailey (Australia) ³⁴	44.1 (11.7)	60/60	Parallel; DB	5	Auricular electroacupoint stimulation	2 per day (4 wk)
Kim (Korea) ³⁹	38.6 (5.7)	60/33	Parallel; DB	4	Acupuncture	3 per wk (12 se.)
Edler et al. (USA) ³⁶	47.6 (10.6)	92/81	Balanced; SB	3	Acupressure	1 per day (24 wk)
Li and Wang (China) ³⁷	16.0 (1.38)	90/85	Parallel; open	3	Electroacupuncture plus diet	1 per day (60 se.)

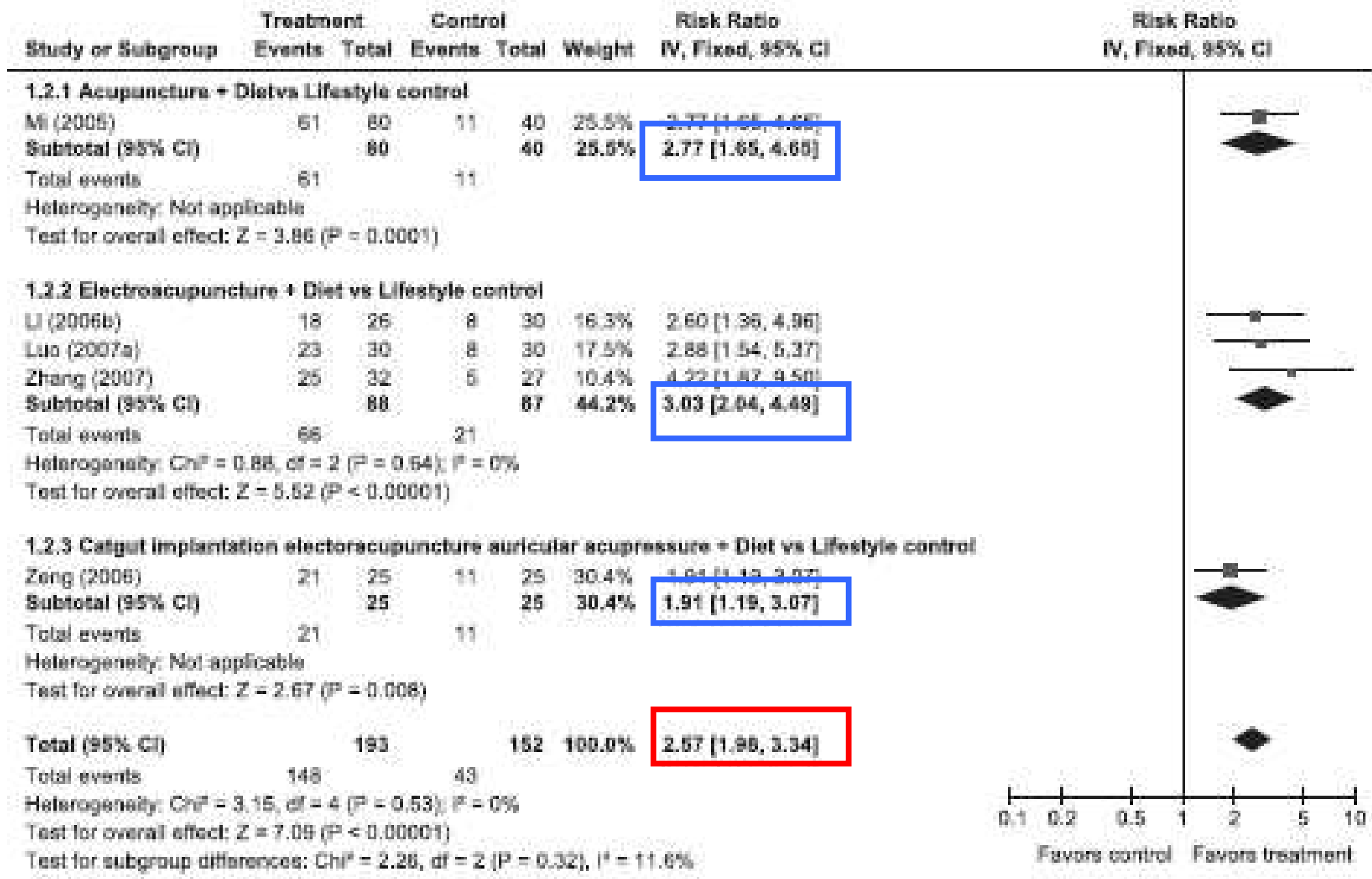
Treated acupoints	Type of control group	Outcome measure, reported P-value	Adverse events reported (n)
Shenmen, stomach	Placebo (on thumb no acupuncture points)	IO, <0.05	Intercurrent illness (1)
LR1, SP1, LU8, SP5	(1) Kim sham plus diet (2) Diet	BW, 0.093	NR
GB21, BL1, YingTang	(1) Qigong (2) Self-directed support	BW, 0.09	NS
SP6, ST36, ST25	(1) Auricular electroacupuncture (acupressure) plus diet (2) Diet	BW, BMI, <0.05	NR

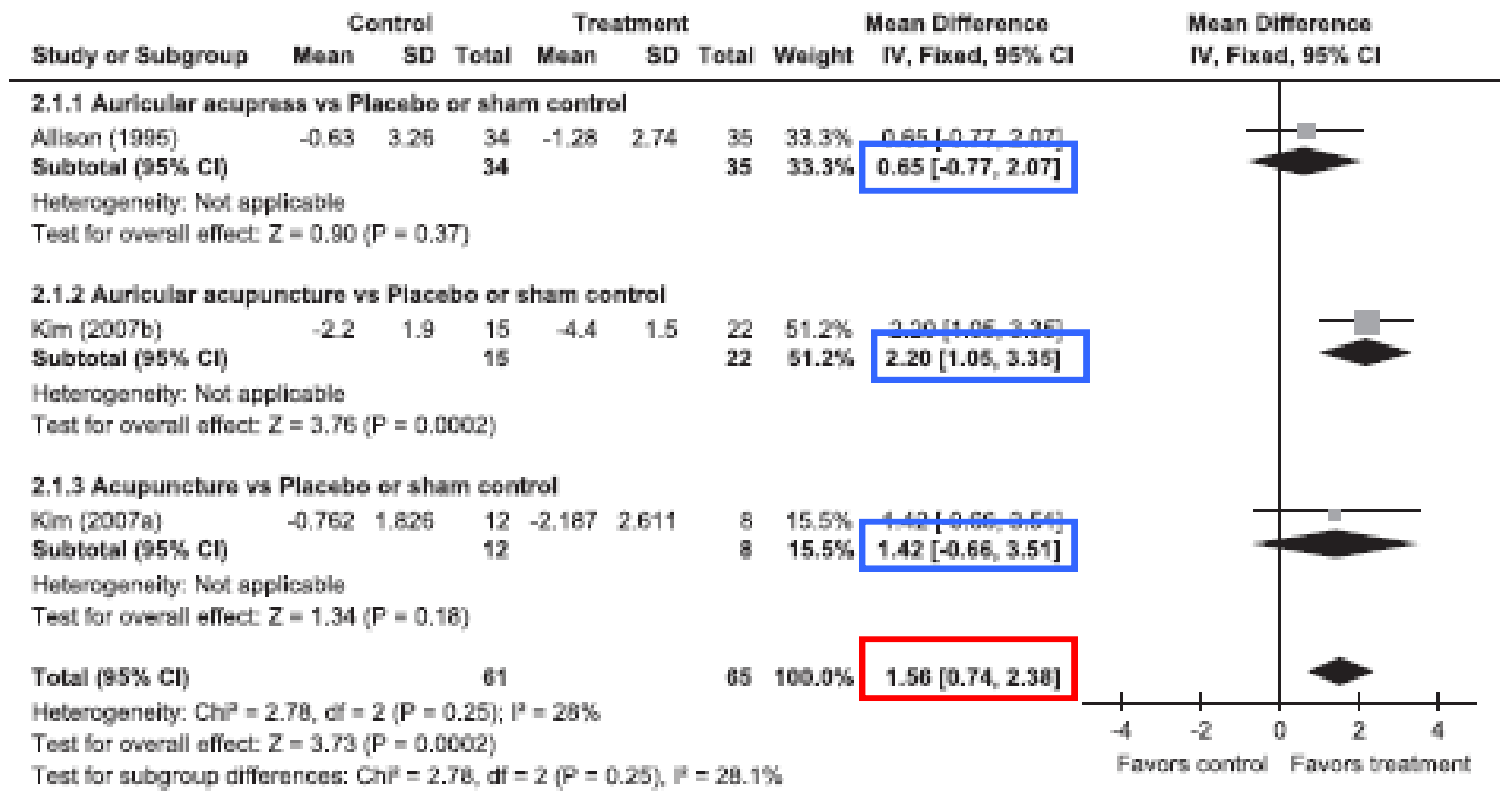
Jadad Score

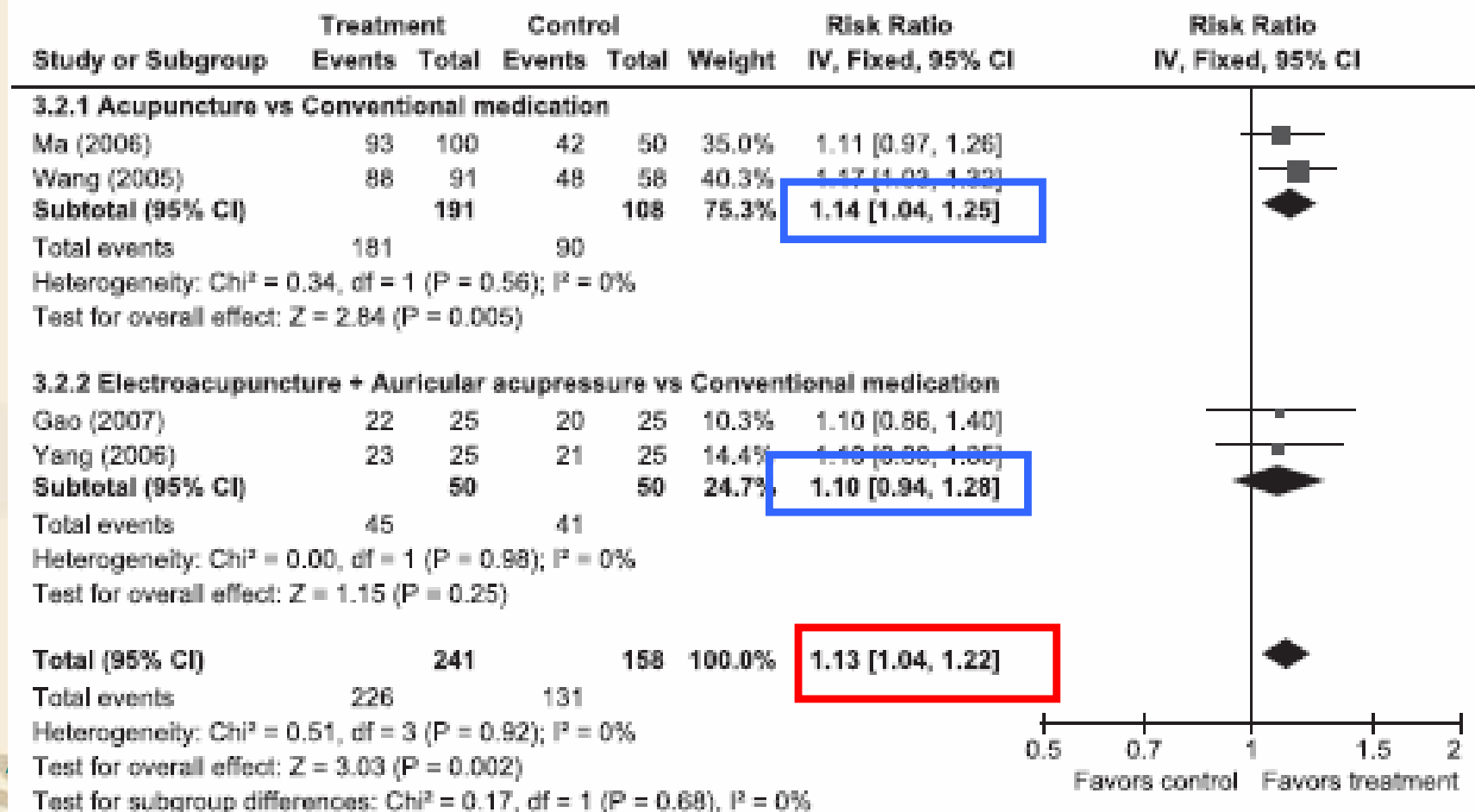
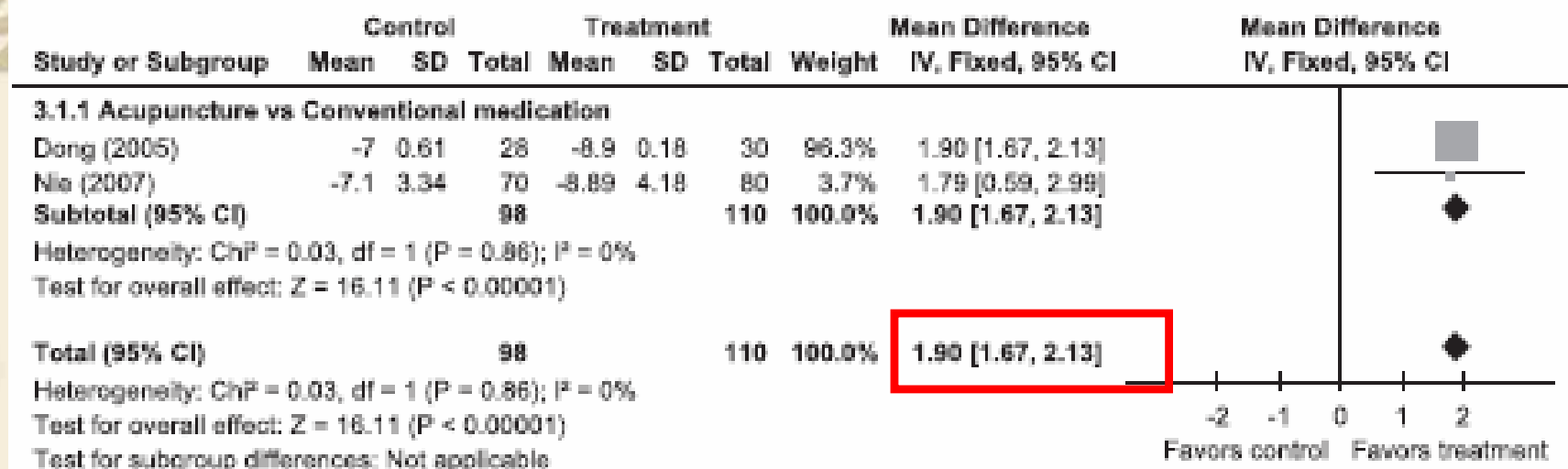
- ❖ Was the study described as randomized?
 - ♦ +1 if method of randomization was described and it was appropriate
 - ♦ -1 if the method of randomization was inappropriate
- ❖ Was the study described as double-blind
 - ♦ +1 if method of blinding was described and it was appropriate (for example, identical placebo)
 - ♦ -1 if method of blinding was inappropriate (for example, comparing placebo tablet with injection)
- ❖ Was there a description of withdrawals and dropouts?











Step 4→Applying

- ❖ **Q1: Is our patient so different from those in the study that its results cannot apply?**
- ❖ **Q2: Is the treatment feasible in our setting?**
- ❖ **Q3: What are our patient's potential benefits and harms from therapy?**
- ❖ **Q4: What are our patient's values & expectations for both the outcome we are trying to prevent and the treatment we are offering ?**

Step 5→Auditing



**Am I suitable for
acupuncture to
lose weight**



**There is no sufficient
evidence to prove that
acupuncture is efficacy
for weight loss. However,
acupuncture has minor
adverse effect for body.**



Thank you



Discussion