THE BRITISH HOMEOPATHIC ASSOCIATION

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The meta-analysis by Shang et al (2005) of randomised controlled trials of homeopathy

Preface

In Shang's forest plot, an odds ratio (OR) of less than 1 indicates an effect favouring homeopathy; an OR greater than 1 indicates an effect favouring placebo. OR=1 is the 'line of no effect'. When the 95% confidence interval (CI) of the OR does not straddle the line of no effect, there is a statistically significant effect in favour of either homeopathy or placebo as appropriate.

Peer-reviewed trials

We focus solely on those trials, within the 110 included by Shang et al., which we have categorised as 'peer-reviewed' (Mathie et al. 2013). For each of the 51 trials in this category, we derived the original OR and 95% values from the University of Berne's published forest plot data and replicated them in our own forest plot (**Figure 1**).[1]

- The pooled OR shows a statistically highly significant effect of homeopathy:
  - OR = 0.62 (95% CI, 0.52 to 0.74); $P < 0.00001$.
- 39 of the 51 have a treatment effect favouring homeopathy;
  - 16 of these 39 are statistically significant.
- 11 of the 51 have a treatment effect favouring placebo;
  - 1 of these 11 is statistically significant.
- 1 of the 51 favours neither homeopathy nor placebo (i.e. OR=1).

Higher-quality peer-reviewed trials (sensitivity analysis)

In interpreting meta-analysis findings, it is important to reflect high-quality trials over those of low quality: this approach is termed 'sensitivity analysis'. Shang and colleagues categorised 15 of the above 51 trials as 'higher methodological quality', and so we included OR data for just those 15 and present them as a forest plot (**Figure 2**).

- The pooled OR shows no statistically significant effect:
  - OR = 0.85 (95% CI, 0.65 to 1.12); $P = 0.25$.
- 8 of the 15 have a treatment effect favouring homeopathy;
  - 3 of these 15 are statistically significant:
    - 046 (A021). Jacobs et al (2000);
    - 049 (A019). Jacobs et al (1994);
    - 071 (A104). Papp et al (1998).
- 6 of the 15 have a treatment effect favouring placebo;
  - 1 of these 15 is statistically significant:
    - 094 (A128). Vickers et al (1998).
- 1 of the 15 favours neither homeopathy nor placebo (OR=1).

Commentary

The 51 peer-reviewed trials included in Shang's meta-analysis indicate a statistically significant treatment effect of homeopathy that is not robust to sensitivity analysis. This finding, together with the fact that 16 of

[1] We are grateful to Dr Jürgen Clausen, Karl und Veronica Carstens-Stiftung, Essen, Germany, for kindly sharing preliminary odds ratio data previously extracted by Dr Rainer Lüdtke from the forest plot published by Shang et al (2005b).

these trials individually have a statistically significant effect favouring homeopathy, supports Shang's comment that there was 'weak evidence for a specific effect of homoeopathic remedies' (Shang et al 2005a).

In considering the details of the RCT evidence, Shang et al. (2005b) observed 3 of 15 trials with 'higher methodological quality' that were statistically in favour of homeopathy compared with placebo. This fact refutes the notion that no peer-reviewed and high-quality RCT of homeopathy has ever obtained a positive result. And it is interesting to consider in view of Shang's ultimate conclusion that 'the clinical effects of homoeopathy are placebo effects' (Shang et al 2005a).

References

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Mathie RT, Hacke D, Clausen J, et al (2013). Randomised controlled trials of homeopathy in humans: characterising the research journal literature for systematic review. *Homeopathy*, **102**: 3–24.

Papp R, Schuback G, Beck E, et al (1998). Oscillococcinum® in patients with influenza-like syndromes: a placebo-controlled double-blind evaluation. *Br Homoeopath J*, **87**: 69–76.

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Vickers AJ, Fisher P, Smith C, et al (1998). Homeopathic Arnica 30X is ineffective for muscle soreness after long-distance running: a randomized, double-blind, placebo-controlled trial. *Clin J Pain*, **14**: 227–231.

FIGURE 1:

Our meta-analysis of odds ratios for 51 peer-reviewed RCTs that were reported by Shang et al. (2005b). We used the generic inverse variance (IV) method and the random effects model. Each RCT is numbered according both to Shang et al. (2005b) and Mathie et al. (2013).

Key: log[Odds Ratio]: natural log of Odds Ratio. SE: natural log of Standard Error. 95% CI: 95% confidence interval. df: degrees of freedom. I^2: heterogeneity statistic.

Study or Subgroup	log[Odds Ratio]	SE	Weight	Odds Ratio IV, Random, 95% CI
001 (A044). Aabel 2000	-0.99	0.504	1.9%	0.37 [0.14, 1.00]
002 (A042). Aabel 2001	-0.14	0.754	1.1%	0.87 [0.20, 3.81]
004 (A001). Andrade 1991	-0.67	0.723	1.2%	0.51 [0.12, 2.11]
008 (A048). Balzarini 2000	-0.79	0.489	1.9%	0.45 [0.17, 1.18]
009 (A049). Beer 1999	-0.29	0.572	1.6%	0.75 [0.24, 2.30]
010 (A052). Bergmann 2000(a)	0.41	0.733	1.1%	1.51 [0.36, 6.34]
010 (A052). Bergmann 2000(b)	-1.79	0.775	1.0%	0.17 [0.04, 0.76]
011 (A055). Berrebi 2001	-1.22	0.442	2.1%	0.30 [0.12, 0.70]
017 (A058). Brydak 1999	-1.57	0.624	1.4%	0.21 [0.06, 0.71]
021 (A010). Chapman 1999	0	0.671	1.3%	1.00 [0.27, 3.73]
024 (A059). Cialdella 2001	-0.71	0.702	1.2%	0.49 [0.12, 1.95]
027 (A011). de Lange de Klerk	-0.45	0.296	3.0%	0.64 [0.36, 1.14]
029 (A062). Diefenbach 1997	-0.73	0.312	2.9%	0.48 [0.26, 0.89]
033 (A063). Ernst 1990	-1	0.645	1.4%	0.37 [0.10, 1.30]
035 (A064). Ferley 1989	-0.49	0.245	3.3%	0.61 [0.38, 0.99]
037 (A068). Freitas 1995	-0.16	0.447	2.1%	0.85 [0.35, 2.05]
038 (A070). Friese 1997	-0.41	0.52	1.8%	0.66 [0.24, 1.84]
041 (A076). Hart 1997	0.2	0.437	2.2%	1.22 [0.52, 2.88]
043 (A079). Hofmeyr 1990	-0.06	0.457	2.1%	0.94 [0.38, 2.31]
046 (A021). Jacobs 2000	-0.73	0.374	2.5%	0.48 [0.23, 1.00]
047 (A020). Jacobs 2001	-0.63	0.556	1.7%	0.53 [0.18, 1.58]
048 (A018). Jacobs 1993	-0.65	0.634	1.4%	0.52 [0.15, 1.81]
049 (A019). Jacobs 1994	-0.98	0.478	2.0%	0.38 [0.15, 0.96]
050 (A082). Jawara 1997	0.37	0.525	1.8%	1.45 [0.52, 4.05]
052 (A025). Kainz 1996	-0.37	0.608	1.5%	0.69 [0.21, 2.27]
053 (A083). Kaziro 1984	0.47	0.707	1.2%	1.60 [0.40, 6.40]
055 (A091). Labrecque 1992	0.24	0.39	2.4%	1.27 [0.59, 2.73]
056 (A092). Leaman 1989	-0.47	0.65	1.4%	0.63 [0.17, 2.23]
062 (A095). McCutcheon 1996	0.37	0.463	2.0%	1.45 [0.58, 3.59]
063 (A098). Mokkapatti 1992	-0.16	0.234	3.4%	0.85 [0.54, 1.35]
070 (A100). Oberbaum 2001	-1.98	0.728	1.1%	0.14 [0.03, 0.58]
071 (A104). Papp 1998	-0.69	0.312	2.9%	0.50 [0.27, 0.92]
073 (A109). Rahlfs 1978	-1.47	0.473	2.0%	0.23 [0.09, 0.58]
074 (A108). Rahlfs 1976	-0.65	0.65	1.4%	0.52 [0.15, 1.87]
075 (A110). Ramelet 2000	0.41	0.374	2.5%	1.51 [0.72, 3.14]
076 (A112). Reilly 1994	-2.67	0.837	0.9%	0.07 [0.01, 0.36]
077 (A111). Reilly 1986	-0.86	0.364	2.6%	0.42 [0.21, 0.86]
084 (A116). Schmidt 2002	-0.14	0.26	3.2%	0.87 [0.52, 1.45]
086 (A122). Stevinson 2003	-0.53	0.577	1.6%	0.59 [0.19, 1.82]
087 (A035). Straumsheim 2000	-0.67	0.509	1.8%	0.51 [0.19, 1.39]
088 (A123). Taylor 2000	-0.16	0.52	1.8%	0.85 [0.31, 2.36]
091 (A126). Tveiten 1998	-0.84	0.556	1.7%	0.43 [0.15, 1.28]
094 (A128). Vickers 1998	0.33	0.167	3.8%	1.39 [1.00, 1.93]
095 (A127). Vickers 1997	0.35	0.494	1.9%	1.42 [0.54, 3.74]
096 (A037). Walach 1997	0.51	0.39	2.4%	1.67 [0.78, 3.58]
097 (A130). Weiser 1994	-0.41	0.364	2.6%	0.66 [0.33, 1.35]
099 (A040). Whitmarsh 1997	0.04	0.489	1.9%	1.04 [0.40, 2.71]
100 (A133). Wiesenauer 1990	-1.16	0.322	2.8%	0.31 [0.17, 0.59]
101 (A131). Wiesenauer 1985	-0.86	0.556	1.7%	0.42 [0.14, 1.26]
103 (A135). Wiesenauer 1995	-1.3	0.296	3.0%	0.27 [0.15, 0.49]
104 (A041). Yakir 2001	-1.83	0.934	0.8%	0.16 [0.03, 1.00]
Total (95% CI)			**100.0%**	**0.62 [0.52, 0.74]**

Heterogeneity: $Tau^2 = 0.19$; $Chi^2 = 104.01$, df = 50 ($P < 0.0001$); $I^2 = 52\%$

Test for overall effect: $Z = 5.24$ ($P < 0.00001$)

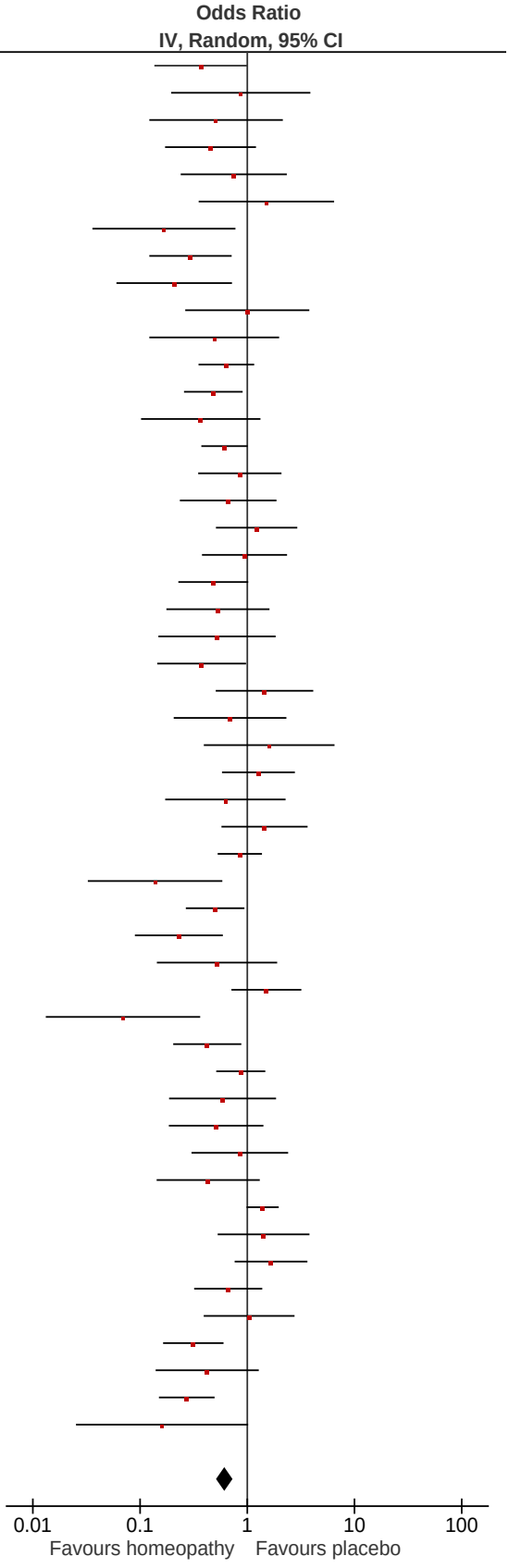

FIGURE 2:

Our meta-analysis of odds ratios for 15 peer-reviewed RCTs of 'higher methodological quality' that were reported by Shang et al. (2005b). We used the generic inverse variance (IV) method and the random effects model. Each RCT is numbered according both to Shang et al. (2005b) and Mathie et al. (2013).

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097 (A130). Weiser 1994	-0.41	0.364	7.6%	0.66 [0.33, 1.35]
Total (95% CI)			**100.0%**	**0.85 [0.65, 1.12]**

Heterogeneity: Tau² = 0.11; Chi² = 25.59, df = 14 (P = 0.03); I² = 45%

Test for overall effect: Z = 1.15 (P = 0.25)