Acupuncture for chronic musculoskeletal pain

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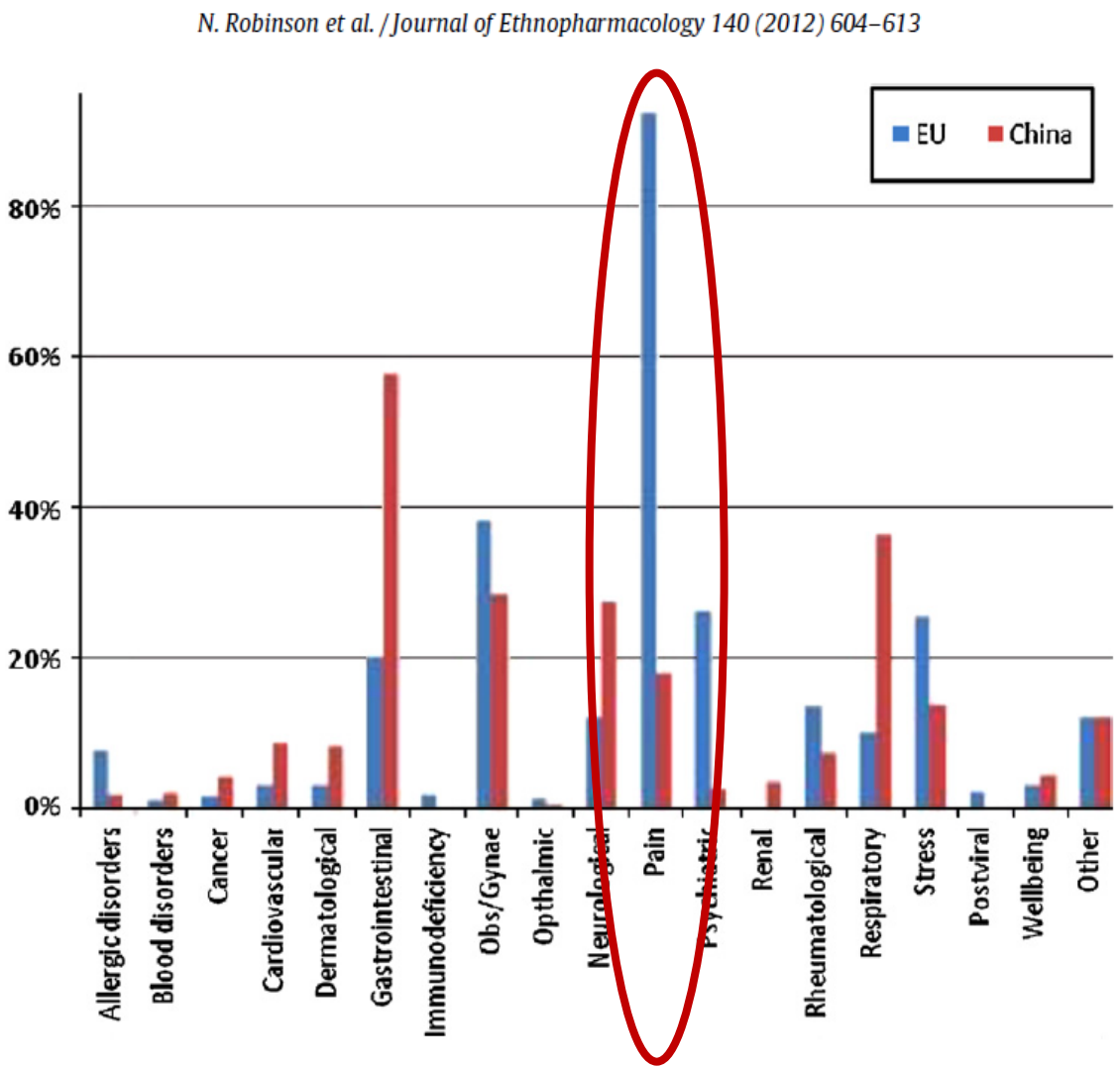
Outline

- Background
  - Utilisation of acupuncture
  - Growing evidence base
- Primary questions:
  - Is acupuncture better than a placebo (sham)?
  - Is acupuncture better than usual medical care?
- Implications for policy and practice

Utilisation of acupuncture in EU and China



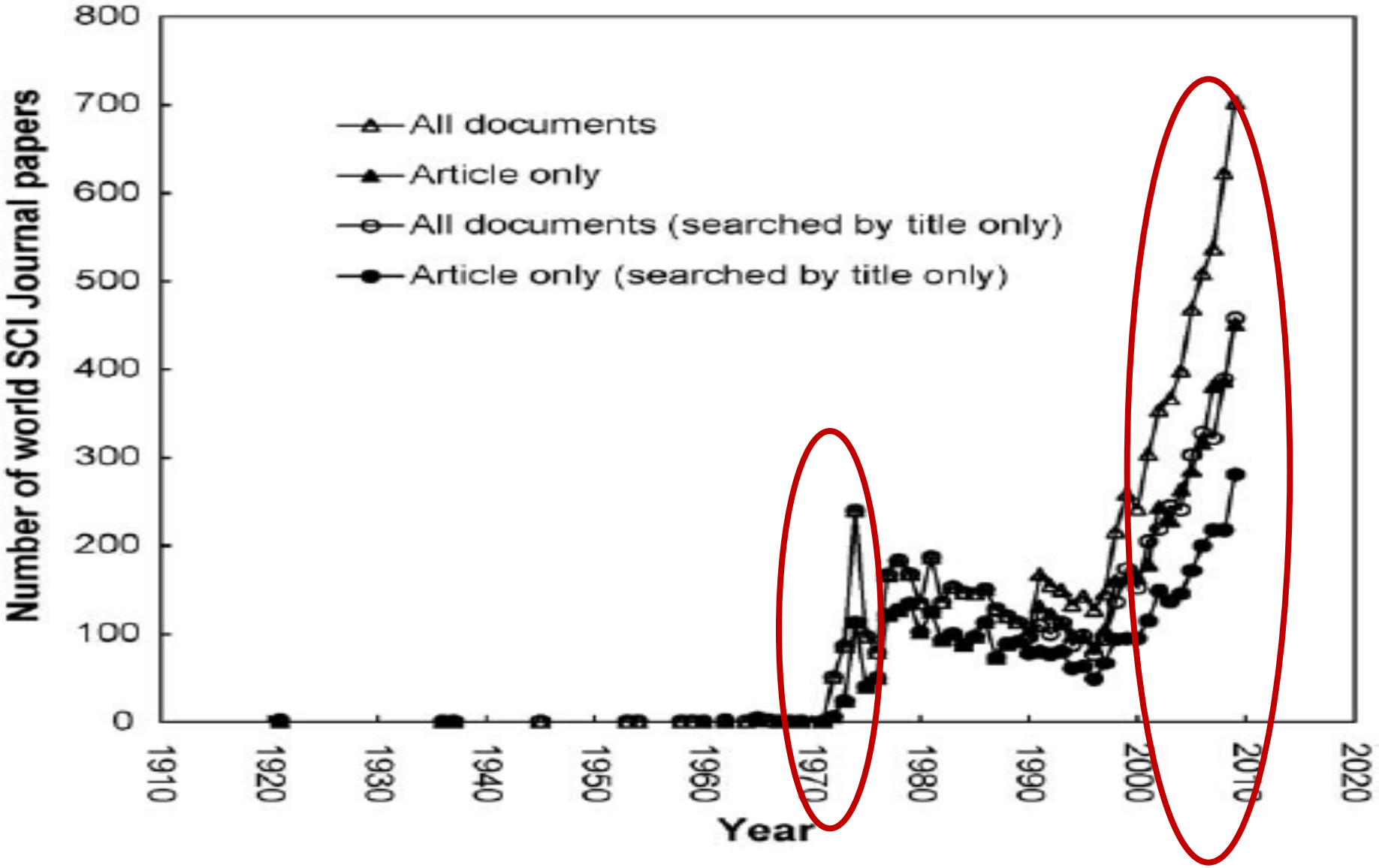


Fig. 1. Number of SCI-Expanded journals' papers referring to "electroacupuncture", "electro-acupuncture", "acupoint*", "acupunctur*", and "percutaneous electrical nerve stimulation" since 1900.

J.-S. Han, Y.-S. Ho / Neuroscience and Biobehavioral Reviews 35 (2011) 680–687

Meta-analysis of acupuncture for chronic pain

- Method: Individual patient data meta-analysis (39 trials and 20,827 patients)

- Inclusion: High quality acupuncture trials with chronic pain conditions:
  - Headache
  - Osteoarthritis
  - Musculoskeletal pain (shoulder, neck and back pain)

Question 1:

- Is acupuncture better than sham (placebo)?

  - Acupuncture

vs.

  - Sham acupuncture:
    - Penetrating needle at non acupuncture points
    - Non-penetrating needles at true acupuncture points

Acupuncture vs. Sham (placebo) controls: effect sizes

Condition	Effect sizes	P values
Acupuncture vs. Sham (placebo) controls		
Headache/migraine	0.16 (0.08 to 0.25)	P<0.001
Osteoarthritis	0.18 (0.11 to 0.25)	P<0.001
LBP & Neck Pain	0.19 (0.11 to 0.28)	P<0.001
Shoulder Pain	0.58 (0.42 to 0.74)	P<0.001

Effect sizes 0.8 = LARGE

0.5 = MODERATE (clinically relevant)

0.3 = SMALL

Values in parentheses are 95% confidence intervals

Question 2:

- Is acupuncture better than usual care controls?

- Acupuncture

  vs.

- Usual care:
  - No treatment
  - Wait list
  - Rescue medication
  - Usual care
  - Other standard treatment

Acupuncture vs. Usual care controls: effect sizes

Condition	Effect sizes	P values
Acupuncture vs. Usual care controls		
Migraine/headache	**0.44 (0.39 to 0.48)**	**P<0.001**
Osteoarthritis	**0.63 (0.56 to 0.69)**	**P<0.001**
Back & Neck Pain	**0.54 (0.50 to 0.57)**	**P<0.001**

Effect sizes	0.8 = LARGE
	0.5 = MODERATE (clinically relevant)
	0.3 = SMALL

Values in parentheses are 95% confidence intervals

Primary results on effectiveness

- Acupuncture outperforms sham acupuncture
  - small effect size of ~0.2
- Acupuncture outperforms usual care
  - moderate effect size of ~0.5
  - clinically relevant

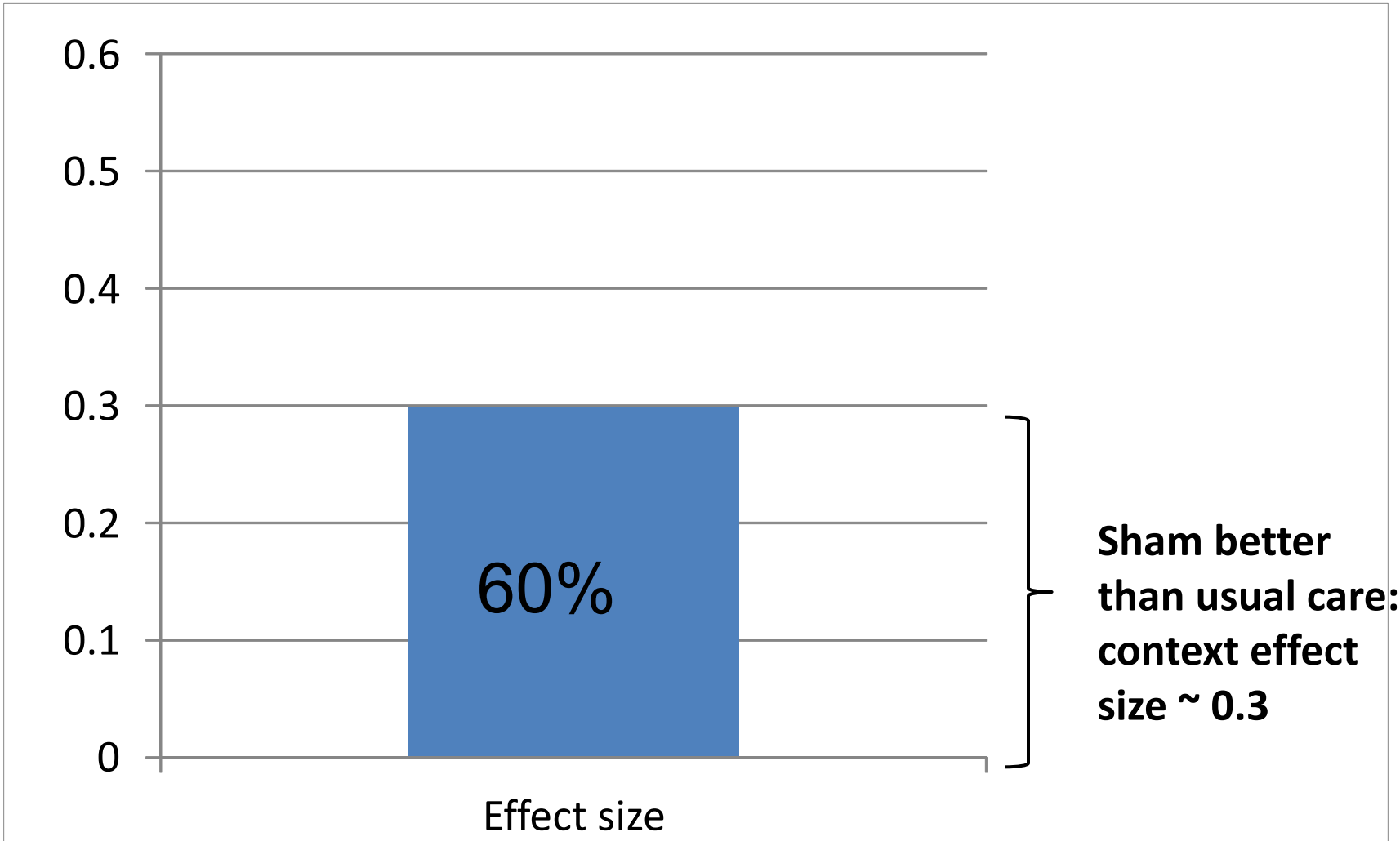
PLUS (data not shown)

- Sham acupuncture outperforms usual care
  - context effect size of ~0.3

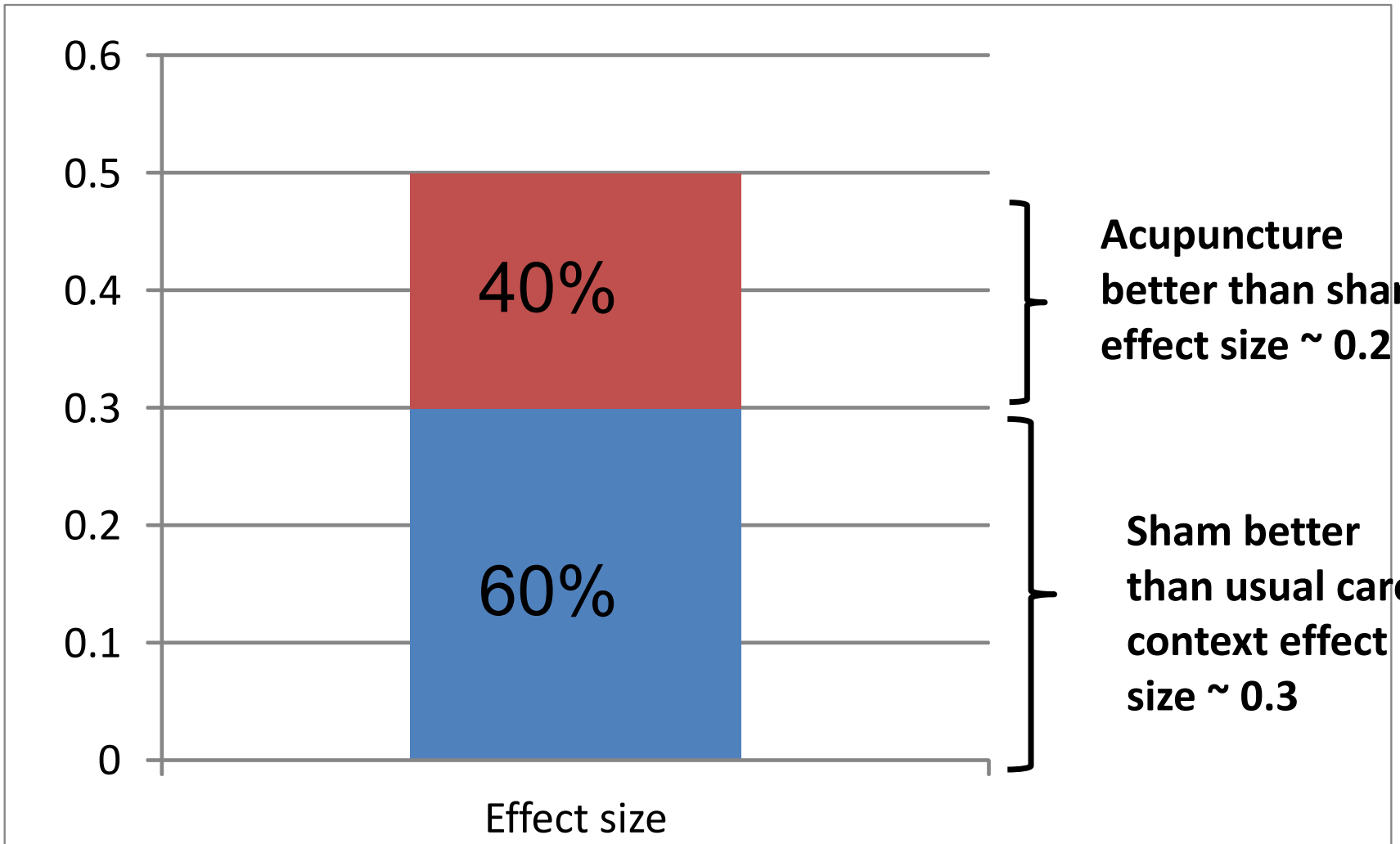
[All statistically significant at $p<0.001$]

Vickers AJ et al. Acupuncture for Chronic Pain. J Pain Off J Am Pain Soc. 2017

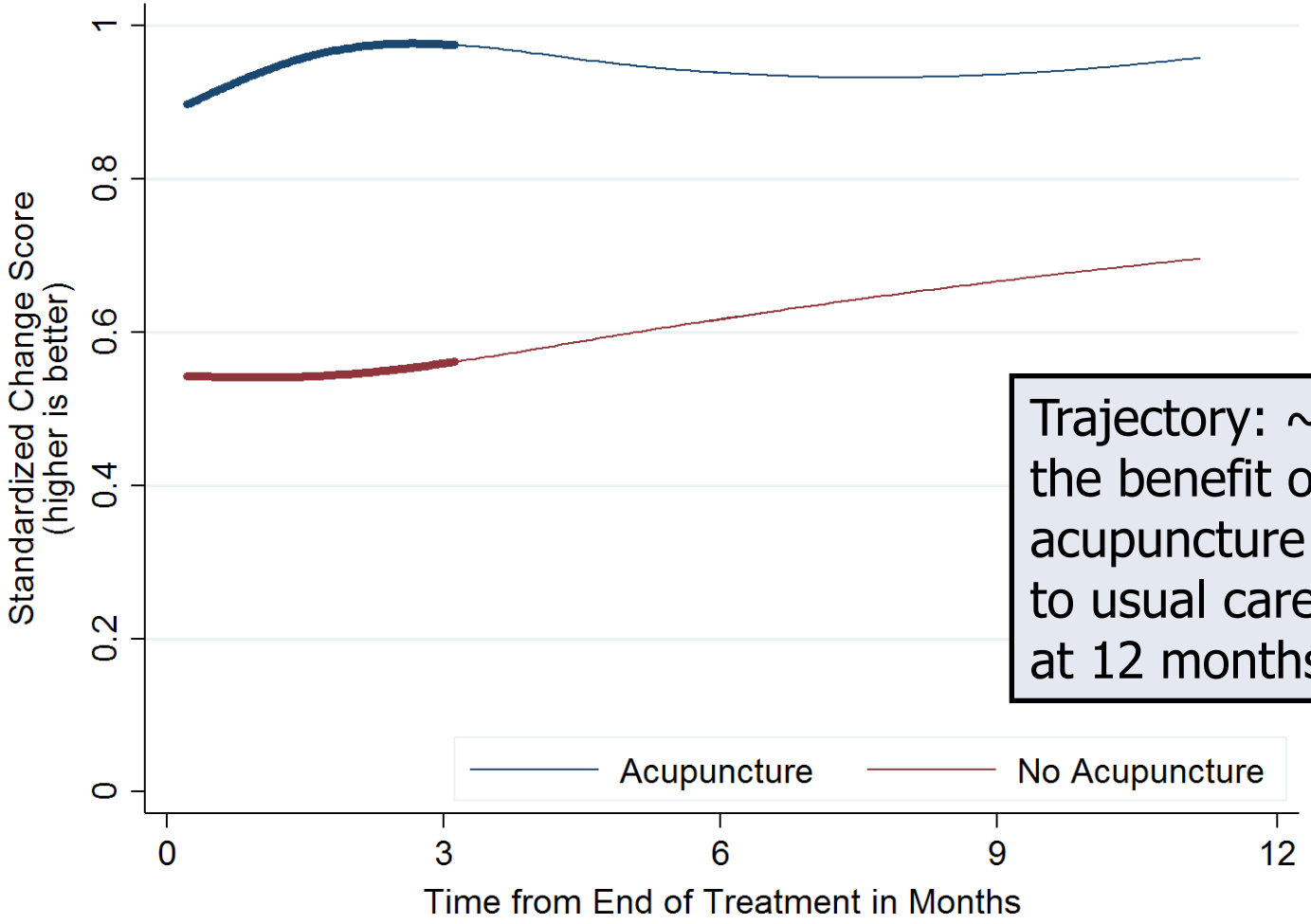
Even sham acupuncture outperforms usual care, with effect size of ~ 0.3



Acupuncture better than usual care ~ 0.5
Acupuncture better than sham ~ 0.2



Trajectory of benefit: Acupuncture vs. usual care



Trajectory: ~10% of the benefit of acupuncture relative to usual care is lost at 12 months

MacPherson et al. PAIN. 2017; 158 (5): 784–793

Implications for placebo research

- Acupuncture outperforms sham (placebo)
  - small effect size of ~0.2
  - statistically significant at $p<0.001$
- In addition (data not presented)
  - large sample sizes needed
  - penetrating sham is physiologically very active
  - acupuncture has similar effect size to NSAIDs vs. placebo (and safer) and to many other interventions

Implications for practice and policy

- Acupuncture is an evidence-based intervention for chronic pain
  - moderate effect size of ~0.5 ($p<0.001$)
  - effect size considered clinically relevant
  - 90% of benefit sustained at 12 months
- In addition (data not presented)
  - evidence on acupuncture safety and cost-effectiveness

Acknowledgments

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References, see ww.hughmacpherson.com

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