Supplementary materials

Supplement 1. Search strategy

PUBMED

("Randomized Controlled Trial"[Publication Type] OR (("randomized"[Title/Abstract] OR "randomised"[Title/Abstract] OR "randomly"[Title/Abstract]) NOT (("Animals"[MeSH Terms] NOT "Animals"[MeSH Terms]) AND "Humans"[MeSH Terms])) OR ("systematic review"[Title] OR "meta-analysis"[Publication Type]) OR "meta-analysis"[Title] OR "meta synthesis"[Title] OR "meta analy*"[Title] OR "systematic review"[Title/Abstract]) AND ("Back Pain"[MeSH Terms] OR "backache"[Text Word] OR "Back Pain"[Text Word] OR "lumb*"[Text Word] OR "coccyx"[Text Word] OR "coccydynia"[Text Word] OR "lumbago"[Text Word] OR "Low Back Pain"[MeSH Terms]) AND ("Acupuncture Therapy"[MeSH Terms] OR "Acupuncture"[MeSH Terms] OR "Meridians"[MeSH Terms] OR "Trigger Points"[MeSH Terms] OR "meridian*"[Text Word] OR "Electroacupuncture"[Text Word] OR "dry needl*"[Text Word] OR "Acupuncture"[Text Word] OR "trigger point*"[Text Word]) Filters: from 2019/8/1 - 2022/5/24

Embase

('back pain':ti,ab OR backache OR (lumb* NEAR/3 pain) OR 'coccyx':ti,ab OR 'coccydynia':ab,ti OR 'lumbago':ab,ti OR 'low back pain'/exp OR 'backache'/exp) AND ('acupuncture'/exp OR 'electroacupuncture' OR 'trigger point'/exp OR 'trigger point*' OR meridian* OR 'dry needl*' OR acupuncture) AND (randomized:ti,ab OR randomised:ti,ab OR randomly:ti,ab OR 'systematic review':ti OR 'meta synthesis':ti,ab OR 'meta-analysis':ti,ab OR 'systematic review'/exp OR 'meta analysis'/exp OR 'randomized controlled trial'/exp OR 'controlled clinical trial'/exp) NOT (('animal experiment' OR 'animal model' OR 'animal tissue' OR 'animal cell' OR 'non human' OR 'animals'/exp OR 'invertebrate'/exp) NOT (('animal experiment' OR 'animal model' OR 'animal tissue' OR 'animal cell' OR 'non human' OR 'animals'/exp OR 'invertebrate'/exp) AND ('human'/exp OR human OR 'normal human' OR 'human cell'))) AND [1-8-2022]/sd AND [embase]/lim

Cochrane library

ID	Search Hits
#2	MeSH descriptor: [Randomized Controlled Trial] explode all trees
#3	randomized
#4	radomly
#5	trial
#6	MeSH descriptor: [Systematic Review] explode all trees
#7	MeSH descriptor: [Meta-Analysis] explode all trees
#8	randomised
#9	meta-analysis
#10	"meta synthesis"
#11	"systematic review"
#12	"meta analysis"
#13	#2 or #3 or #4 or #5 #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12

#14	"dry needle"
#15	"dry needles"
#16	"dry needling"
#17	#14 or #15 or #16
#18	"trigger point"
#19	"trigger points"
#20	#18 OR #19
#21	Acupuncture
#22	meridian*
#23	MeSH descriptor: [Acupuncture] explode all trees
#24	MeSH descriptor: [Acupuncture Therapy] explode all trees
#25	MeSH descriptor: [Trigger Points] explode all trees
#26	MeSH descriptor: [Meridians] explode all trees
#27	#17 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26
#28	MeSH descriptor: [Back Pain] explode all trees
#29	MeSH descriptor: [Low Back Pain] explode all trees
#30	MeSH descriptor: [Intervertebral Disc] explode all trees
#31	backache
#32	lumb* NEAR3 pain
#33	lumbago
#34	"spinal fusion"
#35	failed NEAR back
#36	lumbar NEAR vertebra*
#37	"back disorder"
#38	back NEAR pain
#39	"back disorders"
#40	#28 or #29 or #30 or #31 or #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39
#41	#13 AND #27 AND #40 with Cochrane Library publication date Between Aug 2019 and Jun 2022

Supplement 2. Excluded studies and reasons for exclusion

Referenza	Reasons of exclusion
1. Arriaga-Pizano L, Gómez-Jiménez DC, Flores-Mejía LA, Pérez-Cervera Y, Solórzano-Mata CJ, López-Macías C, et al. Low back pain in athletes can be controlled with acupuncture by a catecholaminergic pathway: clinical trial. Acupuncture in medicine. 2020;38(6):388-95. doi: 10.1177/0964528420912251. PubMed PMID: CN-02120469.	Non-population (no non-specific chronic low back pain)
2. Chen L, Deng H, Houle T, Zhang Y, Ahmed S, Zhang V, et al. A randomized trial to assess the immediate impact of acupuncture on quantitative sensory testing, pain, and functional status. Pain. 2019;160(11):2456-63. doi: 10.1097/j.pain.0000000000001651. PubMed PMID: CN-01962435.	Non-population (no non-specific chronic low back pain)
3. Chen LX, Duan JF, Wang YQ, Ding XH, Long GH. EDects of acupuncture/TENS and the two therapies combined on the treatment of chronic low back pain: a randomised control trial. Journal of Cervicodynia and Lumbodynia 2010;31(2):137-8.	Written in Chinese
4. Dascanio V, Birks Y, Clark L, Fairhurst C, MacPherson H, Torgerson DJ. Randomized cohort trial was shown to be feasible for evaluating treatments in low back pain. J Clin Epidemiol. 2014;67(8):940-6. Epub 2014/05/20. doi: 10.1016/j.jclinepi.2014.04.004. PubMed PMID: 24836758.	Non-population (no non-specific chronic low back pain)
5. Fan Y, Xue LF and Meng XF. Analysis of efficacy of warm acupunc ture to treat intervertebral lumbar disc herniation syndrome. Zhongguo Zhong Yi Yao Xian Dai Yuan Cheng Jiao Yu 2009; 7: 144–145.	Written in Chinese
6. Giles LG, Muller R, Winter GJ. Patient satisfaction, characteristics, radiology, and complications associated with attending a specialized government-funded multidisciplinary spinal pain unit. J Manipulative Physiol Ther. 2003;26(5):293-9. Epub 2003/06/24. doi: 10.1016/s0161-4754(03)00045-9. PubMed PMID: 12819625.	Non-population (no non-specific chronic low back pain)
7. Giles LG, Müller R. Chronic spinal pain syndromes: a clinical pilot trial comparing acupuncture, a nonsteroidal anti-inflammatory drug, and spinal manipulation. J Manipulative Physiol Ther. 1999;22(6):376-81. Epub 1999/09/09. doi: 10.1016/s0161-4754(99)70082-5. PubMed PMID: 10478769.	Non-population (no non-specific chronic low back pain)
8. Heo I, Shin BC, Cho JH, Ha IH, Hwang EH, Lee JH, et al. Multicentre randomised controlled clinical trial of electroacupuncture with usual care for patients with non-acute pain after back surgery. British journal of anaesthesia. 2021;126(3):692-9. Epub 2020/12/21. doi: 10.1016/j.bja.2020.10.038. PubMed PMID: 33341226.	Non-population (no non-specific chronic low back pain)
9. Isenburg K, Mawla I, Lee J, Gerber J, Kim J, Kim H, et al. Acupuncture analgesia for low back pain is associated with greater pressure pain-evoked activation in dorsolateral prefrontal cortex and a reduction in hyperalgesia. Journal of Alternative and Complementary Medicine. 2019;25(10):A6. doi: 10.1089/acm.2019.29074.abstracts.	Congress presentation. No usable data
10. Itoh K, Katsumi Y, Kitakoji H. Trigger point acupuncture treatment of chronic low back pain in elderly patients--a blinded RCT. Acupuncture in medicine : journal of the British Medical Acupuncture Society. 2004;22(4):170-7. Epub 2005/01/05. doi: 10.1136/aim.22.4.170. PubMed PMID: 15628774.	Non comparison group (different types of acupuncture)
11. Kim H, Mawla I, Lee J, Gerber J, Walker K, Kim J, et al. Reduced tactile acuity in chronic low back pain is linked with structural neuroplasticity in primary somatosensory cortex and is modulated by acupuncture therapy. Neuroimage. 2020;217:116899. Epub 2020/05/08. doi: 10.1016/j.neuroimage.2020.116899. PubMed PMID: 32380138; PubMed Central PMCID: PMCPMC7395964.	Non comparison group (conventional type of therapy not described)
12. Kim H, Mawla I, Lee J, Isenburg K, Gerber J, Kim J, et al. Structural neuroplasticity in primary somatosensory cortex is linked to altered tactile acuity after acupuncture for chronic low back pain. Journal of Alternative and Complementary Medicine. 2019;25(10):A33. doi: 10.1089/acm.2019.29074.abstracts.	Congress presentation. No usable data

13. Kizhakkeveettil A, Rose KA, Kadar GE, Hurwitz EL. Integrative Acupuncture and Spinal Manipulative Therapy Versus Either Alone for Low Back Pain: A Randomized Controlled Trial Feasibility Study. J Manipulative Physiol Ther. 2017;40(3):201-13. Epub 2017/03/06. doi: 10.1016/j.jmpt.2017.01.002. PubMed PMID: 28259496.	Non-population (no non-specific chronic low back pain)
14. Moslemi F, Farokhi ZS. Effects of electroacupuncture on pain, functional disability and ultrasonographic changes of gluteus maximus muscle in non-specific chronic low back pain patients with gluteus maximus muscle trigger points. Koomesh. 2020;22(4):604-10.	Written in Farsi
15. Peng DQ, Yang T, Chen YC, et al. The 53 cases' observation of three tong method of He's acupuncture to treat intervertebral lumbar disc herniation syndrome. Zhong Yi Za Zhi 2013; 54: 1127–1130.	Written in Chinese
16. Tang LM, Deng CY, Huang H, Liu H, Huang P, Jiang XM, et al. [Clinical effectiveness of "long snake moxibustion" for cold-dampness type chronic non-specific low back pain patients with negative emotions]. Zhen Ci Yan Jiu. 2020;45(12):1014-8. Epub 2021/01/09. doi: 10.13702/j.1000-0607.200061. PubMed PMID: 33415863.	Written in Chinese
17. Thomas KJ, MacPherson H, Thorpe L, Brazier J, Fitter M, Campbell MJ, et al. Randomised controlled trial of a short course of traditional acupuncture compared with usual care for persistent non-specific low back pain. British Medical Journal. 2006;333(7569):623-6. doi: 10.1136/bmj.38878.907361.7C.	Non comparison group (conventional type of therapy not described)
18. Tsukayama H, Yamashita H, Amagai H, Tanno Y. Randomised controlled trial comparing the effectiveness of electroacupuncture and TENS for low back pain: a preliminary study for a pragmatic trial. Acupuncture in medicine : journal of the British Medical Acupuncture Society. 2002;20(4):175-80. Epub 2003/01/07. doi: 10.1136/aim.20.4.175. PubMed PMID: 12512791.	Non-population (no non-specific chronic low back pain)
19. Wang X, Zhu JS. [Effect of Cangguitanxue acupuncture combined with suspension exercise therapy on chronic low back pain]. Zhongguo zhen jiu = Chinese acupuncture & moxibustion. 2020;40(7):739-43. Epub 2020/07/11. doi: 10.13703/j.0255-2930.20190624-k0004. PubMed PMID: 32648398.	Written in Chinese
20. Zeng MG. The compared analysis of acupuncture and medicine to treat the root pain due to intervertebral lumbar disc herniation syn drome. Zhongguo Wei Sheng Chan Ye 2012:174.	Written in Chinese
21. Zhang SG, Wang XH and Xiong CM. Chinese acupuncture to treat low back pain patients in Africa. Zhonghua Zhong Yi Yao Xue Kan 2013; 31: 1188–1190.	Written in Chinese
22. Zhao F, Cao DB, Yuan YQ, Luo J, Wen YY, Wang Y, et al. EDicacy observation of nonspecific low back pain treated with the dragon-tiger fighting needling method. Chinese Acupuncture & Moxibustion 2012;32(6):507-10.	Written in Chinese

Supplement 3. Summary of findings results.

Acupuncture versus non-pharmacologic treatment					
Outcomes	**Anticipated absolute effects (95% CI)**		**Relative effect (95% CI)**	**№ of participants (studies)**	**Certainty (GRADE)**
	Risk with non-pharmacologic treatment	**Risk with Acupuncture**			
Pain end of treatment; assessed with: VAS Follow up: range 4 weeks 5 weeks	The mean pain end of treatment was **37.64**	MD **0.1** Higher (15.05 Lower to 15.25 Higher)	-	141 (3 RCT)[40,42,43]	⨁⨁◯◯ LOW[a,b]
Disability end of treatment; assessed with: RMDQ, ODI Follow up: range 4 weeks 10 weeks	The mean disability end of treatment was 0	SMD **0.19** Higher (0.06 Lower to 0.44 Higher)	-	256 (3 RCT)[38,42,43]	⨁⨁◯◯ LOW[a,b]
Drop out Follow up: range 4 weeks to 10 weeks	Number of patients 3 per 100	 **4 per 100** (1 to 16)	**RR 1.56** (0.43 to 5.61)	316 (4 RCT) [38, 40,42,43]	⨁⨁◯◯ LOW[a,c]
Acupuncture versus pharmacologic treatment					
Outcomes	**Anticipated absolute effects (95% CI)**		**Relative effect (95% CI)**	**№ of participants (studies)**	**Certainty (GRADE)**
	Risk with pharmacologic treatment	**Risk with acupuncture**			
Pain end of treatment; assessed with: VAS Follow up: mean 4 weeks	The mean pain end of treatment was **21.99**	MD **2.17** Lower (12.69 Lower to 8.35 Higher)	-	347 (3 RCT)[43.45,51]	⨁⨁◯◯ LOW[a,b]
Disability end of treatment; assessed with: RMDQ, ODI Follow up: mean 4 weeks	The mean disability end of treatment was 0	SMD **0.44** Lower (1.22 Lower to 0.34 Higher)	-	347 (3 RCT) [43.45,51]	⨁◯◯◯ VERY LOW[a,b,d]
Drop out end of treatment; follow up: mean 4 weeks	Number of patients 0 per 100	 **1 per 100** (0 to 14)	**RR 1.00** (0.07 to 14.9)	347 (3 RCT) [43.45,51]	⨁◯◯◯ VERY LOW[a,e]

Acupuncture versus combined pharmacological and non-pharmacological treatment					
Outcomes	**Anticipated absolute effects (95% CI)**		**Relative effect (95% CI)**	**№ of participants (studies)**	**Certainty (GRADE)**
	Risk with pharmacological and non-pharmacological treatment	**Risk with acupuncture**			
Pain end of treatment; assessed with: CPGS, VAS Follow up: range 3 weeks 7 weeks	The mean pain end of treatment was **0**	SMD **0.5** Lower (0.62 Lower to 0.37 Lower)	-	1022 (3 RCT)[41,44,46]	⊕⊕⊕◯ MODERATE[a]
Disability end of treatment; assessed with: HFAQ, RMDQ Follow up: range 5 weeks to 8 weeks	The mean disability end of treatment was 0	SMD **0.71** Lower (1.17 Lower to 0.24 Lower)	-	1438 (3 RCT)[39,41,46]	⊕⊕◯◯ LOW[a,f]
Drop out end of treatment; follow up: range 3 weeks to 8 weeks	Number of patients		**RR 0.64** (0.41 to 1.02)	1498 (4 RCT) [39,41,44,46]	⊕⊕◯◯ LOW[a,c]
	6 per 100	**4 per 100** (2 to 6)			
Acupuncture in adjunct to non-pharmacological treatment versus non-pharmacological treatment alone					
Outcomes	**Anticipated absolute effects (95% CI)**		**Relative effect (95% CI)**	**№ of participants (studies)**	**Certainty (GRADE)**
	Risk with non-pharmacological treatment	**Risk with acupuncture + non-pharmacological treatment**			
Pain in the end of treatment; assessed with: VAS, NRS Follow up: range 4 weeks 12 weeks	The mean pain end of treatment was **0**	SMD **0.7** Lower (0.94 Lower to 0.46 Lower)	-	279 (4 RCT)[42,47,48,49]	⊕◯◯◯ VERY LOW[g,b]
Disability end of treatment; assessed with: RMDQ, Aberdeen, PDI follow up: range 5 weeks 12 weeks	The mean disability end of treatment was **0**	SMD **0.95** Lower (1.36 Lower to 0.54 Lower)	-	102 (2 RCT)[42,47]	⊕◯◯◯ VERY LOW[g,c]
Drop out end of treatment follow up: range 4 weeks 12 weeks	Number of patients		**RR 1.24** (0.54 to 2.81)	279 (4 RCT) [42,47,48,49]	⊕◯◯◯ VERY LOW[g,c]
	8 per 100	**10 per 100** (4 to 22)			

Acupuncture in adjunct to combined pharmacological and non-pharmacological treatment versus combined pharmacological and non-pharmacological treatment					
Outcomes	**Anticipated absolute effects (95% CI)**		**Relative effect (95% CI)**	**№ of participants (studies)**	**Certainty (GRADE)**
	Risk with pharmacological treatment + non-pharmacological treatment	**Risk with acupuncture + pharmacological treatment + non-pharmacological treatment**			
Pain in the end of treatment; assessed with: VAS- Change Follow up: mean 5 weeks	The mean pain end of treatment **0.6**	MD **0.6** Lower (1.22 Lower to 0.02 Higher)	-	55 (1 RCT)[50]	⨁◯◯◯ VERY LOW[g,b]
Disability end of treatment; assessed with: RMDQ change from baseline Follow up: mean 5 weeks	The mean disability end of treatment was -0.7	MD **3.4** Lower (5.17 Lower to 1.63 Lower)	-	55 (1 RCT)[50]	⨁◯◯◯ VERY LOW[g,b]
Drop out end of treatment. follow up: mean 5 weeks	Number of patients		**RR 5.42** (0.71 to 41.14)	55 (1 RCT)[50]	⨁◯◯◯ VERY LOW[g,h]
	4 per 100	**23 per 100** (3 to 100)			
Acupuncture in adjunct to pharmacological treatment versus pharmacological treatment alone					
Outcomes	**Anticipated absolute effects (95% CI)**		**Relative effect (95% CI)**	**№ of participants (studies)**	**Certainty (GRADE)**
	Risk with pharmacological treatment + non-pharmacological treatment	**Risk with acupuncture + pharmacological treatment + non-pharmacological treatment**			
Pain in the end of treatment; assessed with: VAS- Change Follow up: mean 5 weeks	The mean pain end of treatment **61.9**	MD 21.8 Lower (33.18 Lower to 10.42 Lower)	-	40 (1 RCT)[51]	⨁⨁◯◯ LOW[a,b]

Disability end of treatment; assessed with: RDQ change from baseline Follow up: mean 5 weeks	The mean disability end of treatment was **8.8**	MD **3.1**Lower (4.87 Lower to 1.33 Lower)	-	40 (1 RCT)[51]	⊕⊕◯◯ LOW[a,b]
Drop out end of treatment. follow up: mean 5 weeks	Number of patients		**RR 1**.00 (0.07 to 14.90)	40 (1 RCT)[51]	⊕◯◯◯ VERY LOW[a,e]
	50 per 100	**50 per 100** (4 to 745)			

a.Downgraded one level for high risk of bias (performance and detection bias)

b.Downgraded one level for imprecision: less than 400 participants

c.Downgraded one level for imprecision: optimal information size not met

d.Downgraded one level for inconsistency: I^2: 89%

eDowngraded two levels for imprecision: very few events and confidence intervals very wide

f.Downgraded one level for inconsistency: I^2: 93%

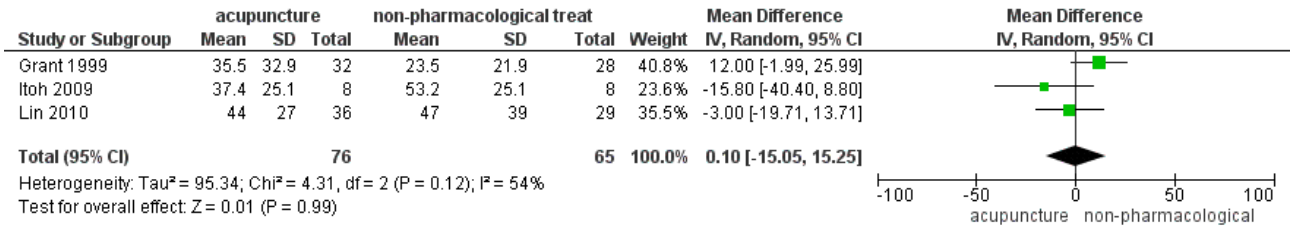
g.Downgraded two levels for high risk of bias (performance, detection and attrition bias)

h.Downgraded two levels for imprecision: less than 100 participants and confidence intervals very wide

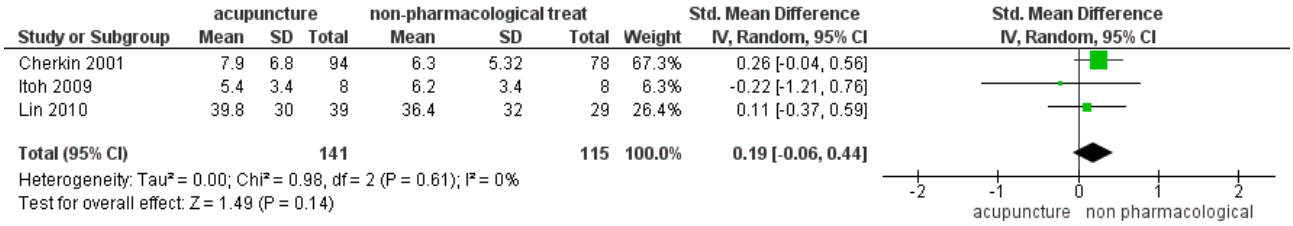
Supplement 4. Supplementary figures on the results at the end of the treatment – primary outcomes

Fig. S1. <u>Acupuncture alone</u>. Acupuncture versus non-pharmacologic treatment.

a) Pain



b) Disability



c) Drop-out

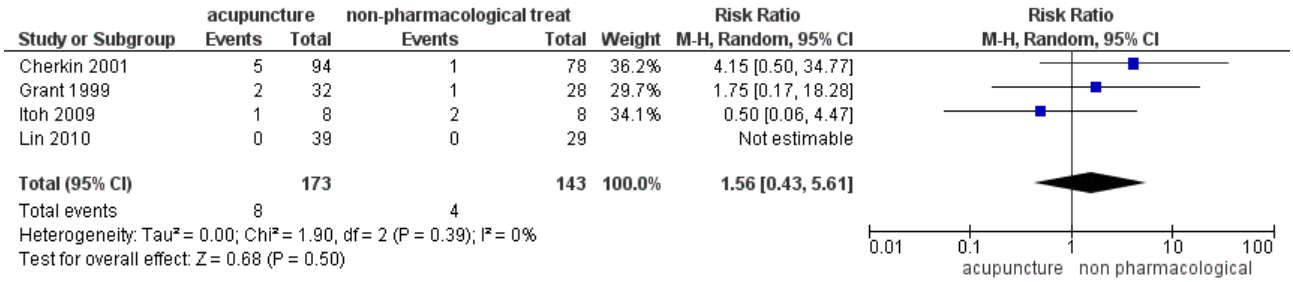
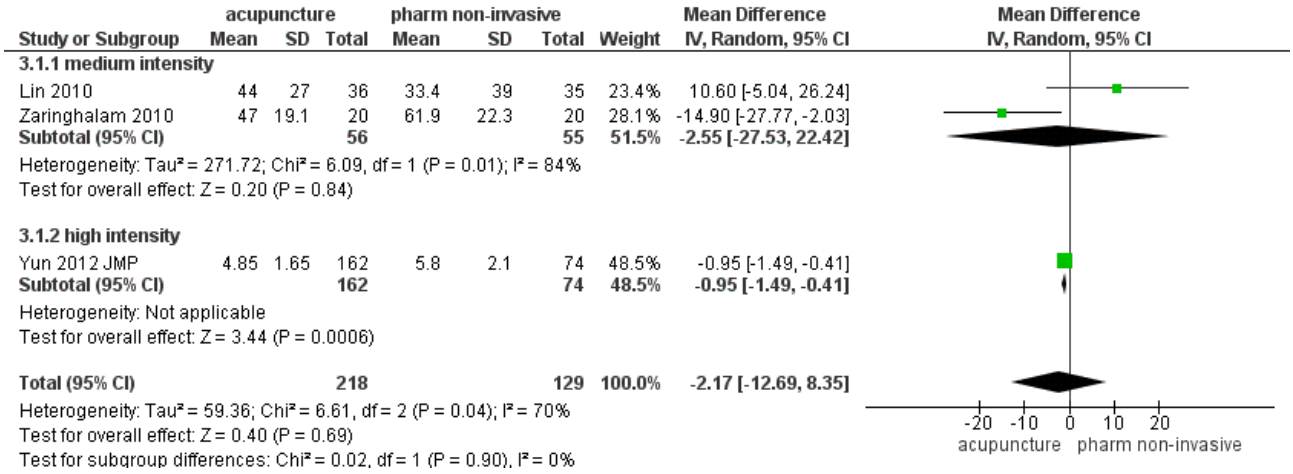
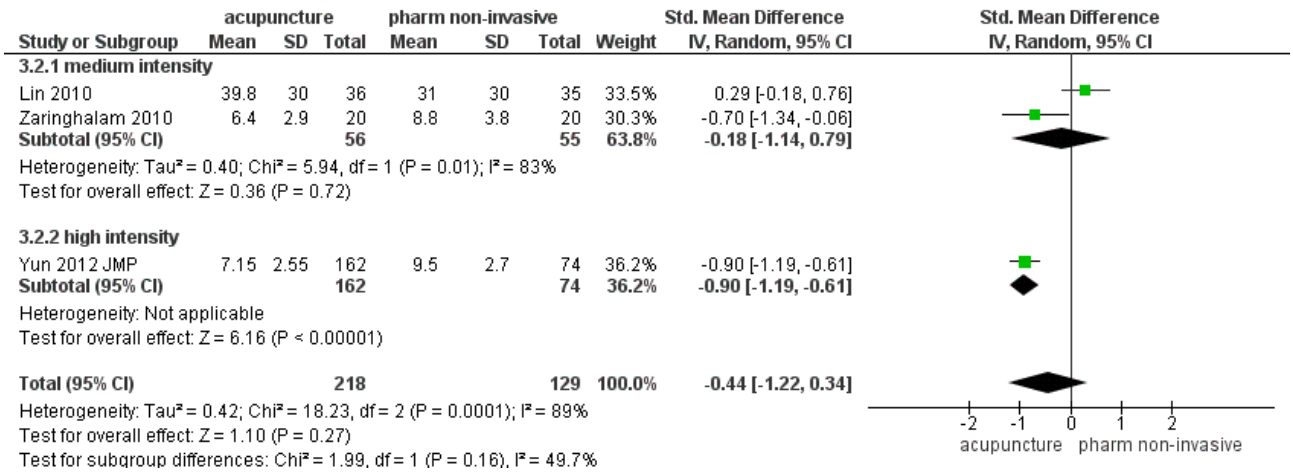


Fig. S2. <u>Acupuncture alone</u>. Acupuncture versus pharmacologic treatment.

a) Pain



b) Disability



c) Dropout

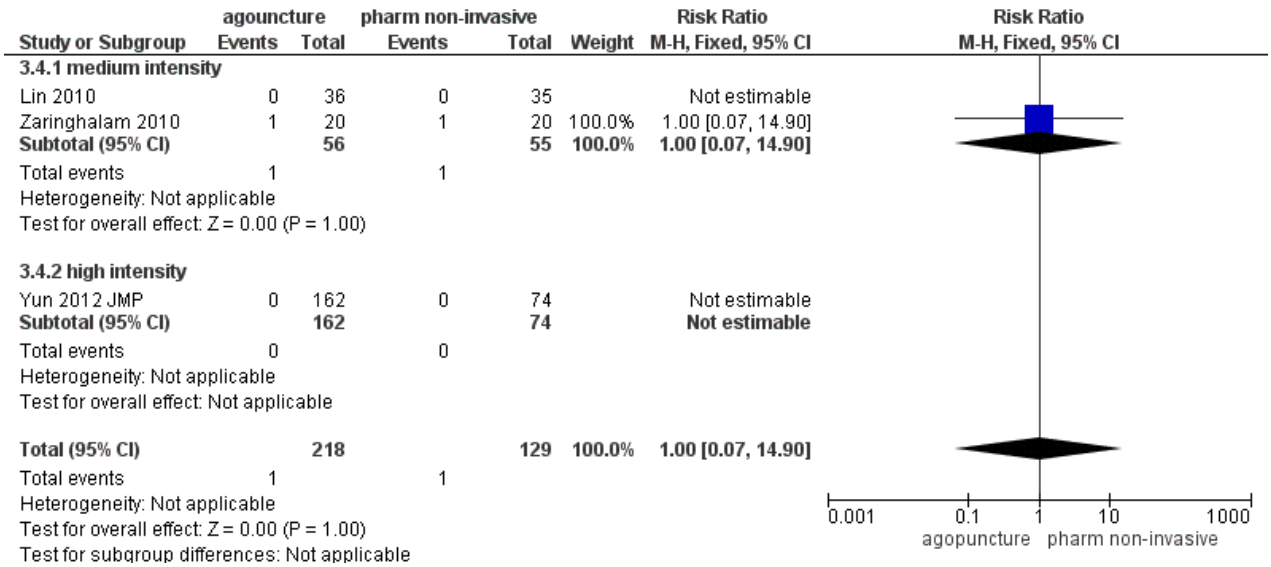
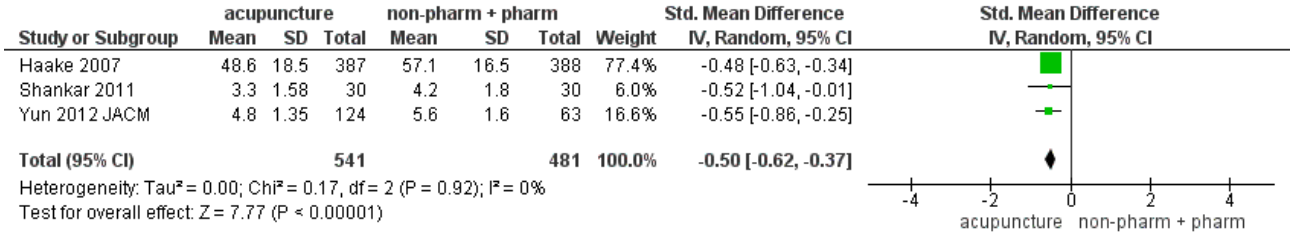
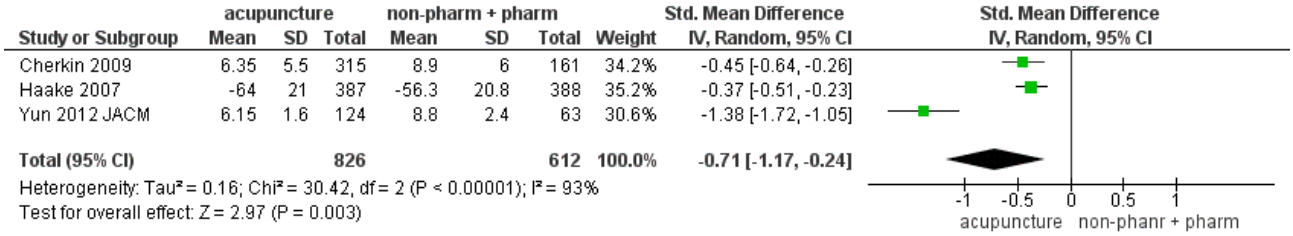


Fig. S3. <u>Acupuncture alone</u>. Acupuncture versus combined pharmacological and non-pharmacological treatment.

a) Pain



b) Disability



c) Drop-out

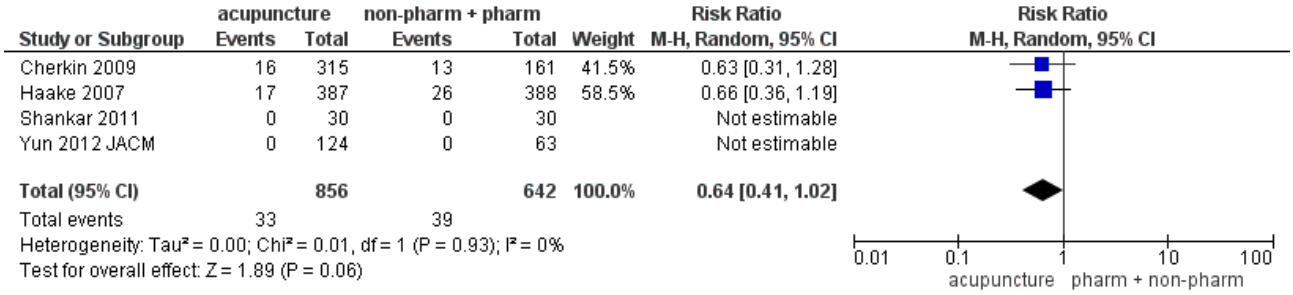
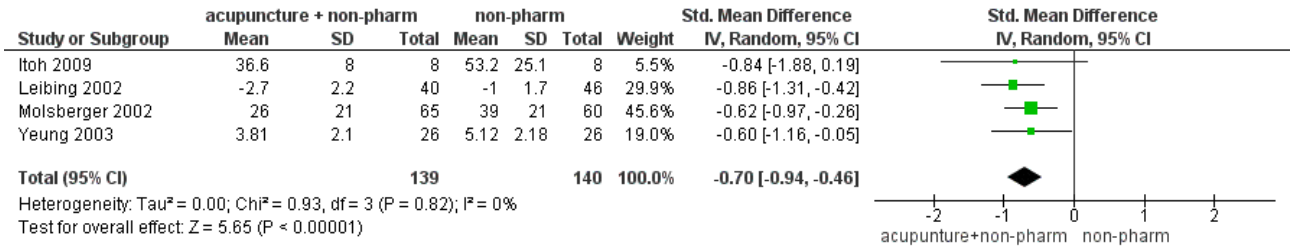
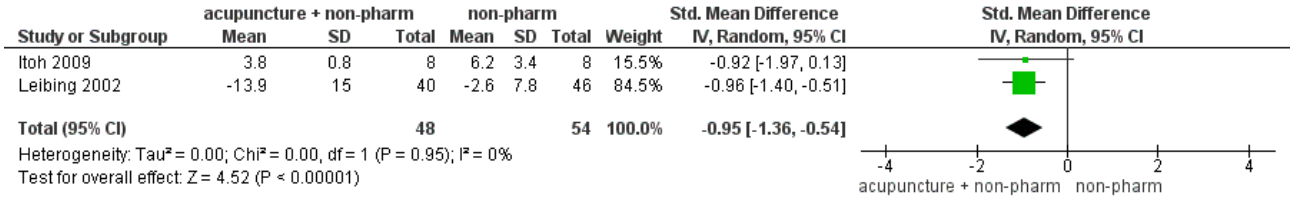


Fig. S4. <u>Acupuncture as add-on.</u> Acupuncture in addition to non-pharmacological treatment versus non-pharmacological treatment alone.

a) Pain



b) Disability



c) Dropout rate

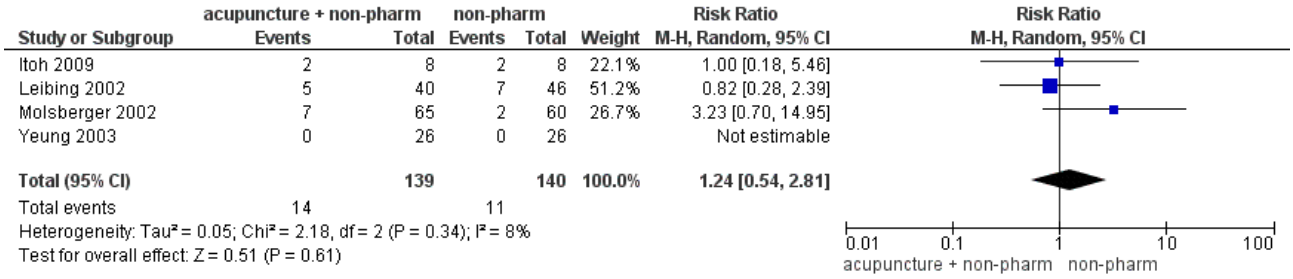
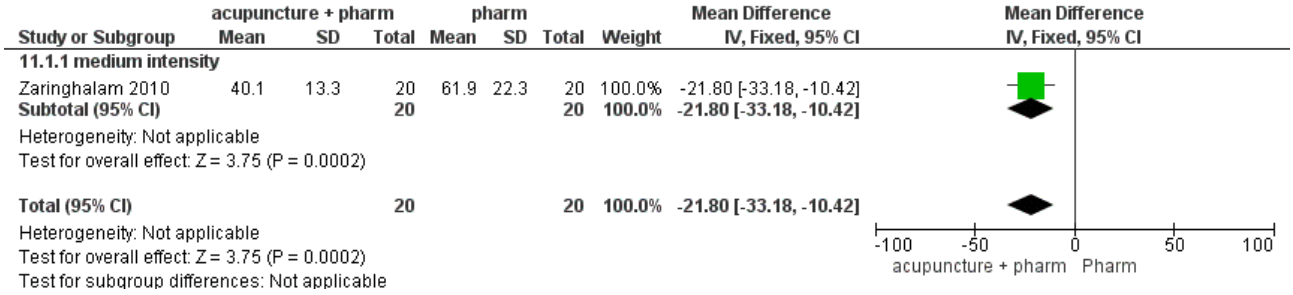
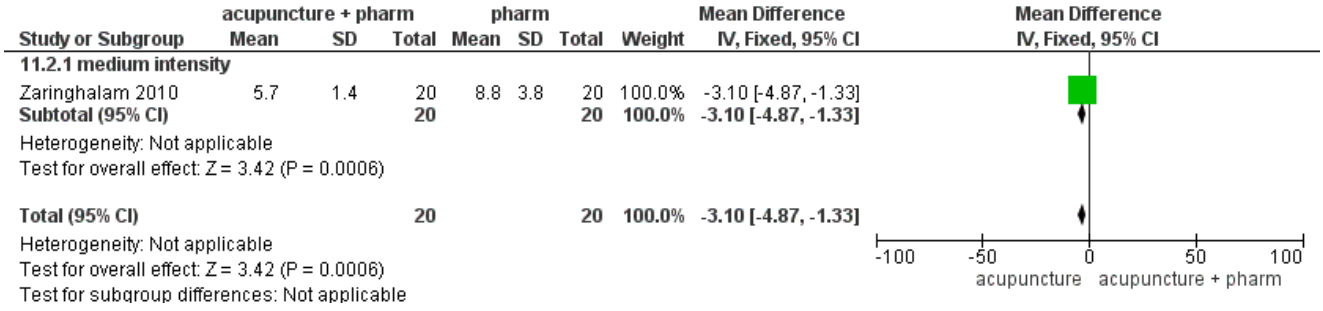


Fig. S5. Acupuncture as add-on. Acupuncture in addition to pharmacological treatment versus pharmacological treatment alone.

a) Pain



b) Disability



c) Dropout rate

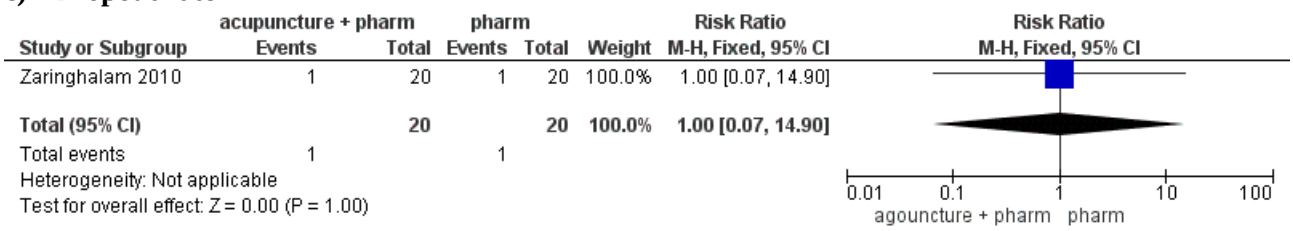
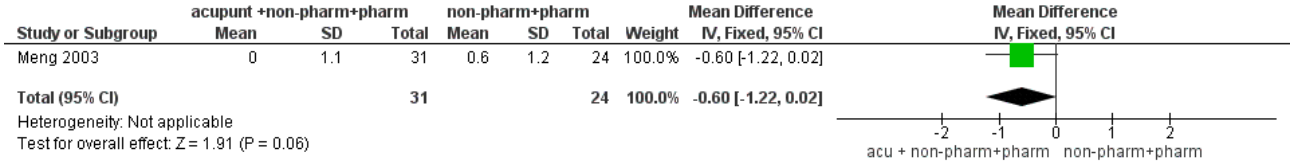
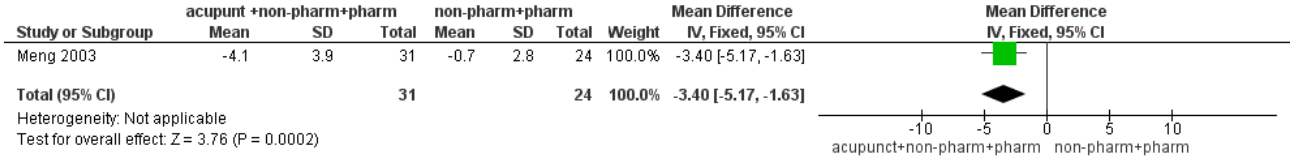


Fig. S6. <u>Acupuncture as add-on</u>. Acupuncture in addition to combined pharmacological and non-pharmacological treatment versus combined pharmacological and non-pharmacological treatment alone.

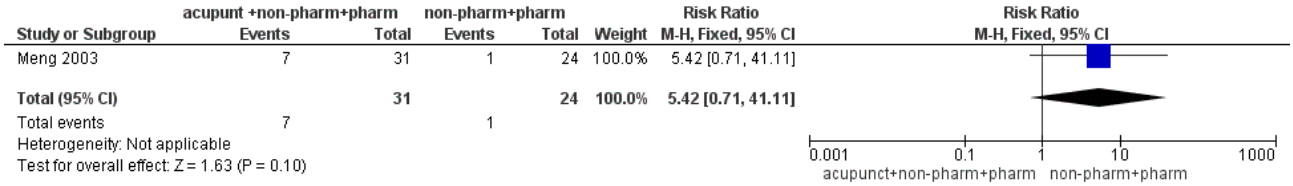
a) Pain



b) Disability



c) Dropout rate



Supplement 5. PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Pages 4,5
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 5
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 6
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 7
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supplementary material
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page 7
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Page 7
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Page 7
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Page 7
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 8
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Page 8
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Page 8
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Page 8
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Page 8
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Page 8
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Page 8, 9
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Sensitivity analysis not performed
Reporting bias	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Page 8

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
assessment			
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Page 9,10
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page 10
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Page 10, supplementary material
Study characteristics	17	Cite each included study and present its characteristics.	Page 10,11, table 1, table 2
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Page 11, figure 2
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Page 12-14 , table 3, supplementary material
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Page 12-14, supplementary material
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Page 12-14, supplementary material
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Page 14, supplementary material
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Sensitivity analysis not conducted
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Not applicable
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Page 12-14 Table 4
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Page 14,15
	23b	Discuss any limitations of the evidence included in the review.	Page 16
	23c	Discuss any limitations of the review processes used.	Page 17
	23d	Discuss implications of the results for practice, policy, and future research.	Page 17
OTHER INFORMATION			

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Not applicable
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Not applicable
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Not applicable
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 18
Competing interests	26	Declare any competing interests of review authors.	Page 17
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Page 18

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

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