

## ***Online Supplementary Materials***

### ***Comparative efficacy of onsite, digital, and other settings for cognitive behavioral therapy for insomnia: a systematic review and network meta-analysis***

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## Supplementary Appendix S1. PRISMA for network meta-analyses

Section/Topic	Item #	Checklist Item	Reported on Page #
<b>TITLE</b>			
Title	1	Identify the report as a systematic review <i>incorporating a network meta-analysis (or related form of meta-analysis)</i> .	1
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary including, as applicable: <b>Background:</b> main objectives <b>Methods:</b> data sources; study eligibility criteria, participants, and interventions; study appraisal; and <i>synthesis methods, such as network meta-analysis</i> . <b>Results:</b> number of studies and participants identified; summary estimates with corresponding confidence/credible intervals; <i>treatment rankings may also be discussed. Authors may choose to summarize pairwise comparisons against a chosen treatment included in their analyses for brevity.</i> <b>Discussion/Conclusions:</b> limitations; conclusions and implications of findings. <b>Other:</b> primary source of funding; systematic review registration number with registry name.	2
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known, <i>including mention of why a network meta-analysis has been conducted</i> .	3-4
Objectives	4	Provide an explicit statement of questions being addressed, with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	4
<b>METHODS</b>			
Protocol and registration	5	Indicate whether a review protocol exists and if and where it can be accessed (e.g., Web address); and, if available, provide registration information, including registration number.	8
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale. <i>Clearly describe eligible treatments included in the treatment network, and note whether any have been clustered or merged into the same node (with justification).</i>	5,7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to	5

		identify additional studies) in the search and date last searched.	
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Supplementary Appendix S2
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	5-6
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	5-6, Supplementary Table S1
<b>Geometry of the network</b>	<b>S1</b>	Describe methods used to explore the geometry of the treatment network under study and potential biases related to it. This should include how the evidence base has been graphically summarized for presentation, and what characteristics were compiled and used to describe the evidence base to readers.	6-7
Risk of bias within individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	8
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means). <i>Also describe the use of additional summary measures assessed, such as treatment rankings and surface under the cumulative ranking curve (SUCRA) values, as well as modified approaches used to present summary findings from meta-analyses.</i>	6
Planned methods of analysis	14	Describe the methods of handling data and combining results of studies for each network meta-analysis. This should include, but not be limited to: <ul style="list-style-type: none"> <li>• <i>Handling of multi-arm trials;</i></li> <li>• <i>Selection of variance structure;</i></li> <li>• <i>Selection of prior distributions in Bayesian analyses; and</i></li> <li>• <i>Assessment of model fit.</i></li> </ul>	6
<b>Assessment of Inconsistency</b>	<b>S2</b>	Describe the statistical methods used to evaluate the agreement of direct and indirect evidence in the treatment network(s) studied. Describe efforts taken to address its presence when found.	8
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	8
Additional analyses	16	Describe methods of additional analyses if done, indicating which were pre-specified. This may include, but not be limited to, the following: <ul style="list-style-type: none"> <li>• Sensitivity or subgroup analyses;</li> <li>• Meta-regression analyses;</li> </ul>	<i>no additional analyses were conducted</i>

- *Alternative formulations of the treatment network; and*
- *Use of alternative prior distributions for Bayesian analyses (if applicable).*

## RESULTST†

Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	9 (Figure 1)
<b>Presentation of network structure</b>	<b>S3</b>	Provide a network graph of the included studies to enable visualization of the geometry of the treatment network.	11 (Figure 2)
<b>Summary of network geometry</b>	<b>S4</b>	Provide a brief overview of characteristics of the treatment network. This may include commentary on the abundance of trials and randomized patients for the different interventions and pairwise comparisons in the network, gaps of evidence in the treatment network, and potential biases reflected by the network structure.	10
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Supplementary Table S2
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment.	15, Supplementary Figures S3 and S4
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: 1) simple summary data for each intervention group, and 2) effect estimates and confidence intervals. <i>Modified approaches may be needed to deal with information from larger networks.</i>	10-15
Synthesis of results	21	Present results of each meta-analysis done, including confidence/credible intervals. <i>In larger networks, authors may focus on comparisons versus a particular comparator (e.g. placebo or standard care), with full findings presented in an appendix. League tables and forest plots may be considered to summarize pairwise comparisons.</i> If additional summary measures were explored (such as treatment rankings), these should also be presented.	10-15
<b>Exploration for inconsistency</b>	<b>S5</b>	Describe results from investigations of inconsistency. This may include such information as measures of model fit to compare consistency and inconsistency models, <i>P</i> values from statistical tests, or summary of inconsistency estimates from different parts of the treatment network.	10-15, Supplementary Figure S2
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies for the evidence base being studied.	15, Supplementary Figure S5
Results of additional	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression	<i>no additional analyses were</i>

analyses		analyses, <i>alternative network geometries studied, alternative choice of prior distributions for Bayesian analyses</i> , and so forth).	conducted
<b>DISCUSSION</b>			
Summary of evidence	24	Summarize the main findings, including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy-makers).	15-17
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review level (e.g., incomplete retrieval of identified research, reporting bias). <i>Comment on the validity of the assumptions, such as transitivity and consistency. Comment on any concerns regarding network geometry (e.g., avoidance of certain comparisons).</i>	17-18
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	18-19
<b>FUNDING</b>			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review. This should also include information regarding whether funding has been received from manufacturers of treatments in the network and/or whether some of the authors are content experts with professional conflicts of interest that could affect use of treatments in the network.	8

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From: Hutton, B. *et al.* The PRISMA Extension Statement for Reporting of Systematic Reviews Incorporating Network Meta-analyses of Health Care Interventions: Checklist and Explanations. *Ann. Intern. Med.* **162**, 777–784 (2015).

## Supplementary Appendix S2. Search string

The search strings were developed by combining terms indicative of insomnia, CBT-I, and CBT-I components. The databases PsycINFO, PsycARTICLES, MEDLINE, PubMed, and CINAHL were searched for publications from 1987, which is the publication date of DSM-III-R (American Psychiatric Association, 1987), until November 23rd, 2021.

### Pubmed | results by year 1987

(cognitive therapy[Title/Abstract] OR cognitive behavio\* therapy[Title/Abstract] OR behavio\* therapy[Title/Abstract] OR sleep behavior therapy[Title/Abstract] OR CBT[Title/Abstract] OR CBT-I[Title/Abstract] OR paradoxical intention[Title/Abstract] OR paradoxical techniques[Title/Abstract] OR cognitive control[Title/Abstract] OR cognitive reconstr\*[Title/Abstract] OR cognitive restruct\*[Title/Abstract] OR cognitive refocusing[Title/Abstract] OR imagery[Title/Abstract] OR problem solving[Title/Abstract] OR constructive worry[Title/Abstract] OR stimulus control[Title/Abstract] OR sleep restriction[Title/Abstract] OR sleep hygiene[Title/Abstract] OR psychoeducation[Title/Abstract] OR relaxation[Title/Abstract])

AND

(insomni\*[Title/Abstract] OR sleep initiation[Title/Abstract] OR sleep maintenance[Title/Abstract])

**Medline, PsychInfo, Cinahl, PsycArticles** searched via Ebsco Host | Published Date: from 1987, Field: AB Abstract

("cognitive therapy" OR "cognitive behavio\* therapy" OR "behavio\* therapy" OR "sleep behavior therapy" OR "CBT-I" OR "CBT" OR "paradoxical intention" OR "paradoxical techniques" OR "cognitive control" OR "cognitive reconstr\*" OR "cognitive restruct\*" OR "cognitive refocusing" OR "imagery" OR "problem solving" OR "constructive worry" OR "stimulus control" OR "sleep restriction" OR "sleep hygiene" OR "psychoeducation" OR "relaxation")

AND

"insomni\*" or "sleep initiation" or "sleep maintenance"

## Supplementary Appendix S3. P-Scores

### P-Scores: Insomnia severity

F2F	0.88
Telehealth	0.84
Group	0.71
Guided bibliotherapy	0.69
Smartphone	0.68
Unguided iCBT-I	0.54
Guided iCBT-I	0.48
Unguided bibliotherapy	0.46
Placebo	0.42
SHE	0.31
TAU	0.25
Active contact control	0.19
WL	0.07

### P-Scores: Subjective sleep quality

Guided bibliotherapy	0.83
F2F	0.82
Group	0.78
Smartphone	0.74
Telehealth	0.71
Guided iCBT-I	0.63
Unguided iCBT-I	0.49
Unguided bibliotherapy	0.45
TAU	0.38
Placebo	0.30
SHE	0.18
Active contact control	0.14
WL	0.14

### P-Scores: Subjective total sleep time

Unguided bibliotherapy	0.89
Group	0.88
Guided iCBT-I	0.75
Guided bibliotherapy	0.71
TAU	0.61
F2F	0.48
Unguided iCBT-I	0.45
Telehealth	0.40
SHE	0.29
WL	0.19
Active contact control	0.17
Placebo	0.17

### P-Scores: Subjective sleep efficiency

Group	0.96
Guided bibliotherapy	0.83
F2F	0.68
Telehealth	0.66
Guided iCBT-I	0.59
TAU	0.58
Unguided iCBT-I	0.57
Unguided bibliotherapy	0.51
WL	0.21
Placebo	0.17
Active contact control	0.16
SHE	0.08

**P-Scores: Subjective sleep onset latency**

Guided bibliotherapy	0.92
Telehealth	0.87
Group	0.81
F2F	0.81
Guided iCBT-I	0.60
Unguided iCBT-I	0.54
Unguided bibliotherapy	0.53
WL	0.27
TAU	0.26
SHE	0.24
Active contact control	0.10
Placebo	0.05

**P-Scores: Subjective wake after sleep onset**

Group	0.91
Telehealth	0.83
F2F	0.72
Guided bibliotherapy	0.67
Unguided iCBT-I	0.62
Guided iCBT-I	0.59
TAU	0.55
Unguided bibliotherapy	0.48
Placebo	0.26
WL	0.16
SHE	0.14
Active contact control	0.09

**P-Scores: Objective total sleep time**

WL	0.94
Telehealth	0.85
Active contact control	0.72
F2F	0.45
SHE	0.43
Unguided iCBT-I	0.32
Group	0.16
Placebo	0.13

**P-Scores: Objective sleep efficiency**

Telehealth	0.85
F2F	0.77
SHE	0.59
Group	0.53
Unguided iCBT-I	0.49
Active contact control	0.43
WL	0.32
Placebo	0.29
TAU	0.23

**P-Scores: Objective sleep onset latency**

Telehealth	0.86
F2F	0.82
SHE	0.68
Active contact control	0.55
Unguided iCBT-I	0.42
TAU	0.30
Group	0.28
WL	0.09



**P-Scores: Objective wake after sleep onset**

Group	0.83
F2F	0.63
Unguided iCBT-I	0.61
SHE	0.58
TAU	0.45
WL	0.43
Placebo	0.27
Active contact control	0.19

**P-Scores: Response rates**

Guided bibliotherapy	0.82
Unguided iCBT-I	0.73
Telehealth	0.69
F2F	0.64
Unguided bibliotherapy	0.47
Group	0.46
SHE	0.41
Guided iCBT-I	0.26
WL	0.03

**P-Scores: Remission rates**

Telehealth	0.89
F2F	0.85
Guided bibliotherapy	0.80
Unguided iCBT-I	0.57
Unguided bibliotherapy	0.47
Group	0.35
Guided iCBT-I	0.25
SHE	0.19
WL	0.12

**P-Scores: Intervention completion rates**

Group	0.83
Unguided iCBT-I	0.7
Guided iCBT-I	0.62
F2F	0.58
SHE	0.55
Placebo	0.54
Smartphone	0.54
Guided bibliotherapy	0.45
TAU	0.43
Telehealth	0.42
Active contact control	0.37
Unguided bibliotherapy	0.3
WL	0.18

Supplementary Table S1. Primary and secondary outcomes

Outcome	Measured via	Order <sup>1</sup>	Effect size
<b>Primary outcome</b>			
Insomnia severity	self-report questionnaires (e.g., Insomnia Severity Index (Bastien et al., 2001), Athens Insomnia Scale (Soldatos et al., 2000))	ISI, other self-report questionnaires	Standardized mean difference ( <i>SMD</i> )
<b>Secondary outcomes</b>			
Subjective sleep quality	sleep diaries or self-report questionnaires (e.g., Pittsburgh Sleep Quality Index (PSQI); (Buysse et al., 1989))	PSQI, sleep diary, other self-report questionnaires	<i>SMD</i>
Subjective total sleep Time	sleep diaries or self-report questionnaires	sleep diary, PSQI	<i>SMD</i>
Subjective sleep efficiency	sleep diaries or self-report questionnaires	sleep diary, PSQI	<i>SMD</i>
Subjective sleep onset latency	sleep diaries or self-report questionnaires	sleep diary, PSQI	<i>SMD</i>
Subjective wake after sleep onset	sleep diaries or self-report questionnaires	sleep diary, PSQI	<i>SMD</i>
Objective total sleep time	polysomnography or actigraphy	polysomnography, accelerometer	<i>SMD</i>
Objective sleep efficiency	polysomnography or actigraphy	polysomnography, accelerometer	<i>SMD</i>
Objective sleep onset latency	polysomnography or actigraphy	polysomnography, accelerometer	<i>SMD</i>
Objective wake after sleep onset	polysomnography or actigraphy	polysomnography, accelerometer	<i>SMD</i>
Response (Clinically Significant Improvement)	pre-defined criterion pre-to-post-treatment (e.g., ≥8-point drop of the ISI score)	ISI point-drop=≥8, SE increase ≥ 10%, other	<i>SMD</i> (transformed through a Freeman-Tukey double arcsine transformation)
Remission	pre-defined criterion post-treatment (e.g., ISI score<7)	ISI score<7, SE≥85%, SOL<31, WASO<31, Other	<i>SMD</i> (transformed through a Freeman-Tukey double arcsine transformation)
Intervention completion	Percentage of participants completing the intervention <sup>2</sup>		<i>SMD</i> (transformed through a Freeman-Tukey double arcsine transformation)

Note.<sup>1</sup>The order of the data sources depicts which data was preferred if there were several data for the construct. <sup>2</sup> Either as defined by authors or as depicted in the flowchart.

Supplementary Table S2. Study characteristics

Study	Insomnia definition according to	N [Pre-Post]	Inclusion sleep comorbidity	Inclusion comorbidity	Use of sleep medication	Outcomes	Setting	Komponenten	Number of sessions	Duration of sessions	Therapist specialization	n [Pre-Post]	Age [Years: Mean (SD)]	Sex [% Female]	Mean insomnia duration per group
Alessi et al. 2016	ICSD-2	159 - 150	Partially excluded	Partially excluded	No restriction	ISI, PSQI, SOL_diary, WASO_diary, SE_diary	F2F	SHE, SR, SK, Cog	5	60 minutes	Sleep coaches	54 - 52	72.1 (7.9)x	3.8x	NA
							Group	SHE, SR, SK, Cog	5	60 minutes	Sleep coaches	52 - 45*	72.1 (7.9)x	3.8x	NA
							SHE	SHE	5	60 minutes	Sleep coaches	53 - 53	72.4 (7.3)	2.9	NA
Arnedt et al. 2013	RDC	30 - 29	Excluded	Partially excluded	Required to be stable	ISI, PSQI, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, Rem, Res, Comp	Guided bibliotherapy	SHE, SR, SK, Cog_restruct	4 to 8	15 - 60-minutes (contingent on treatment response)	Psychologist	18 - 15	38.1 (14.6)	100	9.2 (10.8)
							SHE	SHE	1	15 to 20minutes telephone session with a study therapist	Psychologist	15 - 14	40 (14.6)	80	8.1 (10.9)
Arnedt et al. 2021	ICSD-3	65 - 65	Excluded	Partially excluded	No restriction	ISI, SOL_diary, WASO_diary, SE_diary, TST_diary, Rem, Res, Comp	Telehealth	SHE, SR, SK, Cog_control, R	6	30 to 60 minutes	Sleep Medicine Expert	33 - 33	43.7 (17.4)	69.7	NA
							F2F	SHE, SR, SK, Cog_control, R	6	30 to 60 minutes	Sleep Medicine Expert	32 - 32	50.9 (14.5)	71.9	NA
Ballesio et al. 2018	DSM-5	10 - 10	Not reported	Not reported	Not reported	ISI, SOL_diary, SE_diary, Comp	F2F	SHE, SR, SK, Cog_restruct, R	4		Psychologist	6 - 6	22.8 (4.29)x	90x	NA
							Unguided bibliotherapy	SHE, SR, SK, Cog_restruct, R				4 - 4	22.8 (4.29)x	90x	NA
Bastien et al. 2004	DSM-IV and ICSD	45 - 45	Excluded	Partially excluded	Not allowed	ISI, SOL_diary, WASO_diary, TST_diary, SE_diary, SQ_diary, Rem, Comp	Group	SHE, SR, SK, Cog_restruct	8	90 minutes (4 – 6 persons per group)	Psychologist	16 - 16	40 (10.35)	68.75x	15.35 (14.13)
							F2F	SHE, SR, SK, Cog_restruct	8	50 minutes	Psychologist	15 - 15	43.8 (9.98)	73.33x	15.64 (11.73)
							Guided bibliotherapy	SHE, SR, SK, Cog_restruct	8	20 minutes	Psychologist	14 - 14	41.64 (9.49)	50x	14.71 (10.2)
Blom et al. 2015	DSM-5	48 - 45*	Excluded	Partially excluded	No restriction	ISI, SOL_diary, TST_diary, SE_diary, SQ-diary, Rem, Res, Comp	Group	SHE, SR, SK, Cog_restruct, R	8	120 minutes	Psychologist	24 - 23*	52.6 (16.6)	62.5	NA
							Guided iCBT-I	SHE, SR, SK, Cog_restruct, R	8		Psychologist	24 - 22*	56.1 (10.2)	33	NA
Bothelius et al. 2013	RDC	66 - 54	Excluded	Partially excluded	No restriction	ISI, SOL_diary, WASO_diary, Rem, Comp	Group	SHE, SR, SK, Cog_restruct, Cog_PI, R_PMR	5	60 to 90 minutes	Nurse	32* - 26	48.1 (13.2)	78	NA
							WL					34* - 28	53 (9.4)	94	NA

Cheng et al. 2019	DSM-5	1385 - 658	Excluded	Partially excluded	Not reported	ISI, Rem, Res	Unguided iCBT-I	SHE, SR, SK, Cog_Restruct, Cog_PI, R_PMR, R_auto, R_mindful	6		Virtual therapist	946 - 358	44.5 (15.8)	78	NA
Drake et al. 2019	DSM-5	154 - 150	Excluded	Partially excluded	Not allowed	ISI, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, Rem, Comp	SHE	SHE	6		None	439 - 300	45.7 (15.1)	80	NA
							F2F	SHE, SR, SK, Cog_Restruct, Cog_PI, R_PMR, R_auto	6		Nurse	52 - 50	55.32 (5.9)	100	NA
Edinger et al. 2001	DSM-III	75 - 70	Partially excluded	Partially excluded	Not allowed	ISQ, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, Res, Comp	SHE	SHE	6	30 to 60 minutes	Nurse	50 - 50	57.24 (5.55)	100	NA
							F2F	SHE, SR, SK, Cog_Restruct	6		Psychologist	25 - 23	55.8 (12.1)	44	13 (12.2)
Edinger et al. 2007	DSM-IV	35* - 30*	Excluded	Partially excluded	Not allowed	ISQ, SOL_diary, WASO_diary, SE_diary, TST_diary, Rem, Res, Comp	Placebo	Placebo	6	30 to 60 minutes	Psychologist	25 - 24	55.7 (9.5)	52	14.8 (11.5)
							F2F	SHE, SR, SK, Cog_Restruct	4	45 to 60 minutes (first session), 15-30 minutes (other sessions)	Psychologist	24* - 21*	57 (10.2)	50	NA
Edinger et al. 2009	DSM-IV and RDC	81* - 69*	Partially excluded	Partially excluded	No restriction	ISQ, PSQI, SOL_diary, WASO_diary, SE_diary, TST_diary, SOL_act, WASO_act, SE_act, TST_act, Rem, Comp	ActCon	Active control	4	30 to 60 minutes	Psychologist	11* - 9	52.4 (7.3)	36.36	NA
							F2F	SHE, SR, SK, Cog_Restruct	4		Psychologist	41* - 36*	54.39 (NA)	14.63	11.51 (NA)
Espie et al. 2001	ICSD	139 - 139	Partially excluded	Partially excluded	No restriction	SOL_diary, WASO_diary, TST_diary, Comp	SHE	SHE	4	30 to 60 minutes	Psychologist	40* - 33*	54 (NA)	12.5	9 (NA)
							Group	SHE, SK, SR, R, Cog_restruct	6	50 minutes	Nurse	74only post reported - 74	51.4 (17.1)x	68.34x	NA
							ActCon	Active control				65only post reported - 65	51.4 (17.1)x	68.34x	NA
Espie et al. 2007	DSM-IV and ICSD-R	201 - 178	Partially excluded	Partially excluded	No restriction	PSQI, SOL_diary, WASO_diary, SE_diary, TST_diary, SOL_act, WASO_act, SE_act, Rem, Comp	Group	SHE, SR, SK, R, Cog_restruct	5	60 minutes	Nurses	107 - 95	54.4 (15.4)	67.29	11.6 (9.79)
Espie et al. 2012	DSM-5	164 - 131	Excluded	Excluded	No restriction	SCI, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, Rem, Comp	TAU	TAU	6		Virtual therapist	94 - 83	54.1 (14.4)	69.15	10.6 (12.2)
							Unguided iCBT-I	SHE, SR, SK, Cog_Restruct, Cog_PI, R_PMR, R_auto, R_mindful	6		Virtual therapist	55 - 43	50.7 (13.8)	72.7	NA
							Placebo	Placebo	6		Virtual therapist	55 - 41	47.3 (13)	76.4	NA
							WL				Virtual therapist	55 - 47	49.1 (13.7)	70.4	NA

Espie et al. 2019	DSM-5	1711 - 985	Excluded	Partially excluded	No restriction	SCI, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, Comp	Unguided iCBT-I	SHE, SR, SK, Cog_restruct, Cog_PI, R_PMR, R_auto, R_mindful	6		Virtual therapist	853 - 468	48.4 (13.9)	76.7	NA
Freeman et al. 2017	SCI ≤16	3755 - 1875	Not reported	No restriction	Not reported	SCI, Rem, Comp	Unguided iCBT-I	SHE, SR, SK, Cog_restruct, Cog_PI, R_PMR, R_auto, R_mindful	6		Virtual therapist	858 - 517 1891 - 733	47.7 (13.6) 24.8 (7.7)	78.7 72	NA NA
Gehrman et al. 2021	DSM-5	60 - 54	Excluded	Partially excluded	Not allowed	ISI, Comp	TAU F2F	SHE, SR, SK, Cog, R	6 to 8		Psychologist / Students	1864 - 1142 20 - 24	24.6 (7.6) 33.7 (10.58)	71 65	NA NA
Gieselmann & Pietrowsky 2019	DSM-5	72 - 66	Excluded	Partially excluded	Required to be stable	PSQI, SOL_diary, SE_diary, TST_diary, SOL_act, SE_act, TST_act, Rem, Comp	WL F2F	SHE, SR, SK, Cog, R	3		Psychologist / students	21 - 26 19 - 17 27 - 24	33.14 (10) 31.21 (8.7) 39.3 (14.47)	62 68 48	NA MA 9.16 (10.17)
Hagatun et al. 2018	DSM-IV	181 - 142	Partially excluded	Partially excluded	No restriction	ISI, SOL_diary, WASO_diary, SE_diary, TST_diary, Rem, Comp	Telehealth WL	SHE, SR, SK, Cog, R	3		Psychologist / students	23 - 23	39.47 (11.16)	56	7.12 (5.61)
Ho et al. 2014	difficulty initiating or maintaining sleep, early morning awakening or non-restorative sleep with associated distress or impairment for three or more nights per week for at least three months	312 - 184	Not reported	Partially excluded	Not reported	ISI, PSQI, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, Rem, Comp	Unguided iCBT-I	SHE, SR, SK, Cog_restruct, Cog_control, R	6			86 - 65 104 - 61*	44.8 (13.7) 38.6 (11.8)	71 67.31	categorical scale 8 (8.9)
Ho et al. 2021	DSM-5 and SCI	25 - 15	Not reported	Partially excluded	Not allowed	ISI, Rem	Guided iCBT-I WL	SHE, SR, SK, Cog_restruct, Cog_control, R	6	120 minutes	Psychologist	103 - 58 105 - 65	36.9 (13) 39.9 (12.7)	70.87 75.24	8 (7.8) 9.4 (8.9)
Holmqvist et al. 2014	RDC	73 - 54	Partially excluded	Partially excluded	No restriction	ISI, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, Rem, Res	Group WL	SHE, SR, SK, Cog_Restruct, Cog_control, R_PMR	6		Psychologist / Students	13 - 7	43.1 (14.3)	84.62	15 (12.9)
							WL					13 - 8	36.6 (11.7) NA (NA)	69.23 79.4	12.7 (12.5) NA
							Telehealth	SHE, SR, SK, Cog_problem, R_PMR, R_image	6		Sleep medicine experts	34 - 28			
							Unguided iCBT-I	SHE, SR, SK, Cog_control, Cog_problem, R_PMR, R_image	6			39 - 26	NA (NA)	71.8	NA

Irwin et al. 2014	DSM-IV and ICDSD-2	75 - 72	Partially excluded	Partially excluded	Not allowed	AIS, PSQI, SOL_diary, WASO_diary, SE_diary, TST_diary	Group	SHE, SR, SK, Cog, R	16	120 minutes	Therapists	50 - 48	66.4 (6.1)	78	NA
Jernelov et al. 2012	RDC	133 - 126*	Partially excluded	Partially excluded	No restriction	ISI, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, Rem, Res, Comp	SHE	SHE	16	120 minutes	Therapists	25 - 24	66.4 (7.7)	72	NA
							Guided bibliotherapy	SHE, SR, SK, Cog_Restruct, R	6		Psychologist	44 - 43	50.8 (11.8)	75	18.2 (3.5)
							Unguided bibliotherapy WL	SHE, SR, SK, Cog_Restruct, R	6			45 - 44	47.4 (13.3)	80	18.3 (3.3)
Johann et al.2020	DSM-5	46 - 44	Excluded	Partially excluded	Not allowed	ISI, TST_diary, SOL_diary, WASO_diary, SE_diary	F2F	SHE, SR, Cog_restruct, Cog_control, Cog_Pi, R_PMR, R_Auto	8	50 minutes	Psychologist	23 - 23	45.4 (16) 40.8 (14)	60.87	NA
							WL					23 - 21	41.2 (15.1) 41.3 (12.5)	65.22	NA
Kallestad et al. 2021	DSM-5	101 - 94*	Excluded	Partially	No restriction	ISI, SOL_diary, WASO_diary, TST_diary, SE_diary, Rem, Comp	F2F	SHE, SR, SK, Cog_Restruct	3 to 8		Psychologist	52 - 50*			13 (10.4)
Kaldo et al. 2020	RDC	40 - 37*	Excluded	Partially excluded	No restriction	SOL_diary, WASO_diary, TST_diary, SE_diary, SQ_diary, ISI, Rem, Res, Comp	Unguided iCBT-I	SHE, SR, SK, Cog_Restruct	6	45 to 60 minutes		49 - 44*	41.4 (10.5)		12.6 (11.5)
							Group	SHE, SR, SK, Cog, Cog_Restruct, R, R_mindful	6	45 to 85 minutes	Psychologist / Students	20 - 18*	52.2 (10.7)	65	17.2 (12.9)
Krieger et al. 2019	ICSD-3	104 - 91	Excluded	Partially excluded	No restriction	ISI, PSQI, Rem, Res, Comp	WL					20 - 15*	57.9 (10.8) 42.17 (12.4)	75	11.1 (12.3)
							Guided iCBT-I	SHE, SR, SK, Cog_restruct, R_PMR	8		Psychologist / Students	42 - 40*		61.9	NA
Kyle et al. 2020	DSM-5	410 - 336	Excluded	Partially excluded	Not allowed	ISI, SE_PSQI, Comp	WL					21 - 20	45.24 (12.4) 52.5 (11.2)	81	NA
							Unguided iCBT-I	SHE, SR, SK, Cog_restruct, Cog_Pi, R_PMR, R_auto, R_mindful	6	15 to 20 minutes	Virtual Therapist	205 - 155		85.4	NA
Lancee et al. 2012	DSM-IV	623 - 531	Partially excluded	Partially excluded	No restriction	SLEEP-50; SE_diary, TST_diary, SOL_diary, WASO_diary, Rem, Comp	WL					205 - 181	52.2 (11.7) 51.2 (12.8)	87.7	NA
							Unguided bibliotherapy	SHE, SR, SK, Cog_Restruct, Cog_Pi, R_PMR, R_Auto	6			203 - 179*		74.4	NA
							Guided iCBT-I	SHE, SR, SK, Cog_Restruct, Cog_Pi, R_PMR, R_Auto	6			216 - 166*	52.2 (11.4)	68.7	NA
							WL					200 - 184*	51.9 (12.2)	68	NA

Lancee et al. 2015	DSM-5	63 - 54*	Partially excluded	Partially excluded	No restriction	SE_diary, TST_diary, SOL_diary, WASO_diary, SQ_diary, ISI, Rem, Res, Comp	Guided iCBT-I	SHE, SR, SK, Cog_Restruct, Cog_PI, R_PMR, R_Auto	6		Psychologist / Students	36 - 25	47.47 (14.37)	83.3	NA
							WL					27 - 18	49.98 (13.71)	74.1	NA
Lancee et al. 2016	DSM-5	90 - 81*	Partially excluded	Partially excluded	No restriction	SOL_diary, WASO_diary, TST_diary, SQ_diary, ISI, Rem, Res, Comp	F2F	SHE, SR, SK, Cog_restruct, R_PMR	6	45 minutes	Specialized Psychologist	30 - 29*	38.5 (13.1)	73.3	NA
							Guided iCBT-I	SHE, SR, SK, Cog_restruct, R_PMR	6		Psychologist / Students	30 - 26*	41.2 (14.1)	86.7	NA
							WL					30 - 26*	45.1 (13.7)	83.3	NA
Lopez et al. 2019	DSM-5	46 - 38	Excluded	Excluded	No restriction	TST_diary, SE_diary, SOL_diary, WASO_diary, ISI, Comp	Unguided iCBT-I	SHE, SR, SK, Cog_Restruct, R_Auto, R_mindful, R_PMR	7			23 - 18	46 (11)	82.61	11 (15)
		46 -					SHE	SHE	1	60 minutes		23 - 20	45 (13)	65.22	11 (14)
Lorenz et al. 2019	DSM-5	56 - 52	Excluded	Partially excluded	Required to be stable	ISI, Rem, Comp	Unguided iCBT-I	SHE, SR, SK, R_PMR, Cog_Restruct	6		Virtual therapist	29 - 25	41.72 (17.31)	72	NA
							WL					27 - 27	44.04 (20.05)	67	NA
Lovato et al. 2014	(1) WASO ≥30 min, at least three nights per week for at least 6 months, (2) impaired daytime functioning	118 - 109	Excluded	Partially excluded	Not allowed	SE_diary, SOL_diary, TST_diary, WASO_act, TST_act, SE_act, ISI, Rem, Comp	Group	SHE, SR, Cog_Restruct	4	60 minutes	Psychologist	86 - 78	63.76 (6.45)x	50x	NA
							WL					32 - 31	63.76 (6.45)x	50x	NA
Lovato et al. 2016	(1) WASO ≥30 min, at least three nights per week for at least 6 months, (2) impaired daytime functioning	91 - 82	Excluded	Partially excluded	Not allowed	ISI, SOL_diary, WASO_diary, SE_diary, TST_diary, SE_act, SOL_act, WASO_act, TST_act, Rem, Comp	roup	SHE, SR, Cog_Restruct	4	60 minutes	Therapists / Psychologists	63 - 57	62.94 (6.45)	50	NA
							WL					28 - 26	63.34 (6.41)	56.41	NA
Majd et al. 2020	DSM-5	312 - 295	Partially excluded	Partially excluded	Not reported	ISI, PSQI, Comp	Smartphone	SHE, SR, Cog_Restruct, Cog_probelm, R_image	6			156 - 147	36.21 (5.81)	53.9	1.3 (NA)
							SHE	SHE				156 - 148	35.29 (5.76)	57.7	1.3 (NA)
Mimeault & Morin 1999	ICSD and DSM-IV	58 - 54	Excluded	Partially excluded	No restriction	ISI, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, PSQI, Rem, Comp	Guided bibliotherapy	SHE, SK, SR, Cog_Restruct	6		Therapist	18 - 18	45.61 (8.49)	61.11	12.43 (10.22)
							ActCon	Active control				18 - 18	59.94 (13.43)	61.11	12.86 (8.98)
							Unguided bibliotherapy	SHE, SK, SR, Cog_Restruct	6			18 - 18	49.83 (13.26)	55.56	17.13 (11.09)

Morin et al. 1993	ICSD	24 - 24	Partially excluded	Partially excluded	No restriction	SOL_diary, WASO_diary, TST_diary, SE_diary, SOL_psg, WASO_psg, TST_psg, SE_psg, Comp	Group	SHE, SR, SK, Cog_Restruct	8	90 minutes	Psychologist	12 - 12	67.1 (5.3)x	70.8x	NA
Ritterband et al. 2009	DSM-IV	45 - 43*	Excluded	Partially excluded	Required to be stable	ISI, SOL_diary, WASO_diary, SE_diary, Rem, Comp	ActCon	Active control	6			10 - 10	67.1 (5.3)x	70.8x	NA
							Unguided iCBT-I	SHE, SR, SK, Cog_Restruct				22 - 21	44.68 (10.61)	81.82	10.14 (8.26)
Ritterband et al. 2017	DSM-5	303 - 275*	Excluded	Partially excluded	Required to be stable	ISI, SOL_diary, WASO_diary, SE_diary, TST_diary, SQ_diary, Rem, Comp	WL		6			22 - 22	45.05 (11.67)	72.73	11.04 (8.89)
							Unguided iCBT-I	SHE, SR, SK, Cog_Restruct				151 - 133*	43.75 (11.34)	68.2	15 (NA)
Sandlund et al. 2017	DSM-IV	165 - 132	Excluded	Partially excluded	No restriction	ISI, SOL_diary, SE_diary, WASO_diary, TST_diary, SQ_diary, Rem, Res, Comp	Group	SHE, SK, SR, Cog_Restruct, Cog_PI, Cog_Control, Cog_problem, R	7	120 minutes	Nurses	152 - 142*	42.81 (11.86)	75.7	7 (NA)
							WL					82 - 72	55 (17.1)	71.1	12 (NA)
Sato et al. 2019	DSM-5	23 - 22	Not reported	Partially excluded	No restriction	SOL_PSQI, SE_PSQI, TST_PSQI, PSQI, Rem, Comp	Guided iCBT-I	SHE, SK, SR, Cog_restruct, R, R_PMR	5		Therapist	71 - 60	54 (17.4)	74.7	13 (NA)
							SHE	SHE				11 - 11	49.4 (13.8)	81.3	6.3 (5.1)
Ström et al. 2004	DSM-IV and ICSD	109 - 83*	Excluded	Partially excluded	No restriction	SOL_diary, SE_diary, SQ_diary, Comp	Guided iCBT-I	SHE, SR, SK, Cog_Restruct, R	5		Psychologist	12 - 12	50.5 (8.8)	75	6 (7.7)
							WL					54 - 32*	46.2 (11.6)	66.67	12.9 (8.6)
Taylor et al. 2014	DSM-5	34 - 29	Excluded	Partially excluded	Not allowed	ISI, SE_diary, TST_diary, SOL_diary, WASO_diary, SQ_diary, PSQI, SE_act, TST_act, SOL_act, WASO_act, Comp	F2F	SHE, SR, SK, Cog_Restruct, R_PMR, R_auto	6			55 - 51	43.9 (11.4)	62.75	9 (7.8)
												17 - 16	19.47 (1.66)	23.5	NA
Taylor et al. 2017	DSM-5	100 - 86	Partially excluded	Partially excluded	Required to be stable	ISI, SE_diary, TST_diary, SOL_diary, WASO_diary, SQ_diary, Comp	WL		6		None	17 - 13	19.94 (2.49)	58.8	NA
							F2F	SHE, SR, SK, Cog_Restruct, R				34 - 27	34.53 (8.27)	18	NA



Taylor et al. 2018	DSM-5	151 - 133	Partially excluded	Partially excluded	Required to be stable	ISI, SE_diary, TST_diary, SOL_diary, WASO_diary, SQ_diary, SE_act, TST_act, SOL_act, WASO_act , Comp	Unguided iCBT-I	SHE, SR, SK, Cog_Restruct, R	6	60 minutes	Psychologist / Students / Social worker	33 - 30	30.79 (6.42)	21	NA
							ActCon	Active control	in call every week			33 - 29	32.82 (8.11)	12	NA
van der Zweerde et al. 2020	DSM-5	134 - 105*	Partially excluded	Partially excluded	No restriction	ISI, SOL_diary, SE_diary, WASO_diary, TST_diary, SQ_diary, Rem, Res, Comp	F2F	SHE, SR, SK, Cog_Restruct, R	6	60 minutes	Psychologist / Students / Social worker	42 - 30	32.21 (7.18)	18	NA
							ActCon	Active control	in call every week			43 - 36	32.67 (7.97)	17	NA
van Straten et al. 2014	DSM-IV	118 - 82*	Not reported	Partially excluded	No restriction	SE_diary, TST_diary, SOL_diary, PSQI, Rem, Res, Comp	Guided iCBT-I	SHE, SR, SK, Cog_Restruct, R	5		Nurses	69 - 55	51.7 (15.77)	62	NA
							WL					65 - 50	49.4 (16.01)	68	NA
Vincent & Lewycky 2009	RDC	118 - 69	Excluded	Partially excluded	No restriction	ISI, TST_diary, SOL_diary, WASO_diary, SE_diary, SQ_diary, Comp	Guided iCBT-I	SHE, SR, SK, Cog_restruct, R_PMR	6		Psychologist / Students / Therapists	59 - 49	48.7 (13.8)	59.3	11.1 (9.6)
							WL					59 - 53	50.1 (11.9)	81.4	12.6 (10.7)
Wong et al. 2021	DSM-5	210 - 159	Partially excluded	Partially excluded	No restriction	ISI, Rem, Comp	Unguided iCBT-I	SHE, SR, Cog_restruct, Cog_problem, R_PMR, R_image	5	240 minutes total	None	59 - 40	NA (NA)	67.8	NA
							WL					59 - 39	NA (NA)	66.1	NA
							Group	SHE, SR, SK, Cog_restruct, R	4			70 - 49	38.2 (15.8)	65.7	NA
							Unguided iCBT-I	SHE, SR, SK, Cog_restruct, R				70 - 56	36.9 (14.7)	65.9	NA
							SHE	SHE				70 - 54	39.6 (16.3)	78.6	NA

Note. DSM= Diagnostic and Statistical Manual of Mental Disorders ; ICSD = International Classification of Sleep Disorders ; RDC = Research Diagnostic Criteria for an Insomnia Disorder

AIS = Athens Insomnia Scale, ISI = Insomnia Severity Index; ISQ= Insomnia Symptom Questionnaire ; SLEEP-50: 8 item insomnia subscale of the SLEEP-50, SCI = Sleep Condition Indication; PSQI = Pittsburg Sleep Quality Index;

TST\_diary = total sleep time measured via sleep diary; SE\_diary = sleep efficiency measured via sleep diary; SOL\_diary = sleep onset latency measured via sleep diary; WASO\_diary = measured via sleep diary

TST\_act = total sleep time measured via actigraphy; SE\_act = sleep efficiency measured via actigraphy; SOL\_act = sleep onset latency measured via actigraphy; WASO\_act = measured via actigraphy

TST\_psg = total sleep time measured via polysomnography; SE\_psg = sleep efficiency measured via polysomnography; SOL\_psg = sleep onset latency measured via polysomnography; WASO\_psg = measured via polysomnography

TST\_PSQI = total sleep time measured via the Pittsburg Sleep Quality Index; SE\_PSQI = sleep efficiency measured via the Pittsburg Sleep Quality Index; SOL\_PSQI = sleep onset latency measured via the Pittsburg Sleep Quality Index; WASO\_PSQI = measured via the Pittsburg Sleep Quality Index

Rem = Remission; Res = Response; Comp = Intervention completion

F2F = Individual Onsite CBT-I; group = group delivered CBT-I; iCBT-I = internet-delivered CBT-I; smartphone = smartphone-delivered CBT-I; SHE = sleep hygiene education; ActCon = active contact control; TAU = treatment as Usual, WL= Waitlist

SHE= sleep hygiene education/psychoeducation; SR = sleep restriction ; SK = stimulus control; Cog = Cognitive therapy; Cog\_restruc = cognitive restructuring; cog\_problem = systematic problem solving; Cog\_control = cognitive control (worry chair), Cog\_PI = paradoxical intention; R = Relaxation; R\_PMR = progressive muscle relaxation; R\_auto =

autogenic training; R\_mindful = mindfulness; R\_image = imagery training \* = if different numbers for different outcome measures are indicated in the study, here the highest is shown

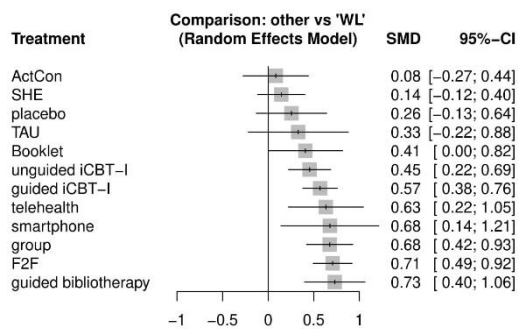
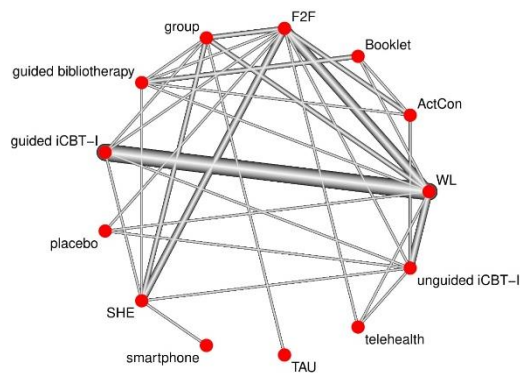
Supplementary Table S3. Network meta-analyses of the secondary outcomes

	Studies	Participants	Nodes	Comparisons	I <sup>2</sup>	Q <sub>within</sub> designs	Q <sub>between</sub> designs
Subjective sleep quality	31	1,876	13	49	62.6%	21.88*	55.03**
Subjective total sleep time	38	2,256	12	56	0%	6.3	22.3
Subjective sleep efficiency	39	2,561	12	59	80.8%	18.37	175.89**
Subjective sleep onset latency	38	2,387	12	58	2.9%	14.87	26.45
Subjective wake after sleep onset	35	2,289	12	53	67.3%	26.49*	73.87**
Objective total sleep time	10	369	8	14	17%	0.01	6.05
Objective sleep efficiency	11	457	9	15	15.2%	0.22	5.69
Objective sleep onset latency	8	341	8	12	0.0%	0.00	1.86
Objective wake after sleep onset	9	391	8	11	48.1%	0.22	5.56
Response rates	11	802	9	15	59.6%	9.47*	2.85
Remission rates	15	1,175	9	19	73.5%	6.52	27.31**
Intervention completion rates	46	6,471	13	68	87.5%	220.45**	140.33**

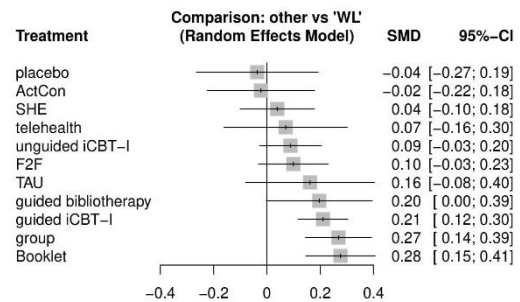
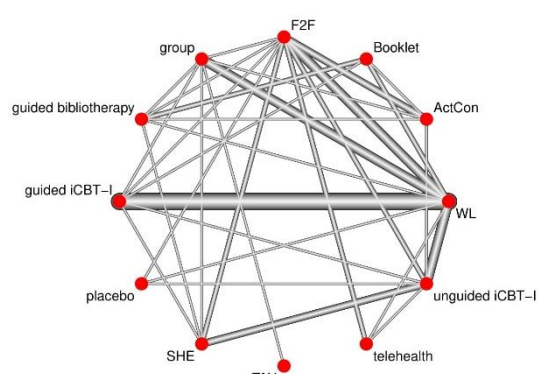
Note. \* p<0.05; \*\* p<0.001

# Supplementary Figure S1. Network plots and forest plots secondary outcomes

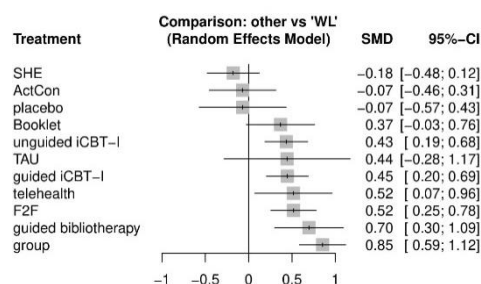
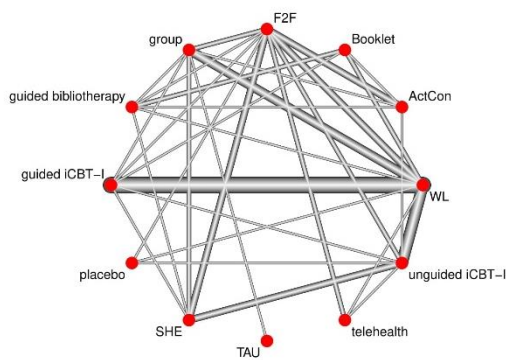
## Subjective sleep quality



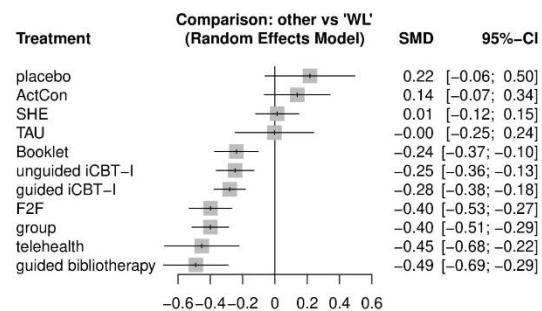
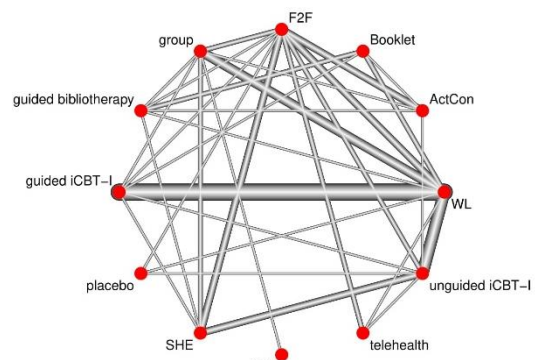
## Subjective total sleep time



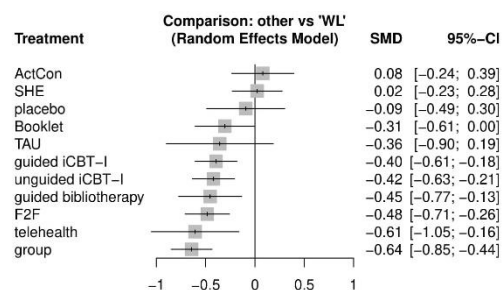
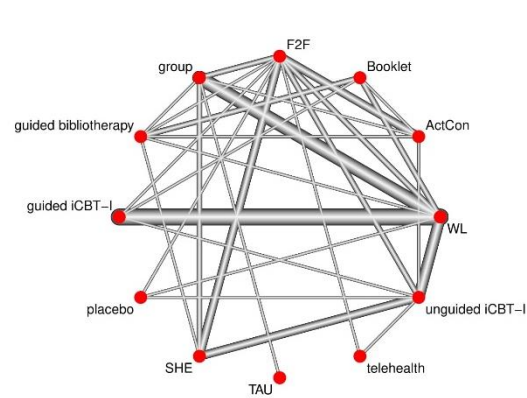
## Subjective sleep efficiency



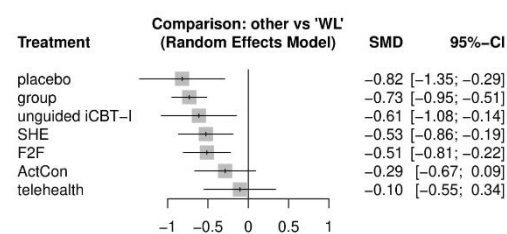
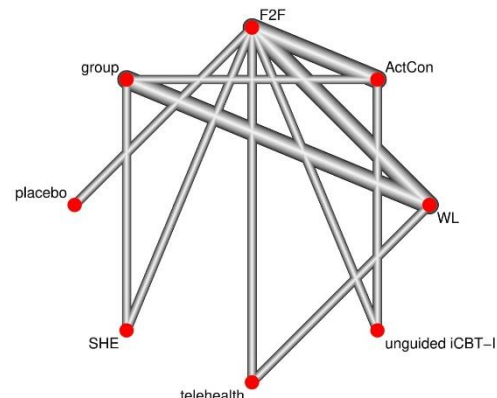
## Subjective sleep onset latency



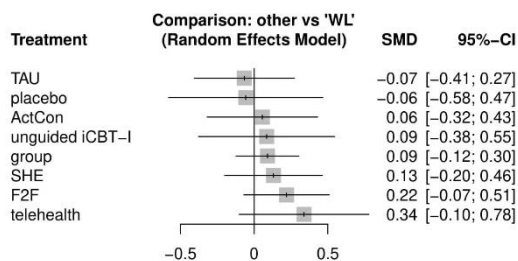
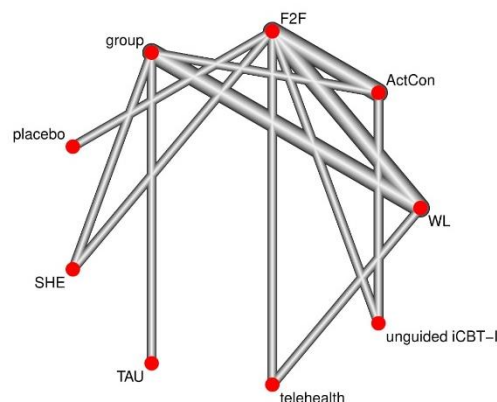
Subjective wake after sleep onset



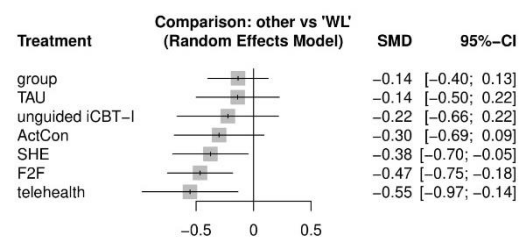
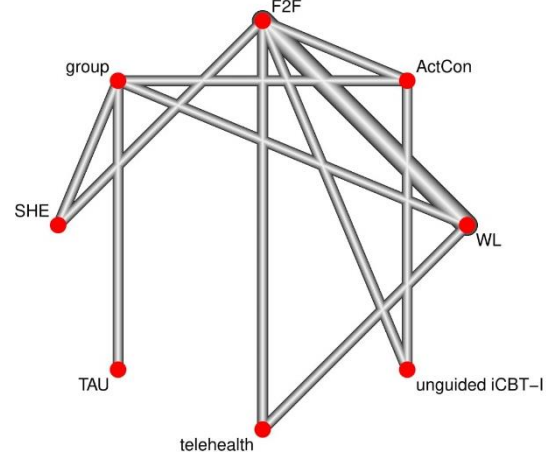
Objective total sleep time



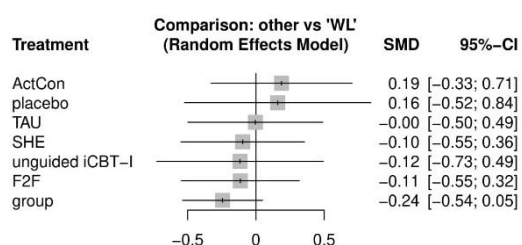
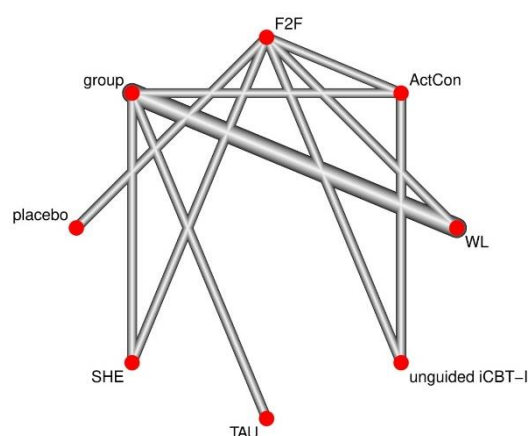
Objective sleep efficiency



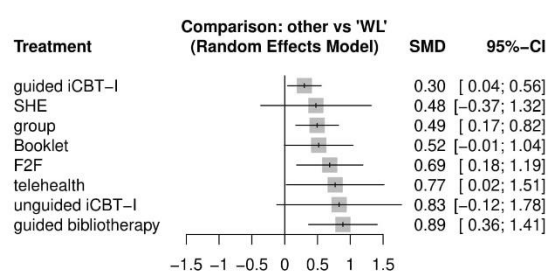
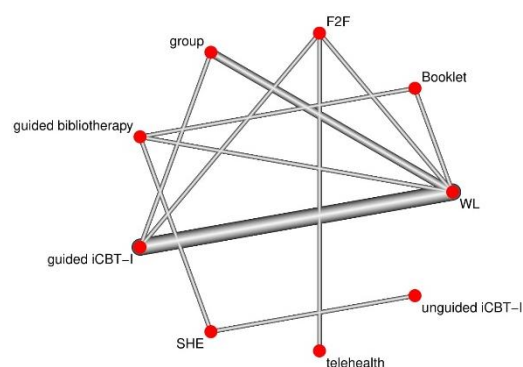
Objective sleep onset latency



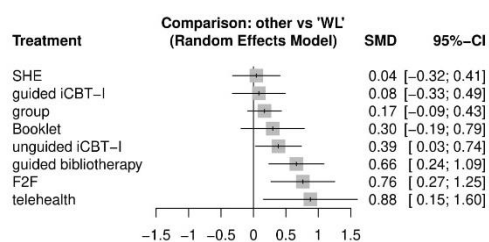
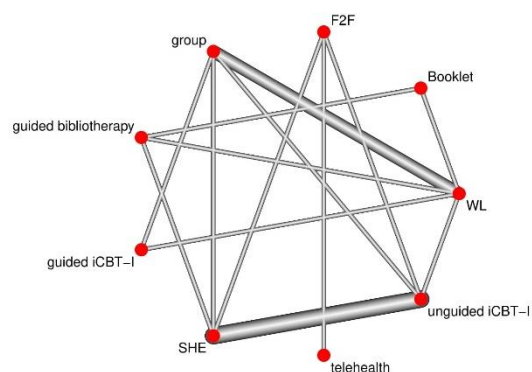
## Objective wake after sleep onset



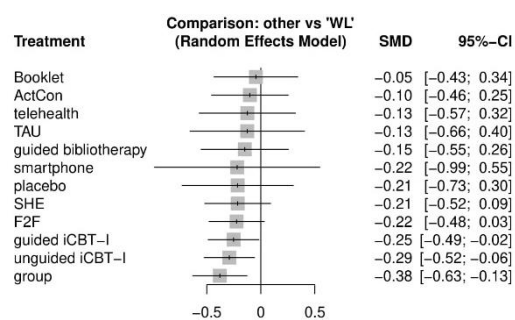
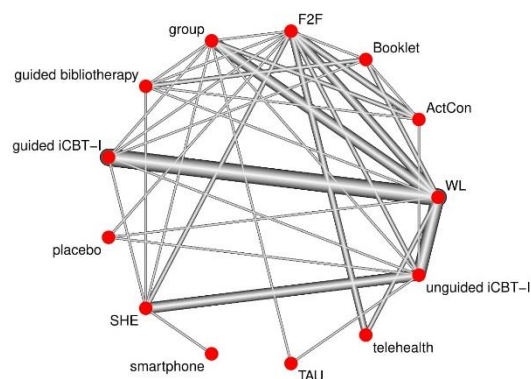
## Response rates



## Remission rates



## Intervention completion rates



## Supplementary Figure S2. Net heat plots

In the net heat plots, the network estimations of the pairwise comparisons are displayed in the rows, and the contribution of the respective design to the estimation is displayed in the columns. The area of the grey squares is proportional to the contribution of the respective design to the estimation. On the diagonal, red colors indicate that the respective design is responsible for between-design heterogeneity, whereas outside of the diagonal red colors indicates inconsistencies of the estimations of the respective design with other estimates (Schwarzer et al., 2015). Pairwise comparisons corresponding to three-arm designs are designated by “\_”.

The net heat plots were created using the function `netheat()` of the R package `netmeta` (version 2.1; Rücker et al., 2021) in the software R (version 4.2.0; R Core Team, 2021).

*Abbreviations: ActCon = active contact control; Booklet = unguided bibliotherapy; F2F = Individual Onsite CBT-I; group = group delivered CBT-I; guided bib = guided bibliotherapy; guided iCB = guided internet-delivered CBT-I; SHE = sleep hygiene education; smartphone = smartphone-delivered CBT-I; TAU = treatment as Usual; unguided i = unguided internet-delivered CBT-I; WL = waiting list*



## Insomnia severity



Exemplary interpretation of the net heat plot for insomnia severity:

There are several large grey squares outside of the diagonal indicating the importance of indirect evidence in the estimation of the network estimates. For example, for the estimation of unguided iCBT-I compared to WL (design from a three-armed study comparing unguided iCBT-I, WL, and placebo), the estimation of unguided iCBT-I compared to WL is an important source of indirect evidence. The following treatment comparisons contribute the most to the between-study heterogeneity: unguided iCBT-I compared to WL (design from a three-armed study comparing unguided iCBT-I, WL, and placebo), unguided iCBT-I compared to WL, group-delivered CBT-I compared to SHE (design from a three-armed study comparing group-delivered CBT-I, unguided iCBT-I, and SHE), and unguided iCBT-I compared to WL (design from a three-armed study comparing unguided iCBT-I, guided iCBT-I, and WL). Moreover, inconsistencies between indirect and direct evidence were observed for these estimates.

## Subjective sleep quality

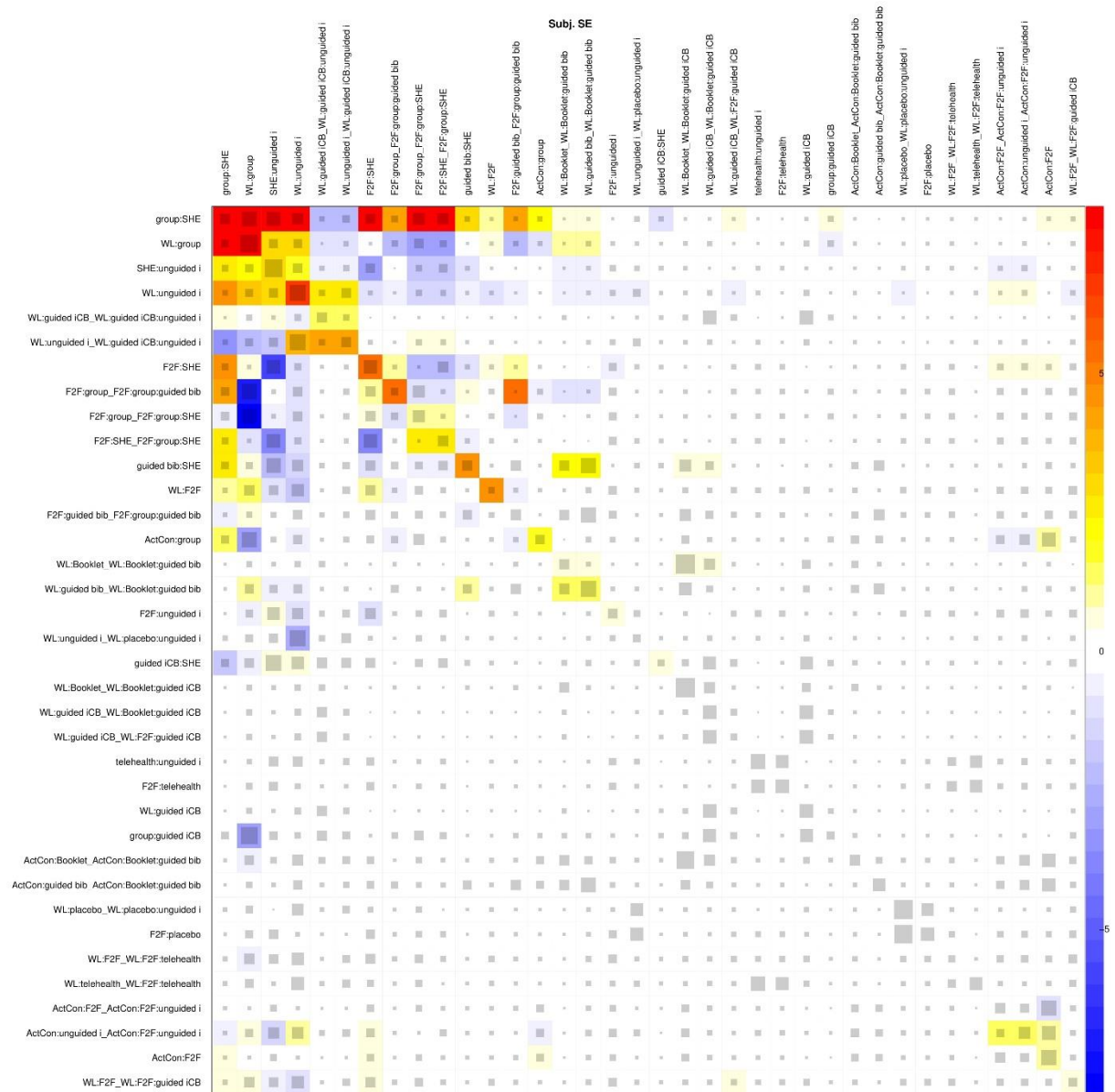




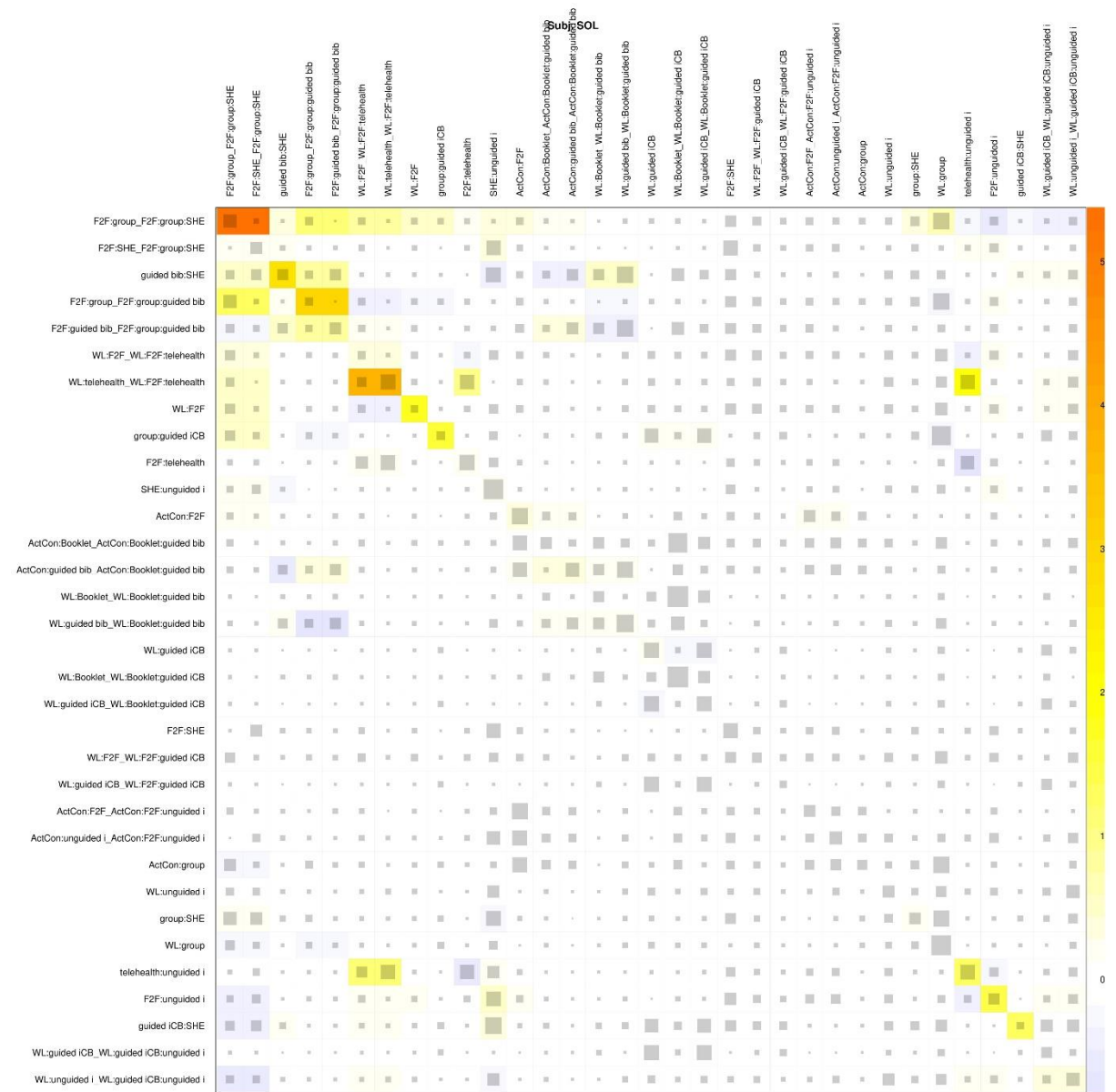
# Subjective total sleep time



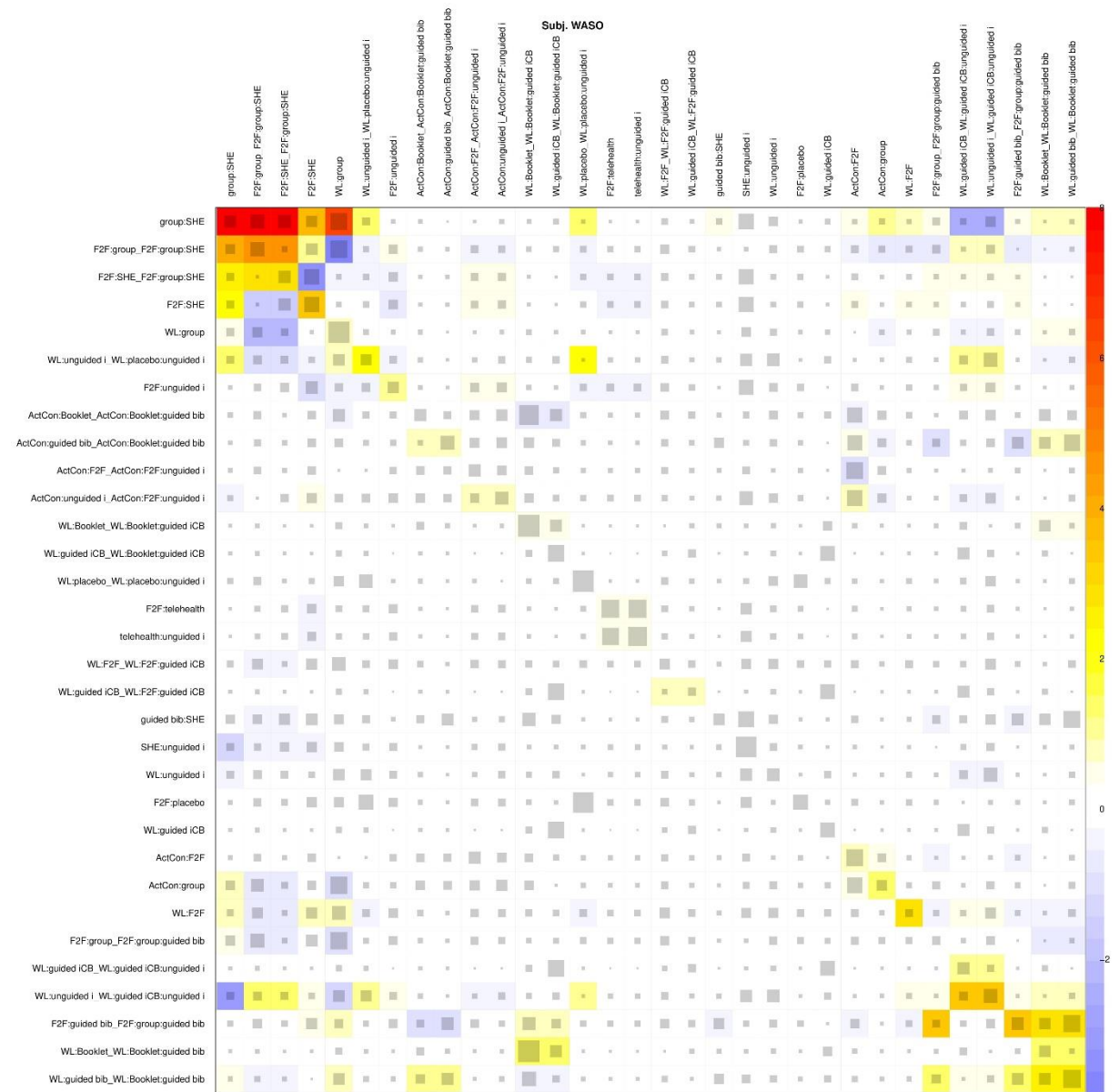
## Subjective sleep efficiency



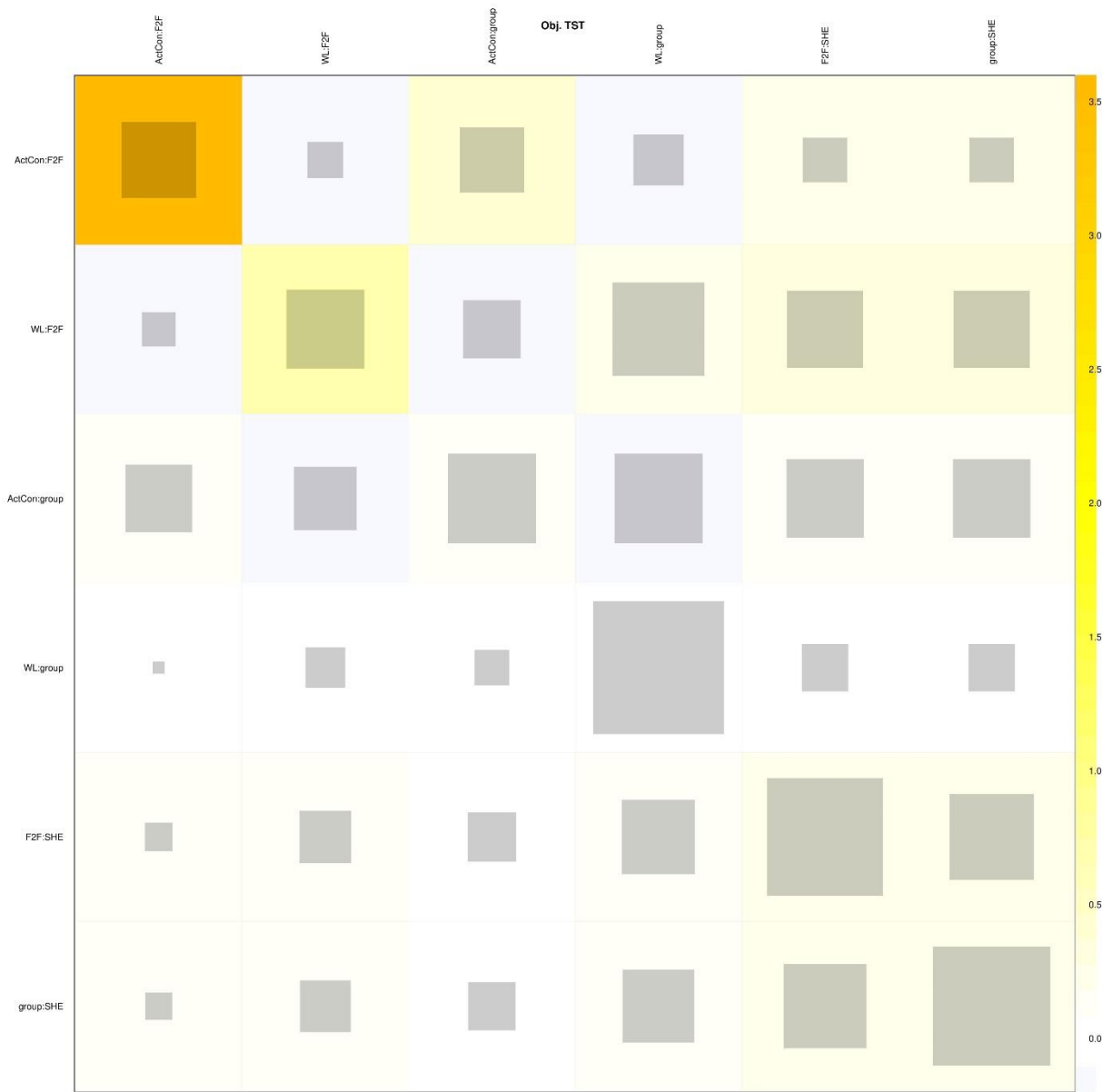
# Subjective sleep onset latency



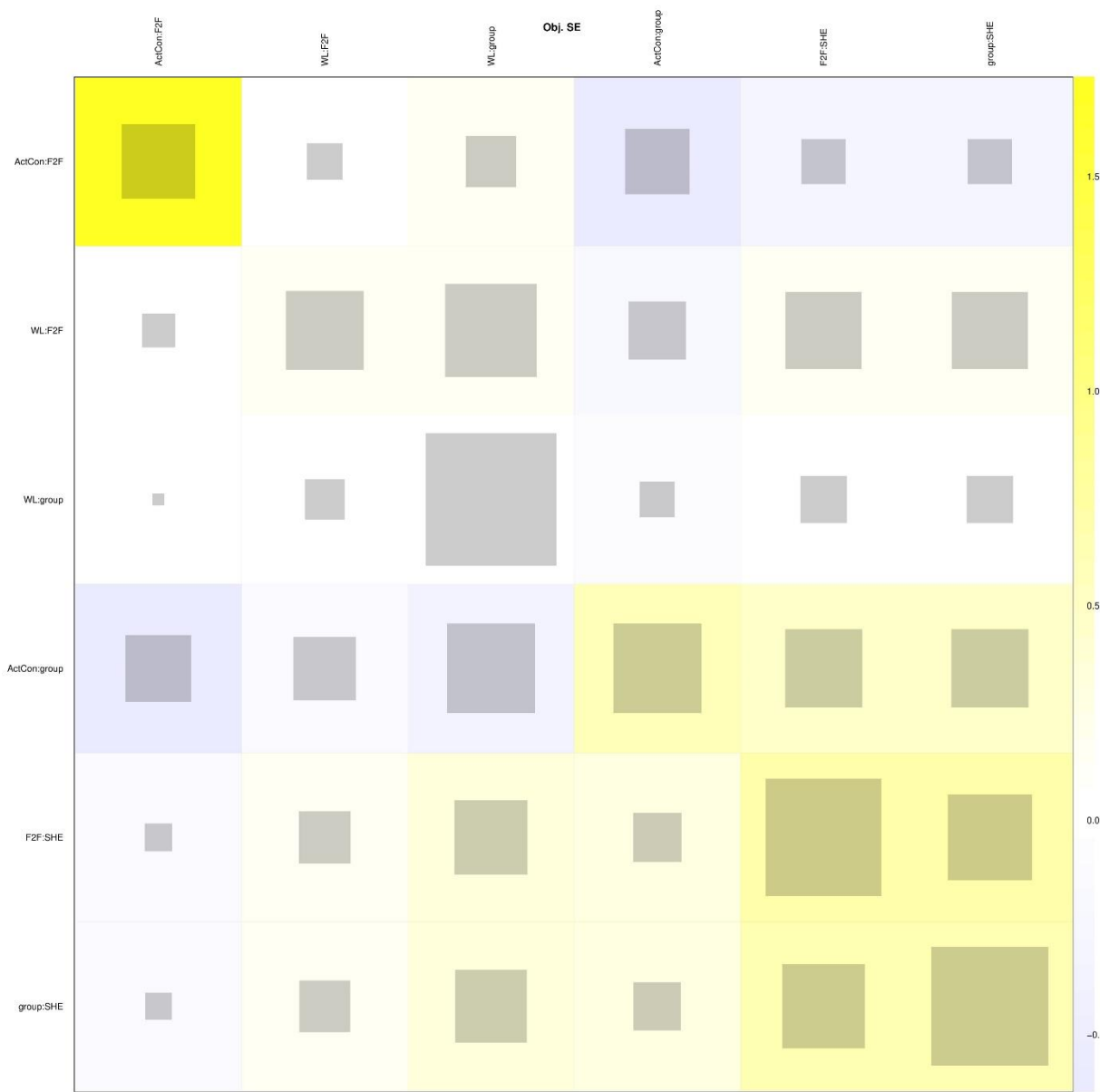
## Subjective wake after sleep onset



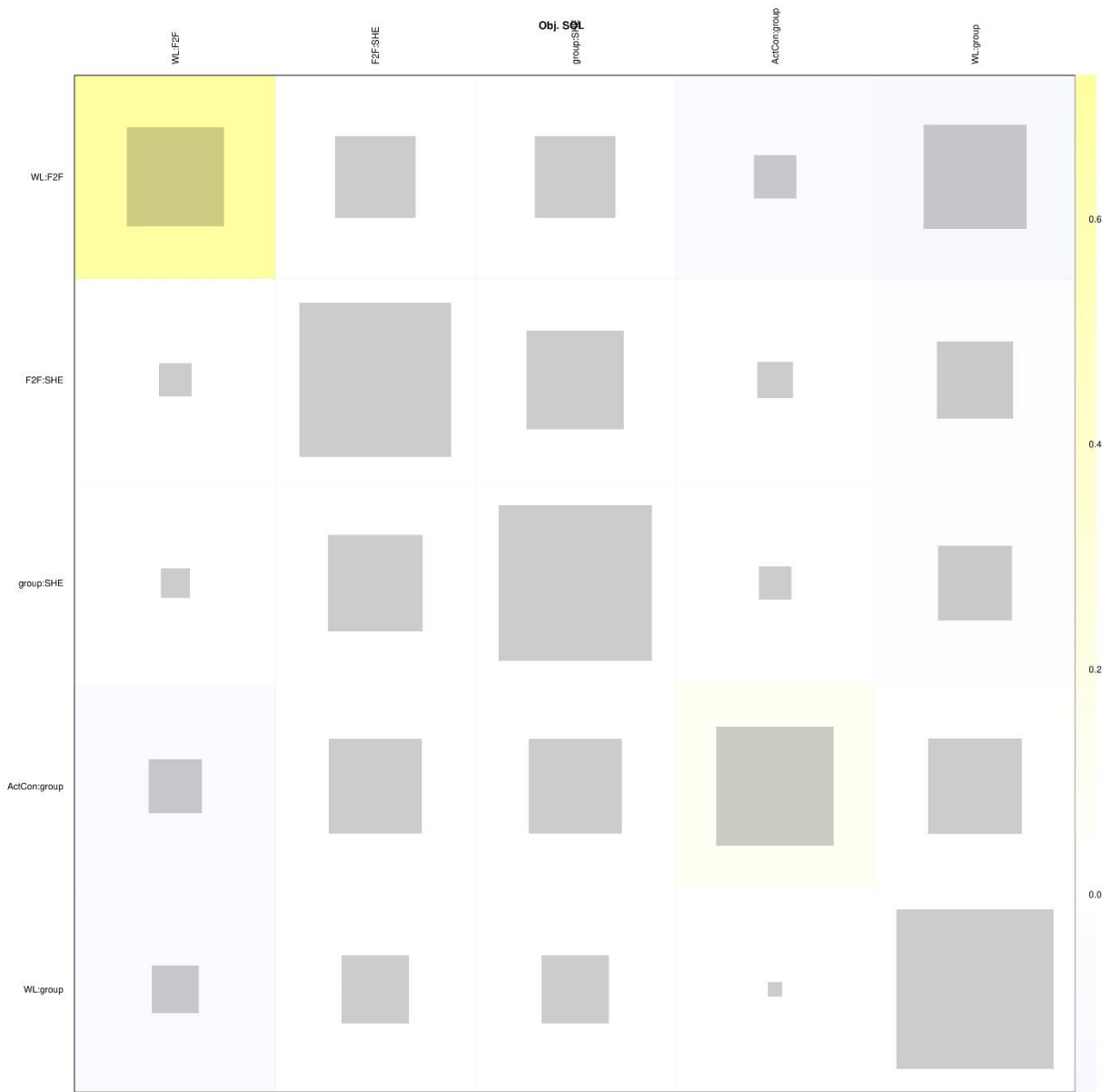
Objective total sleep time



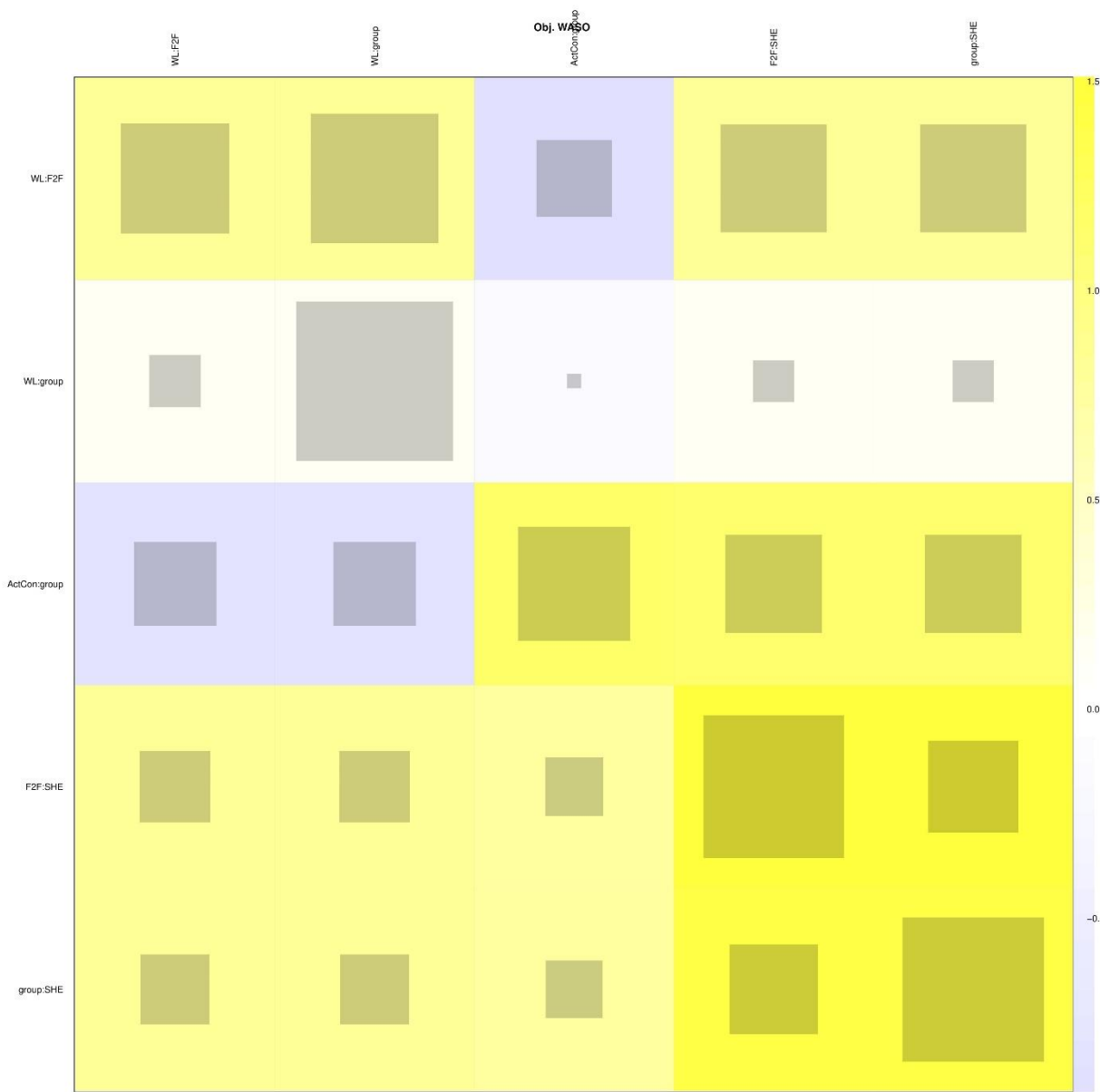
Objective sleep efficiency



Objective sleep onset latency

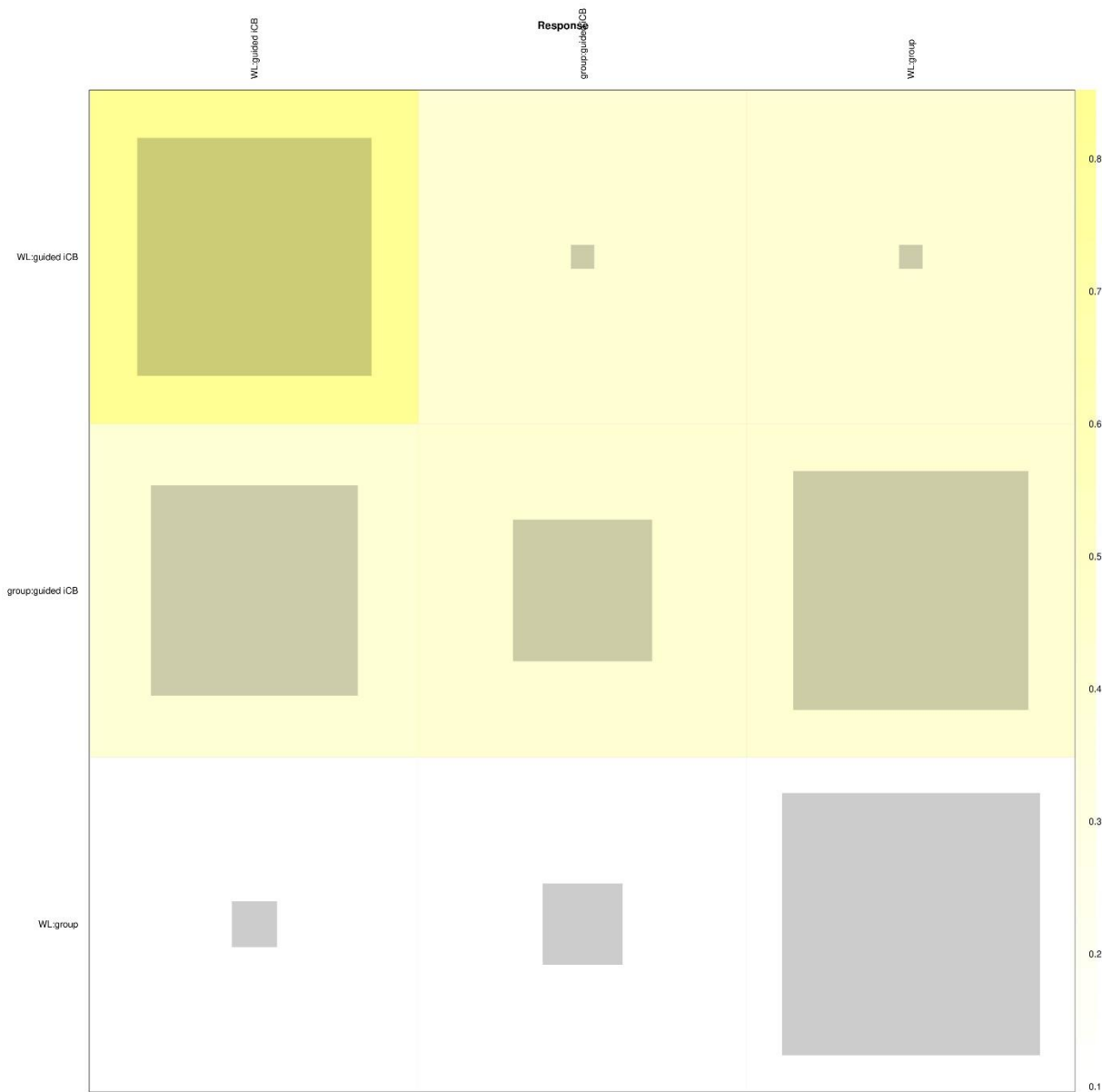


Objective wake after sleep onset

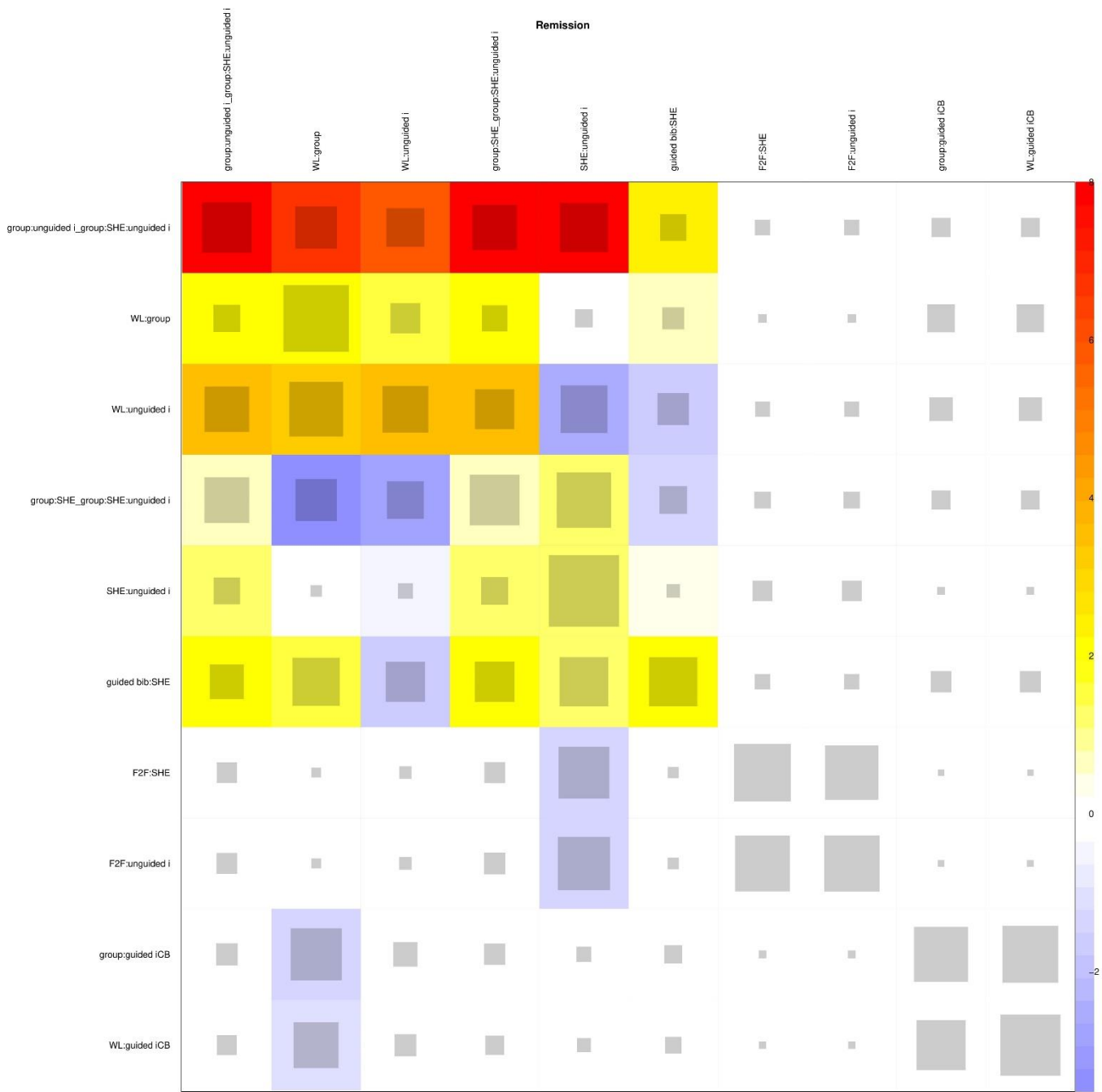




Response rates



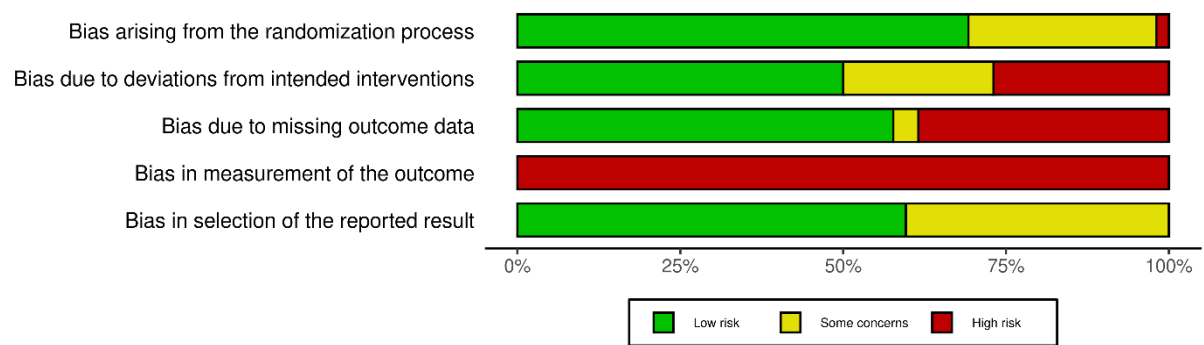
Remission rates



## Intervention completion rates



Supplementary Figure S3. Risk of Bias- summary figure



Supplementary Figure S4. Risk of Bias- detailed figure

	Risk of bias domains				
	D1	D2	D3	D4	D5
AL_2016_ISI	+	+	+	X	+
AR_2013_ISI	-	+	+	X	-
AR_2021_ISI	+	+	+	X	+
BA_2018_ISI	+	+	+	X	-
BA_2004_ISI	-	+	+	X	-
BL_2015_ISI	+	-	+	X	-
BO_2013_ISI	+	X	+	X	-
CH_2019_ISI	+	-	X	X	+
DR_2019_ISI	+	+	+	X	+
ED_2001_ISQ	-	+	+	X	-
ED_2007_ISQ	+	+	X	X	-
ED_2009_ISQ	+	+	X	X	-
ES_2001_PSQI	-	+	+	X	-
ES_2012_SCI	+	+	+	X	+
ES_2007_PSQI	+	X	+	X	-
ES_2019_SCI	+	-	+	X	+
FR_2017_SCI	+	-	+	X	+
GI_2019_PSQI	+	+	+	X	+
HA_2017_ISI	+	-	X	X	+
HO_2014_ISI	+	X	X	X	+
HOL_2014_ISI	+	-	+	X	-
IR_2014_PSQI	+	+	+	X	+
JE_2012_ISI	+	+	X	X	+
KA_2020_ISI	+	+	+	X	-
KR_2019_IS	+	+	+	X	+
KY_2020_IS	+	X	X	X	+
LA_2015_IS	-	-	X	X	+
LA_2012_SE	-	X	X	X	+
LA_2016_IS	-	-	X	X	+
LOP_2019_IS	+	-	+	X	+
LOR_2019_IS	+	+	+	X	+
LO_2016_IS	X	+	X	X	-
LO_2014_IS	-	+	+	X	-
MA_2020_IS	+	+	+	X	+
MI_1999_PSQI	+	+	+	X	-
MO_1993_SD	-	+	+	X	-
RI_2009_IS	-	+	+	X	-
RI_2017_IS	+	-	X	X	+
SA_2018_IS	+	X	X	X	+
SA_2019_PS	+	+	+	X	+
ST_2004_SQ	-	X	X	X	-
TA_2018_IS	-	X	X	X	-
TA_2017_IS	-	X	X	X	-
TA_2014_IS	+	X	-	X	-
VA_2020_IS	+	X	X	X	+
VA_2014_PS	+	+	X	X	+
VI_2009_IS	-	X	-	X	+
WO_2021_IS	+	X	X	X	+
HO_2021_IS	+	X	X	X	+
JO_2020_IS	+	+	+	X	+
KA_2021_IS	+	-	+	X	+
GE_2021_ISI	-	-	+	X	+

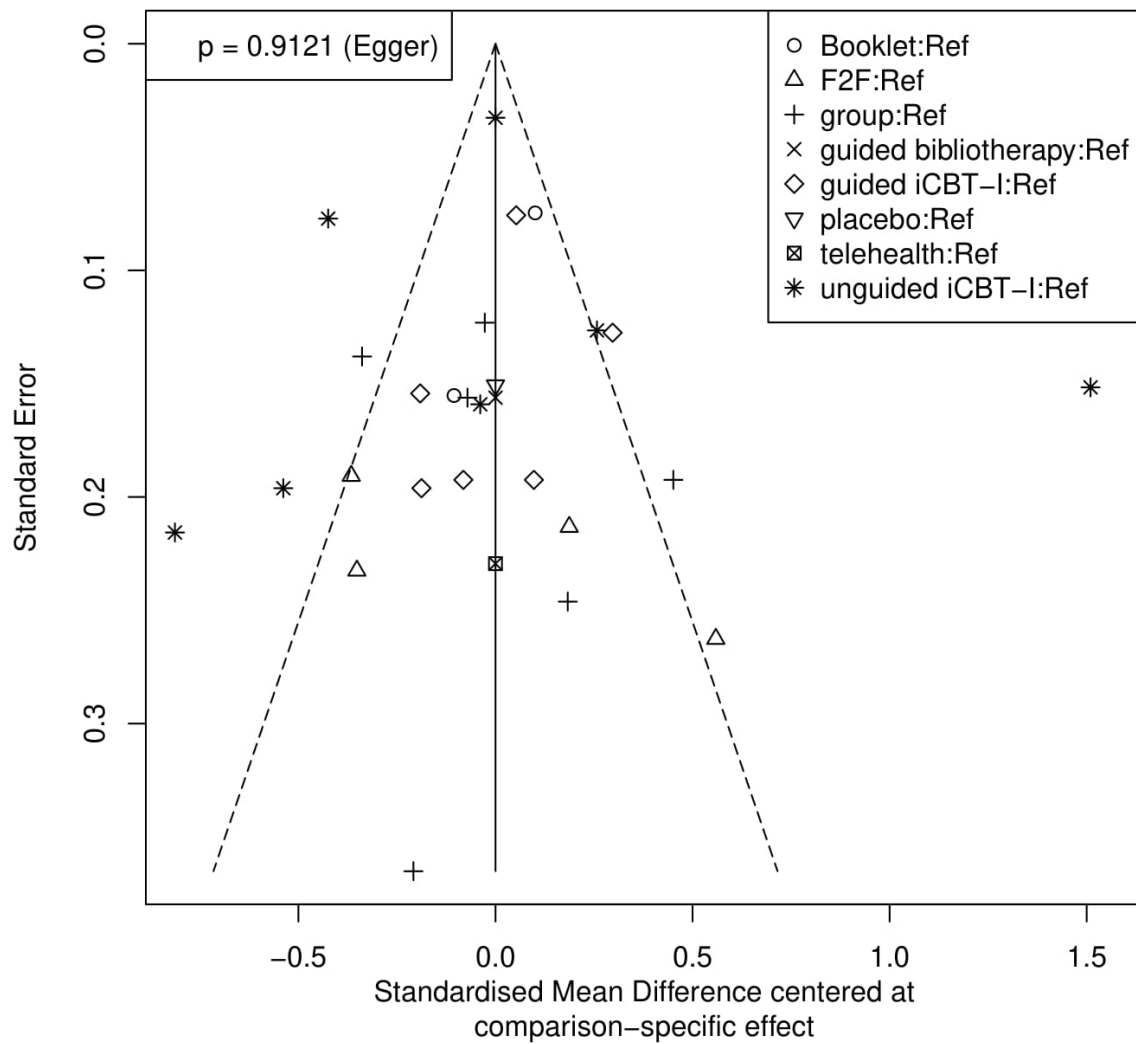
Study

Domains:  
D1: Bias arising from the randomization process.  
D2: Bias due to deviations from intended intervention.  
D3: Bias due to missing outcome data.  
D4: Bias in measurement of the outcome.  
D5: Bias in selection of the reported result.

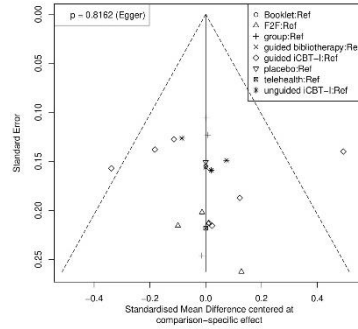
Judgement  
X High  
- Some concerns  
+ Low

## Supplementary Figures S5. Comparison-adjusted funnel plots

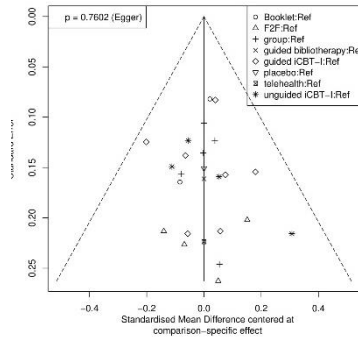
### Insomnia severity



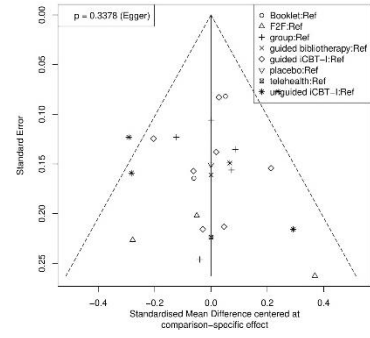
### Subjective sleep quality



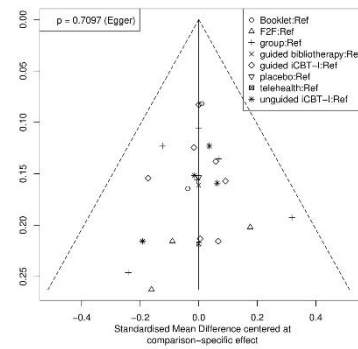
### Subjective total sleep time



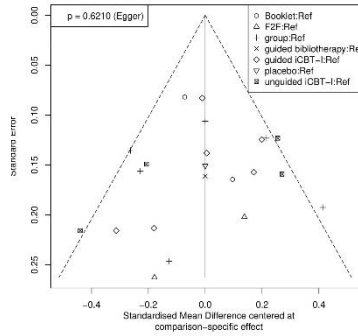
### Subjective sleep efficiency



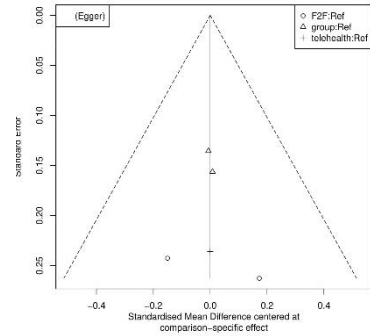
### Subjective sleep onset latency



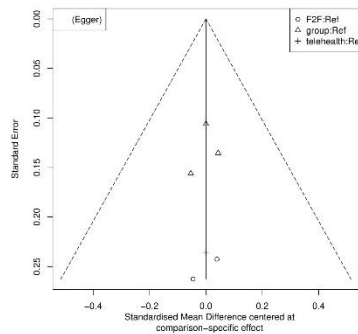
### Subjective wake after sleep onset



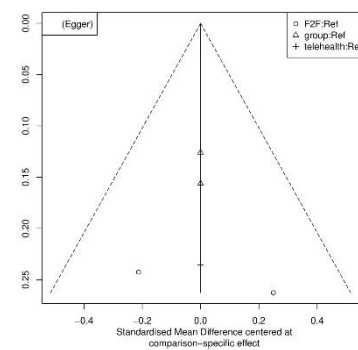
### Objective total sleep time



### Objective sleep efficiency



### Objective sleep onset latency



### Objective wake after sleep onset

