SUPPLEMENTAL MATERIAL – Behavioral and psychological treatments for chronic insomnia disorder in adults guideline meta-analyses and summary of findings tables

All Literature Search Terms

PICO 1 PubMed Search String:

(("Sleep Initiation and Maintenance Disorders"[MeSH Terms] OR "sleep initiation and maintenance disorders"[All Fields] OR "insomnia"[All Fields]) NOT "Insomnia, Fatal Familial"[MeSH Terms]) AND "humans"[MeSH Terms] AND "adult"[MeSH Terms] AND ("behavior therapy"[MeSH Terms] OR "behaviour therapy"[All Fields] OR "behavior therapy"[All Fields] OR "psychotherapy"[MeSH Terms] OR "psychotherapy"[All Fields] OR "psychotherap*"[All Fields] OR "biofeedback, psychology"[MeSH Terms] OR "biofeedback"[All Fields] OR "psychology biofeedback"[All Fields] OR "biofeedback, psychology"[All Fields] OR "body monitoring"[All Fields] OR "BTII"[All Fields] OR "behavioral treatment"[All Fields] OR "cognitive therapy"[MeSH Terms] OR "cognitive therapy"[All Fields] OR "cognitive behaviour therapy"[All Fields] OR "cognitive behavior therapy"[All Fields] OR "cognitive behavior therapies"[All Fields] OR "cognitive behavioral therapy for insomnia"[All Fields] OR "CBT-I"[All Fields] OR "CBT-Insomnia"[All Fields] OR "sleep retraining"[All Fields] OR "mindfulness"[MeSH Terms] OR "mindfulness"[All Fields] OR "multicomponent behavioral therapy"[All Fields] OR "relaxation therapy"[MeSH Terms] OR "relaxation therapy"[All Fields] OR "relaxation therapies"[All Fields] OR "abdominal breathing"[All Fields] OR "deep breathing"[All Fields] OR "progressive muscle relaxation"[All Fields] OR "imagery"[All Fields] OR "imagery (psychotherapy)"[MeSH Terms] OR "imagery training"[All Fields] OR "special place imagery"[All Fields] OR "guided imagery"[All Fields] OR "autogenic training"[MeSH Terms] OR "autogenic training"[All Fields] OR "desensitization relaxation"[All Fields] OR "paradoxical intention"[All Fields] OR "sleep hygiene"[MeSH Terms] OR "sleep hygiene"[All Fields] OR "sleep restriction"[All Fields] OR "stimulus control"[All Fields]) AND English[lang] AND ("aged"[MeSH Terms] OR "elderly"[All Fields] OR "veterans" [MeSH Terms] OR "military family"[MeSH Terms] OR "active duty"[All Fields] OR "military personnel"[MeSH Terms] OR "sleep beliefs"[All Fields] OR "sleep anxiety"[All Fields] OR "self efficacy"[MeSH Terms] OR "self efficacy"[All Fields] OR "self-efficacy"[All Fields] OR "self concept"[MeSH Terms]OR "self concept"[All Fields]OR "self-concept"[All Fields] OR "performance anxiety"[MeSH Terms] OR "performance anxiety"[All Fields] OR "Comorbidity"[MeSH Terms] OR "comorbidities"[All Fields]) AND ("1900/01/01"[PDAT] : "2020/02/13"[PDAT]) NOT "Editorial"[Publication Type] NOT "Letter"[Publication Type] NOT "Comment"[Publication Type] NOT "Case Reports"[Publication Type] NOT "Biography"[Publication Type] NOT "Review"[Publication Type]

PICO 1 PsychInfo Search String

SU.EXACT("Insomnia") AND (SU.EXACT("Behavior Therapy") OR SU.EXACT("Psychotherapy") OR SU.EXACT("Biofeedback") OR body monitoring OR bbti OR behavioral treatment OR SU.EXACT("Cognitive Therapy") OR SU.EXACT("Cognitive Behavior Therapy") OR cognitive behavior therapies OR cognitive behavioral therapy for insomnia OR cbt-I OR cbt-Insomnia OR sleep retraining OR SU.EXACT("Mindfulness") OR multicomponent behavioral therapy OR relaxation therapy OR relaxation therapies OR abdominal breathing OR deep breathing OR progressive muscle relaxation OR imagery OR imagery training OR special place imagery OR guided imagery OR autogenic training OR desensitization relaxation OR paradoxical intention OR sleep hygiene OR sleep restriction OR SU.EXACT("Stimulus Control")) AND (elderly OR SU.EXACT("Military Veterans") OR SU.EXACT("Military Duty Status") OR sleep beliefs OR sleep anxiety OR SU.EXACT("Self-Efficacy") OR self-concept OR SU.EXACT("Performance Anxiety") OR SU.EXACT("Comorbidity") OR comorbidities)

PICO 2 PubMed Search String:

(("Sleep Initiation and Maintenance Disorders"[MeSH Terms] OR "sleep initiation and maintenance disorders"[All Fields] OR "insomnia"[All Fields]) NOT "Insomnia, Fatal Familial"[MeSH Terms]) AND "humans"[MeSH Terms] AND "adult"[MeSH Terms] AND ("behavior therapy"[MeSH Terms] OR "behaviour therapy"[All Fields] OR "behavior therapy"[All Fields] OR "psychotherapy"[MeSH Terms] OR "psychotherapy"[All Fields] OR "psychotherap*"[All Fields] OR "biofeedback, psychology"[MeSH Terms] OR "biofeedback"[All Fields] OR "psychology biofeedback"[All Fields] OR "biofeedback, psychology"[All Fields] OR "body monitoring"[All Fields] OR "BBTI"[All Fields] OR "behavioral treatment"[All Fields] OR "cognitive therapy"[MeSH Terms] OR "cognitive therapy"[All Fields] OR "cognitive behaviour therapy"[All Fields] OR "cognitive behavior therapy"[All Fields] OR "cognitive behavior therapies"[All Fields] OR "cognitive behavioral therapy for insomnia"[All Fields] OR "CBT-I"[All Fields] OR "CBT-Insomnia"[All Fields] OR "sleep retraining"[All Fields] OR "mindfulness"[MeSH Terms] OR "mindfulness"[All Fields] OR "multicomponent behavioral therapy"[All Fields] OR "relaxation therapy"[MeSH Terms] OR "relaxation therapy"[All Fields] OR "relaxation therapies"[All Fields] OR "abdominal breathing"[All Fields] OR "deep breathing"[All Fields] OR "progressive muscle relaxation"[All Fields] OR "imagery"[All Fields] OR "imagery (psychotherapy)"[MeSH Terms] OR "imagery training"[All Fields] OR "special place imagery"[All Fields] OR "guided imagery"[All Fields] OR "autogenic training"[MeSH Terms] OR "autogenic training"[All Fields] OR "desensitization relaxation"[All Fields] OR "paradoxical intention"[All Fields] OR "sleep hygiene"[MeSH Terms] OR "sleep hygiene"[All Fields] OR "sleep restriction"[All Fields] OR "stimulus control"[All Fields]) AND ("in-person"[All Fields] OR "self-help groups" [MeSH Terms] OR "group" [All Fields] OR "psychotherapy, group"[MeSH Terms] OR "computer-assisted instruction"[Mesh] OR "computer-assisted instruction"[All Fields] OR "computer-based"[All Fields] OR "internet" [MeSH Terms] OR "internet-delivered"[All Fields] OR "internet-based" [All Fields] OR "web-based" [All Fields] OR "mobile applications"[MeSH Terms] OR "mobile applications"[All Fields] OR "mobile app"[All Fields] OR "telecommunications"[MeSH Terms] OR "telephone" [MeSH Terms] OR "telephone" [All Fields] OR "telephone-based"[All Fields] OR "telemedicine"[MeSH Terms] OR "telemedicine"[All Fields] OR "social networking"[MeSH Terms] OR "social networking"[All Fields] OR "social networks"[All Fields] OR "social community"[All Fields] OR "online communities"[All Fields] OR "videoconferencing"[MeSH Terms] OR "videoconferencing"[All Fields] OR "bibliotherapy"[MeSH Terms] OR "bibliotherapy"[All Fields] OR "bibliotherapies"[All Fields] OR "self-help"[All Fields] OR "community-based"[All Fields]) AND English[lang] AND ("1900/01/01"[PDAT] : "2020/02/12"[PDAT]) NOT "Editorial"[Publication Type] NOT "Letter"[Publication Type] NOT "Comment"[Publication Type] NOT "Case Reports"[Publication Type] NOT "Biography"[Publication Type] NOT "Review"[Publication Type]

PICO 2 PsychInfo Search String

SU.EXACT("Insomnia") AND (SU.EXACT("Behavior Therapy") OR SU.EXACT("Psychotherapy") OR SU.EXACT("Biofeedback") OR body monitoring OR bbti OR behavioral treatment OR SU.EXACT("Cognitive Therapy") OR SU.EXACT("Cognitive Behavior Therapy") OR cognitive behavior therapies OR cognitive behavioral therapy for insomnia OR cbt-I OR cbt-Insomnia OR sleep retraining OR SU.EXACT("Mindfulness") OR multicomponent behavioral therapy OR relaxation therapy OR relaxation therapies OR abdominal breathing OR deep breathing OR progressive muscle relaxation OR imagery OR imagery training OR special place imagery OR guided imagery OR autogenic training OR desensitization relaxation OR paradoxical intention OR sleep hygiene OR sleep restriction OR SU.EXACT("Stimulus Control")) AND (SU.EXACT("Group Psychotherapy") OR in-person OR self-help groups OR group SU.EXACT("Computer Assisted Instruction") OR computer-based OR SU.EXACT("Internet") OR internet-delivered OR internet-based OR web-based OR mobile applications OR mobile applications OR mobile app OR telecommunications OR telephone OR telephone-based OR SU.EXACT("Telemedicine") OR SU.EXACT("Social Networks") OR SU.EXACT("Online Social Networks") OR social community OR online communities OR videoconferencing OR SU.EXACT("Bibliotherapy") OR bibliotherapies OR SU.EXACT("Self-Help Techniques") OR community-based)

Exclusion Criteria:

Exclusion criteria are applied during the abstract review of all retrieved publications. Studies that meet any of the exclusion criteria are rejected from the systematic review.

A. Publication type
1. Conference abstracts
2. Editorials
3. Review
4. Methods

B. Study type
1. Animal research
2. Case reports
3. Case series

C. Language non-English

D. Sample size < 20

E. Diagnosis NOT chronic insomnia disorder

F. Patient population < 18 years of age

G. Main study objective is NOT evaluating the efficacy/effectiveness of psychological and behavioral therapies for insomnia

H. Does NOT include one of the following interventions of interest:
1. Biofeedback
2. Behavioral treatment for insomnia
3. Brief therapies for insomnia
4. Cognitive behavioral therapy for insomnia
5. Intensive sleep retraining
6. Mindfulness
7. Multicomponent behavioral therapy for insomnia
8. Relaxation therapy
9. Paradoxical intention treatment
10. Sleep hygiene
11. Sleep restriction
12. Stimulus control

Inclusion Criteria: Inclusion criteria are applied during the full publication review of all publications that were not rejected during the abstract review. Studies that meet all inclusion criteria will be accepted as evidence to use in the systematic review.

A. Intervention and control condition comparisons

Any of the following behavioral and psychological interventions *(must meet at least 1)*:	**Compared to any of the following control conditions** *(must meet at least 1)*:
1. Biofeedback 2. Cognitive behavioral therapy-insomnia *(i.e., Cognitive therapy, Sleep restriction, and Stimulus control)* 3. Brief therapies for Insomnia (BTI-I, Brief CBT-I) 4. Intensive sleep retraining 5. Mindfulness 6. Multicomponent behavioral therapy for insomnia 7. Relaxation therapy *(i.e., Abdominal breathing, Imagery training, Autogenic training)* 8. Paradoxical intention treatment 9. Sleep hygiene 10. Sleep restriction 11. Stimulus control	1. Attention control 2. Pharmacologic –placebo drug 3. Quasi-desensitization 4. Sleep hygiene or sleep education 5. Usual care 6. Wait-list

B. Intervention delivery method *(must meet at least 1)*

1. In-person one-on-one visit with a trained CBT-I specialist
2. In-person one-on-one visit with provider who is not a trained behavioral and psychological specialist
3. Group behavioral and psychological
4. Telephone
5. Self-help book
6. Internet-delivered
7. Community-based workshop
8. Telemedicine (videoconferencing, etc.)

C. Outcomes of interest *(must meet at least 1)*

1. Beliefs and attitudes about sleep (important)
2. Daytime fatigue domain (important)
3. Insomnia severity (important)
4. Nights with hypnotic use (important)
5. Number of nighttime awakenings (important)
6. Quality of sleep (critical)
7. Remission rate (critical)
8. Responder rate (critical)
9. Sleep efficiency (important)
10. Sleep latency (critical)
11. Total wake time (important)
12. Total sleep time (important)
13. Wake after sleep onset (critical)

D. Insomnia diagnosis *(must meet at least 1)*

1. Use of any of the 3 diagnostic systems, regardless of version: DSM, ICSD, RDC
2. Use of validated sleep instruments in combination with quantitative objective/subjective measure and insomnia complaints (e.g. PSQI and actigraphy or diary-assessed SOL>30 minutes for >=3 nights a week)
3. Other sleep complaints/criteria/symptoms that would require adjudication

Abbreviations:

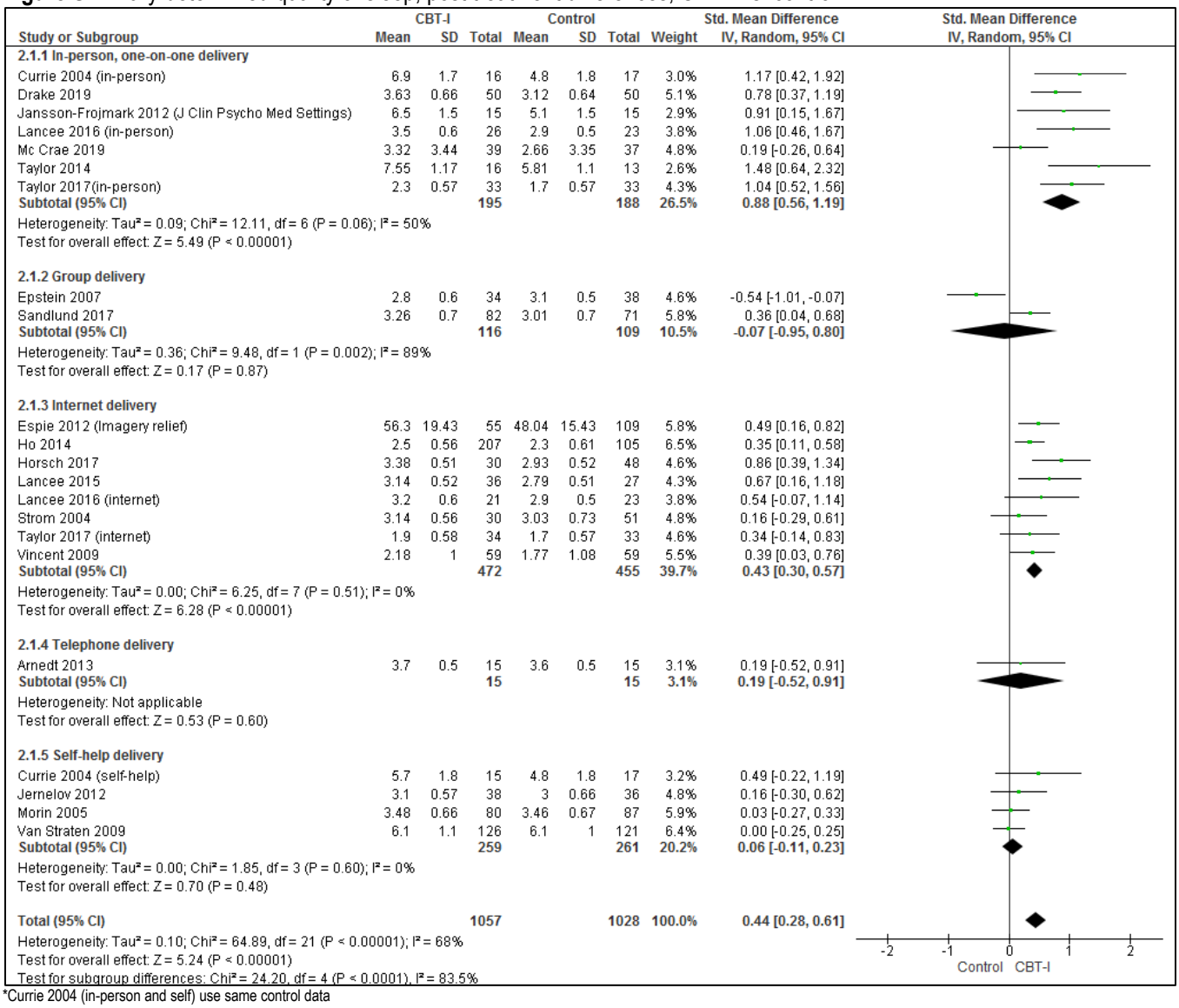
AASM- American Academy of Sleep Medicine
BTIBTIs- Brief Therapies for Insomnia
CBT-I- Cognitive Behavioral Therapy for Insomnia
CPG- Clinical practice guideline
DBAS- Dysfunctional Beliefs and Attitudes about Sleep scale
FFS-Flinders Fatigue Scale
FSI- Fatigue symptom index
FSS- Fatigue severity scale
GRADE- Grading of Recommendations Assessment, Development, and Evaluation
IQR- Interquartile range
ISI- Insomnia Severity Index
ISQ- Insomnia Severity Questionnaire
ISR- Intensive Sleep Retraining
MFI- Multidimensional Fatigue Inventory
PI: Paradoxical Intention
PICO – Patient, intervention, comparator, outcome
POMS-F- Profile of Mood States Fatigue subscale
PSG- Polysomnography
PSQI – Pittsburgh sleep quality index
RCT- Randomized controlled trial
SD- Standard deviation
SE- Standard error
SMD- Standardized mean-difference
SR- Systematic review
RT- Relaxation therapy
TF- Task force
WASO- Wake after sleep onset

Cognitive Behavioral Therapy (CBT-I)

CBT-I vs. Control

Quality of sleep

Figure S1. Diary-determined quality of sleep, post treatment differences, CBT-I vs. control



*Currie 2004 (in-person and self) use same control data
Espie 2012 (imagery and usual care pooled control data)
Lancee 2016 (in-person and internet) use same control data
Taylor 2017 (in-person and internet) use same control data
Ho 2014 (pooled results for self-help with and without tel. support, SE converted to SD, diary scores flipped as lower scores indicate improvement)

Quality of sleep: Insomnia and no comorbidities

Table S1. Diary-determined quality of sleep, post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Taylor 2014	In-person, one-on-one delivery	7.55	1.17	16	5.81	1.1	13	1.48[0.64, 2.32]
Strom 2004	Internet delivery	3.14	0.56	30	3.03	0.73	51	0.16 [-0.29, 0.61]

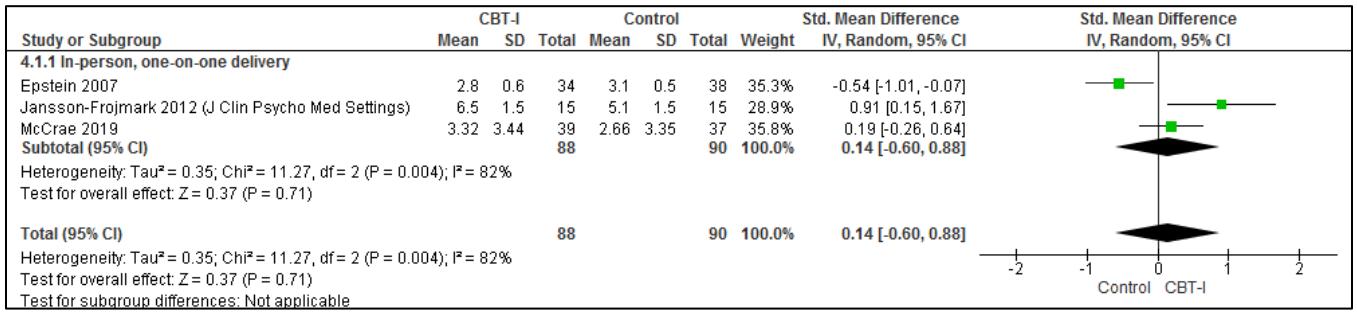
Quality of sleep: Insomnia and comorbid psychiatric conditions

Table S2. Diary-determined quality of sleep, post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Currie 2004	In-person, one-on-one and self-help (pooled)	6.32	1.75	31	4.8	1.8	17	0.85[0.23, 1.46]

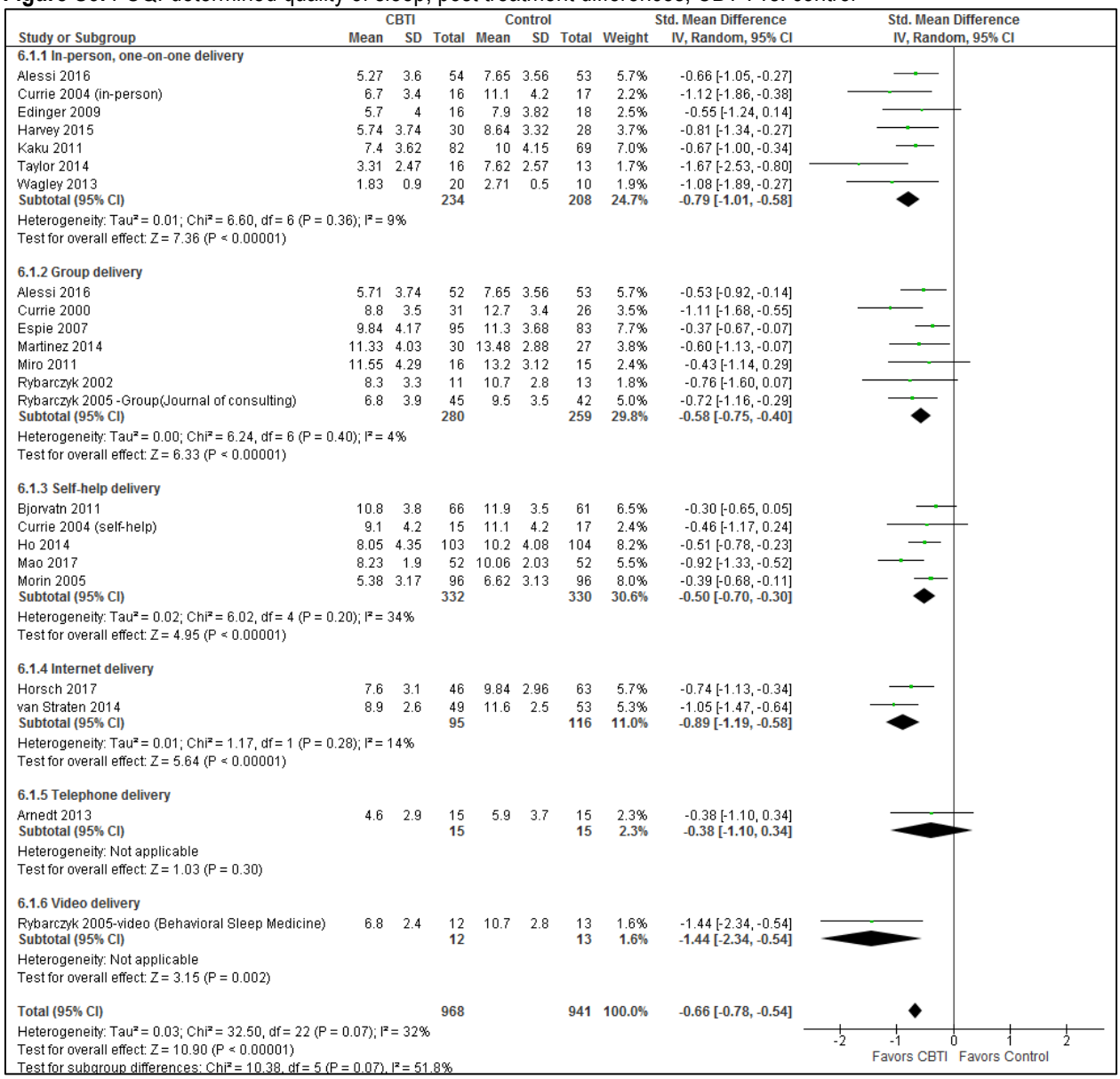
Quality of sleep: Insomnia and comorbid medical conditions

Figure S2. Diary-determined quality of sleep, post treatment differences, CBT-I vs. control



Quality of sleep: PSQI

Figure S3. PSQI-determined quality of sleep, post treatment differences, CBT-I vs. control



*Currie 2004 (in-person and self) use same control

*Morin 2005 SD calculated from 95%CI

*Alessi 2016 (in-person and group) use same control, SE converted to SD

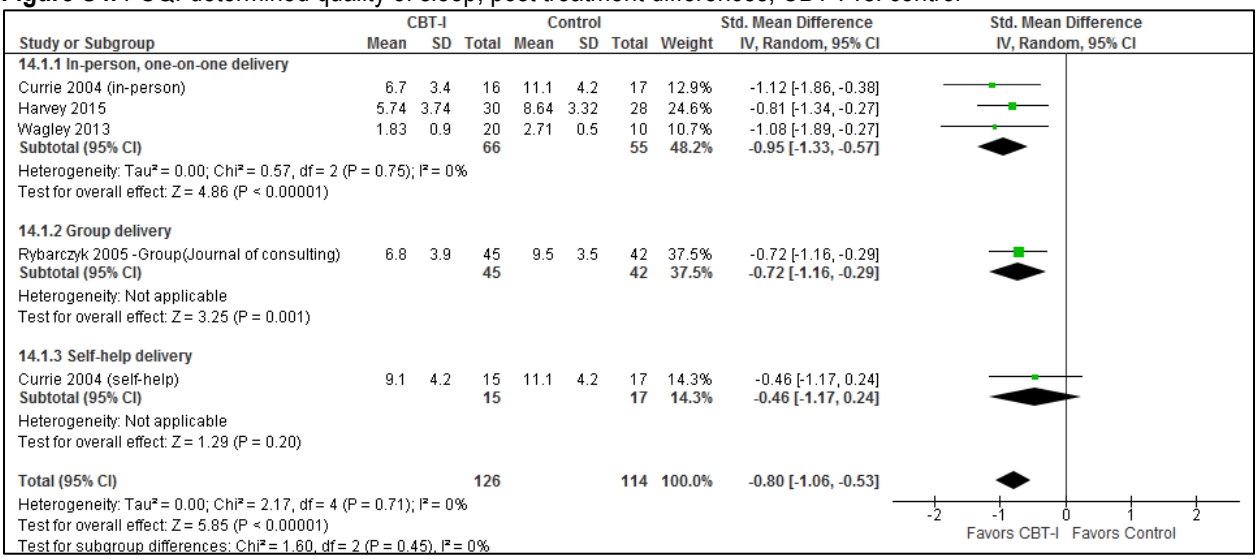
Quality of sleep (PSQI): Insomnia and no comorbidities

Table S3. PSQI-determined quality of sleep, post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2009	In-person, one-on-one	5.7	4	16	7.9	3.82	18	-0.55[-1.24, 0.14]
Taylor 2014	In-person, one-on-one	3.31	2.47	16	7.62	2.57	13	-1.67[-2.53, -0.80]

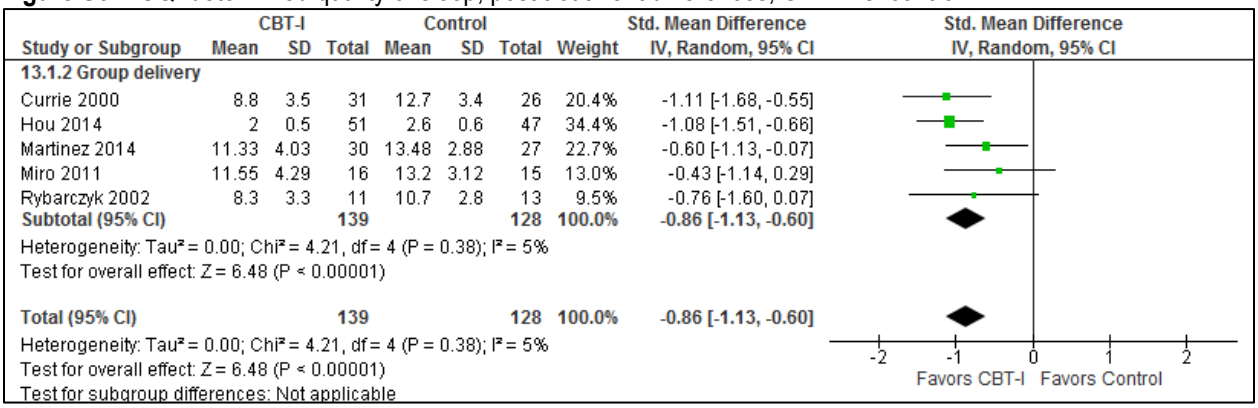
Quality of sleep (PSQI): Insomnia and comorbid psychiatric conditions

Figure S4. PSQI-determined quality of sleep, post treatment differences, CBT-I vs. control



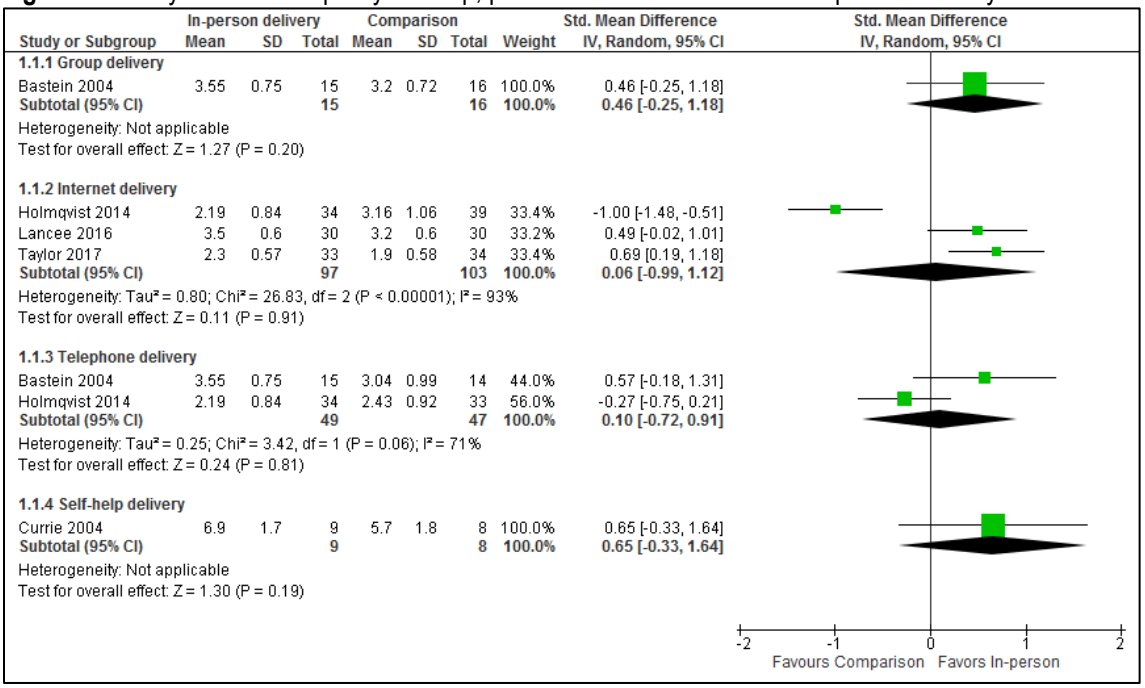
Quality of sleep (PSQI): Insomnia and comorbid medical conditions

Figure S5. PSQI-determined quality of sleep, post treatment differences, CBT-I vs. control



Quality of sleep (Diary): In-person delivery vs. comparison

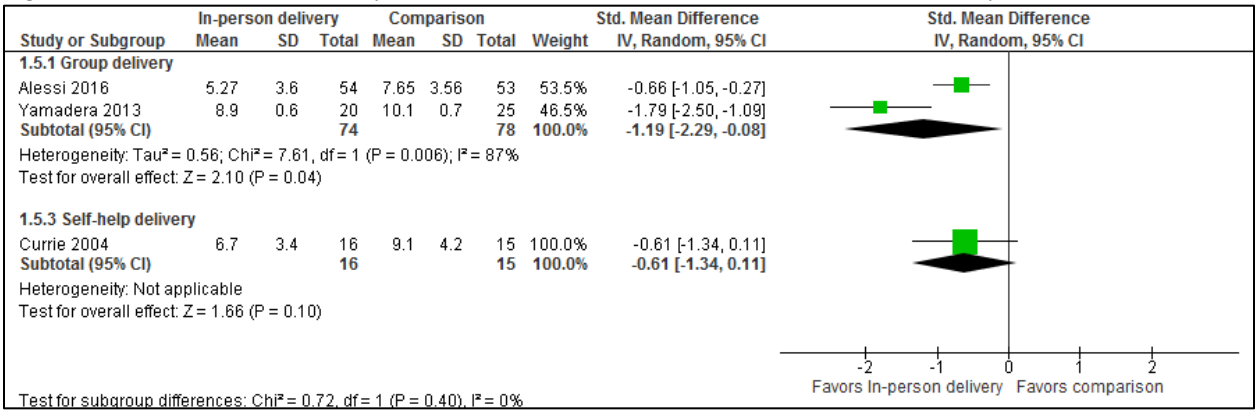
Figure S6. Diary-determined quality of sleep, post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

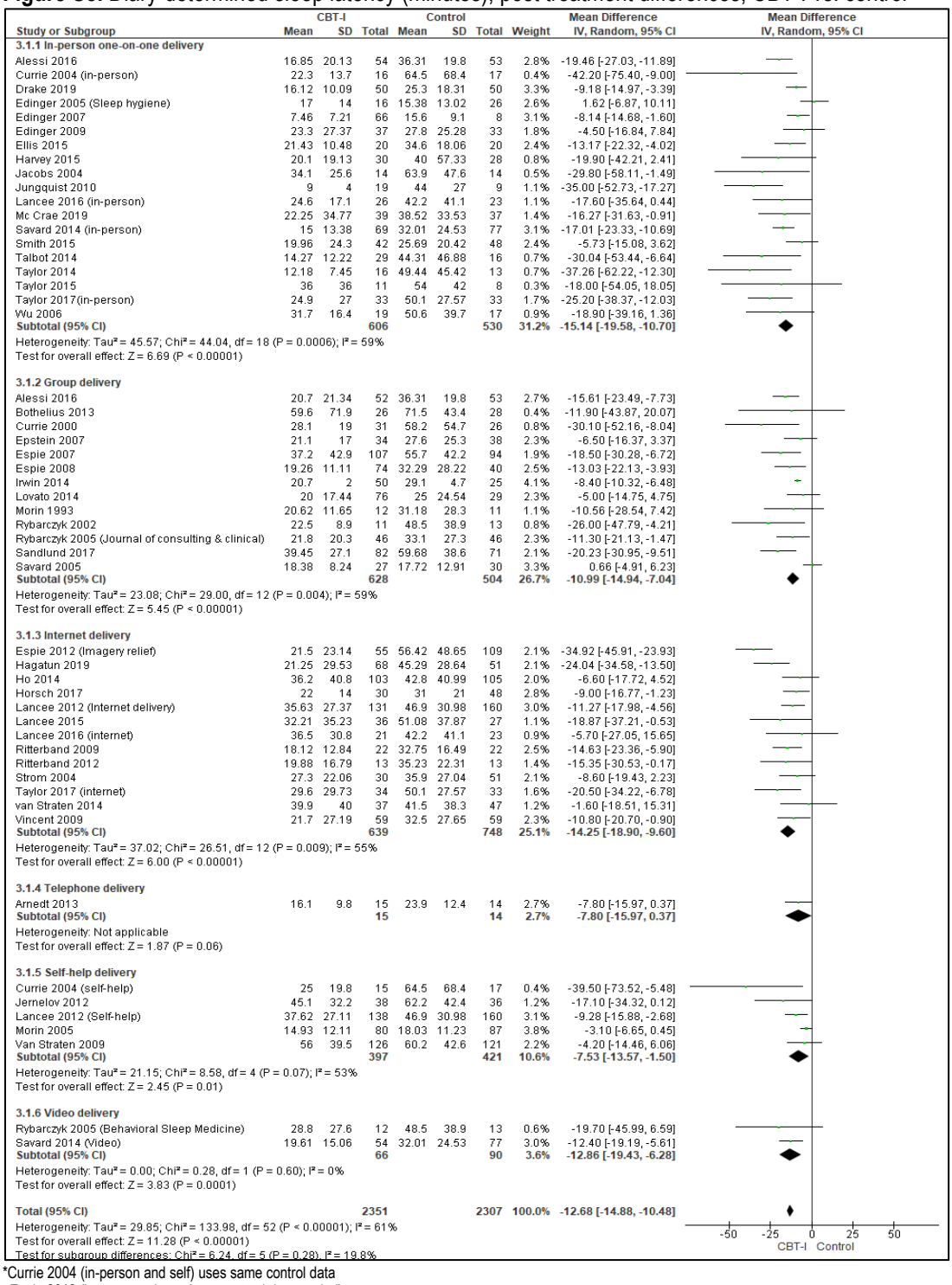
Quality of sleep (PSQI): In-person delivery vs. comparison

Figure S7. PSQI-determined quality of sleep, post treatment differences for in-person delivery



Sleep latency (Diary)

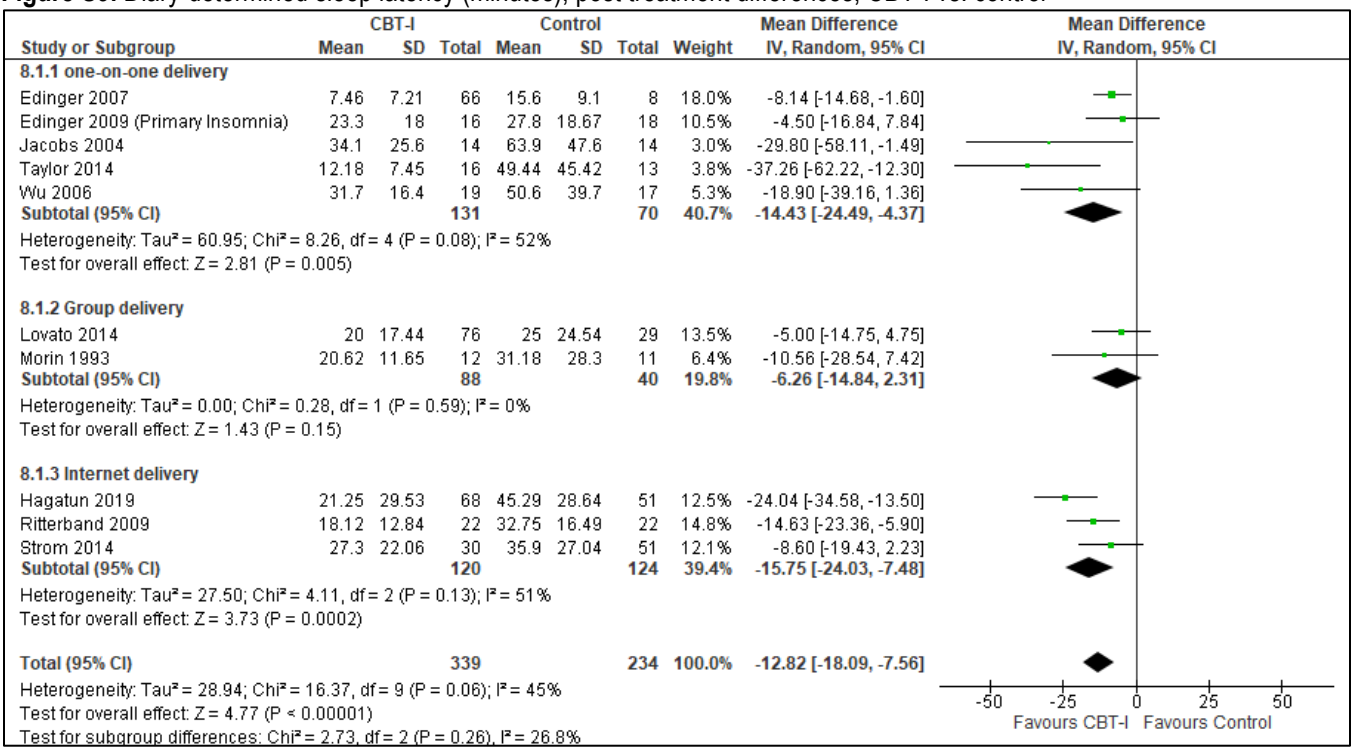
Figure S8. Diary-determined sleep latency (minutes), post treatment differences, CBT-I vs. control



*Currie 2004 (in-person and self) uses same control data
Espie 2012 (imagery and usual care control data pooled)
Lancee 2016 (in-person and internet) uses same control data
Edinger 2005 (usual care and sleep hygiene control data pooled)
Savard 2014 (in-person and video) uses same control data
Lancee 2012 (internet and self-help) uses same control data
Taylor 2017 (in-person and internet) uses same control data
Alessi 2016 (in-person and group) uses same control data, SE converted to SD

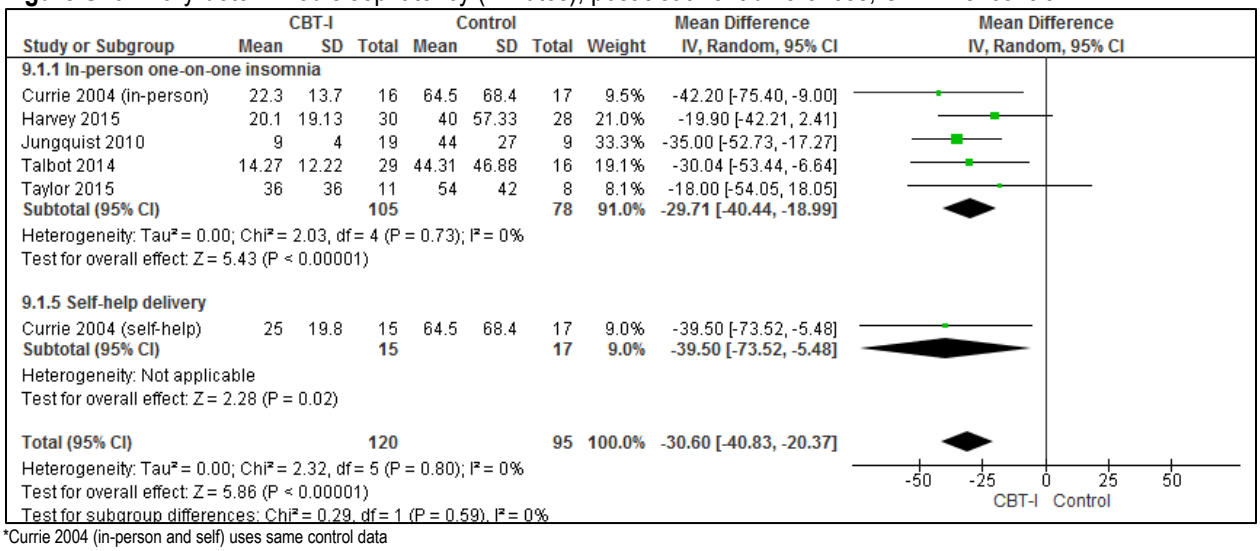
Sleep latency (Diary): Insomnia and no comorbidities

Figure S9. Diary-determined sleep latency (minutes), post treatment differences, CBT-I vs. control



Sleep latency (Diary): Insomnia and comorbid psychiatric conditions

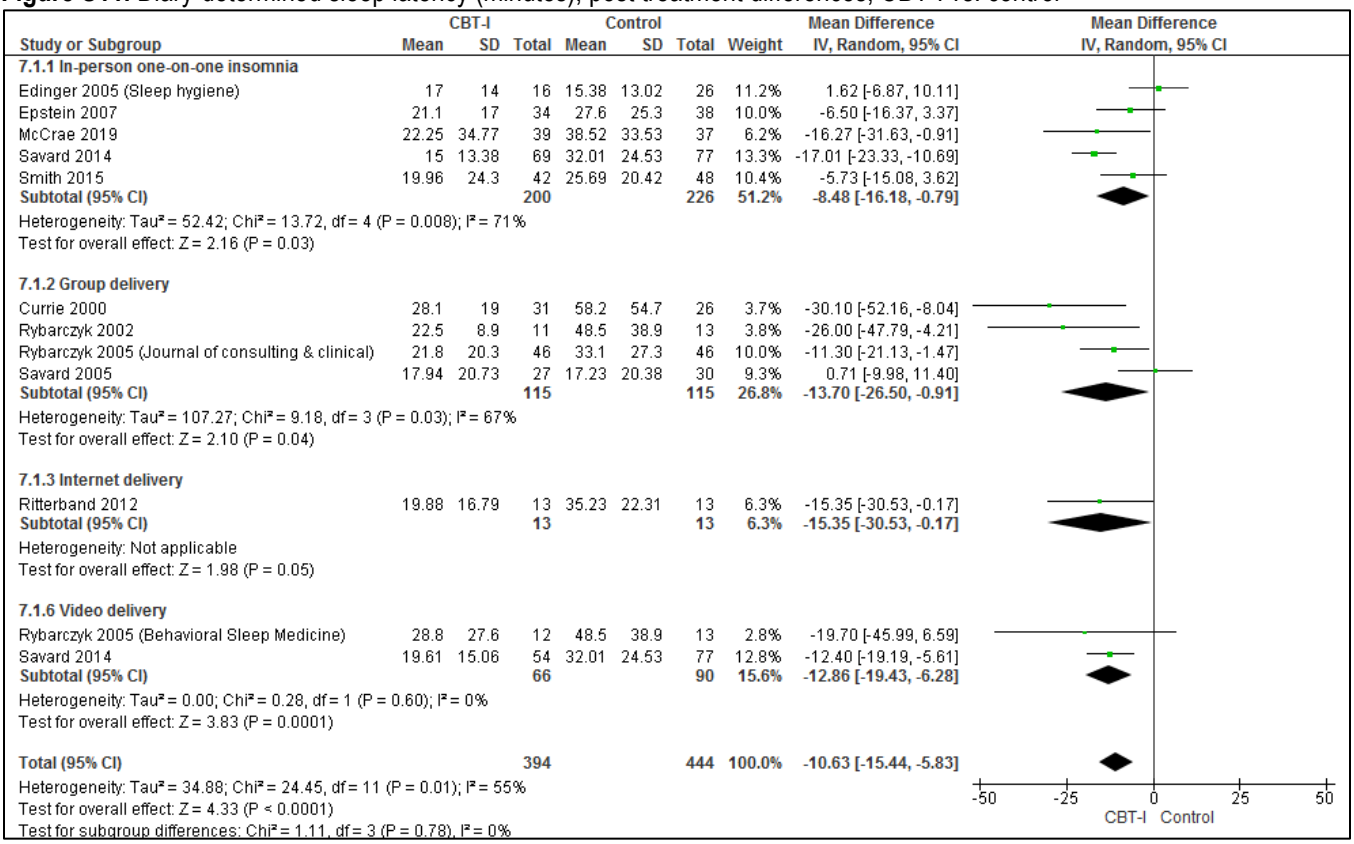
Figure S10. Diary-determined sleep latency (minutes), post treatment differences, CBT-I vs. control



*Currie 2004 (in-person and self) uses same control data

Sleep latency (Diary): Insomnia and comorbid medical conditions

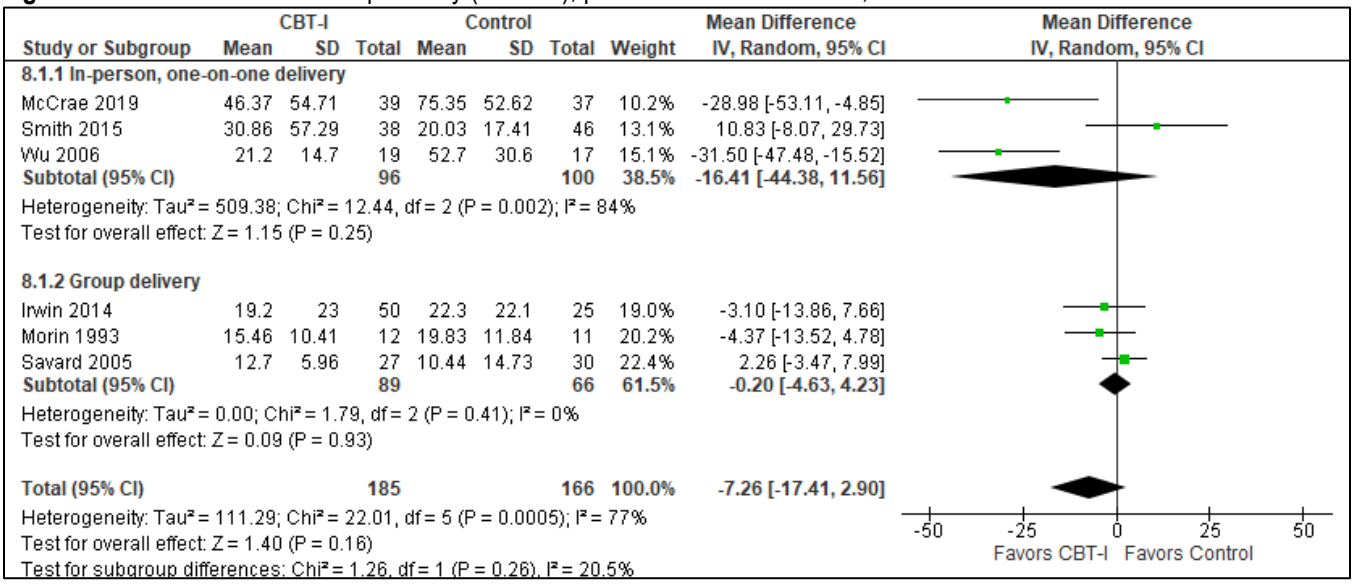
Figure S11. Diary-determined sleep latency (minutes), post treatment differences, CBT-I vs. control



*Edinger 2005 (usual care and sleep hygiene control data pooled)
*Savard 2014 (in-person and video) uses same control data

Sleep latency (PSG)

Figure S12. PSG-determined sleep latency (minutes), post treatment differences, CBT-I vs. control



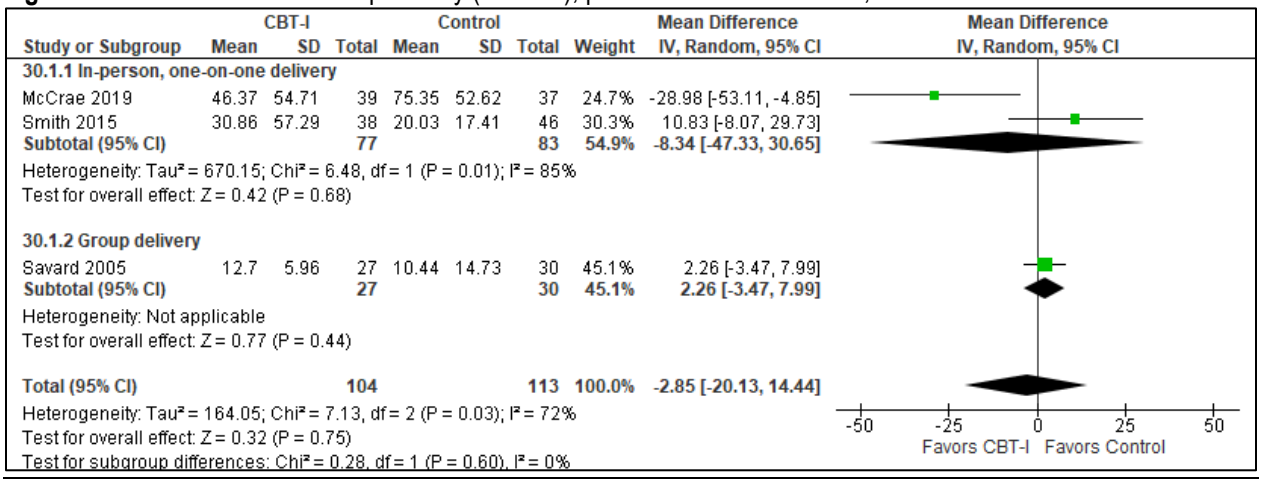
Sleep latency (PSG): Insomnia and no comorbidities

Table S4. PSG-determined sleep latency (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Wu 2006	In-person, one-on-one	21.2	14.7	19	52.7	30.6	17	-31.50[-47.48, -15.52]
Morin 1993	Group delivery	15.46	10.41	12	19.83	11.84	11	-4.37[-13.52, 4.78]

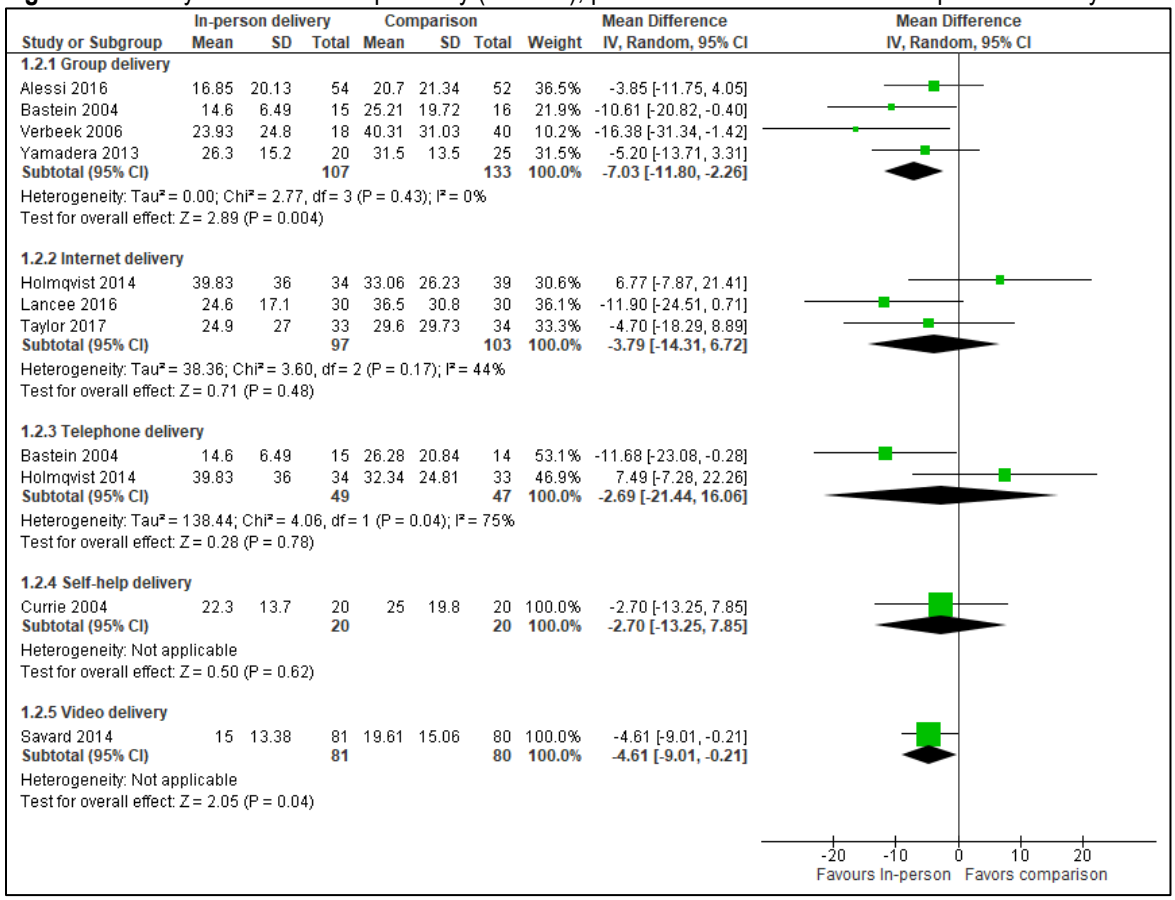
Sleep latency (PSG): Insomnia and comorbid medical conditions

Figure S13. PSG-determined sleep latency (minutes), post treatment differences, CBT-I vs. control



Sleep latency: In-person delivery vs. comparison

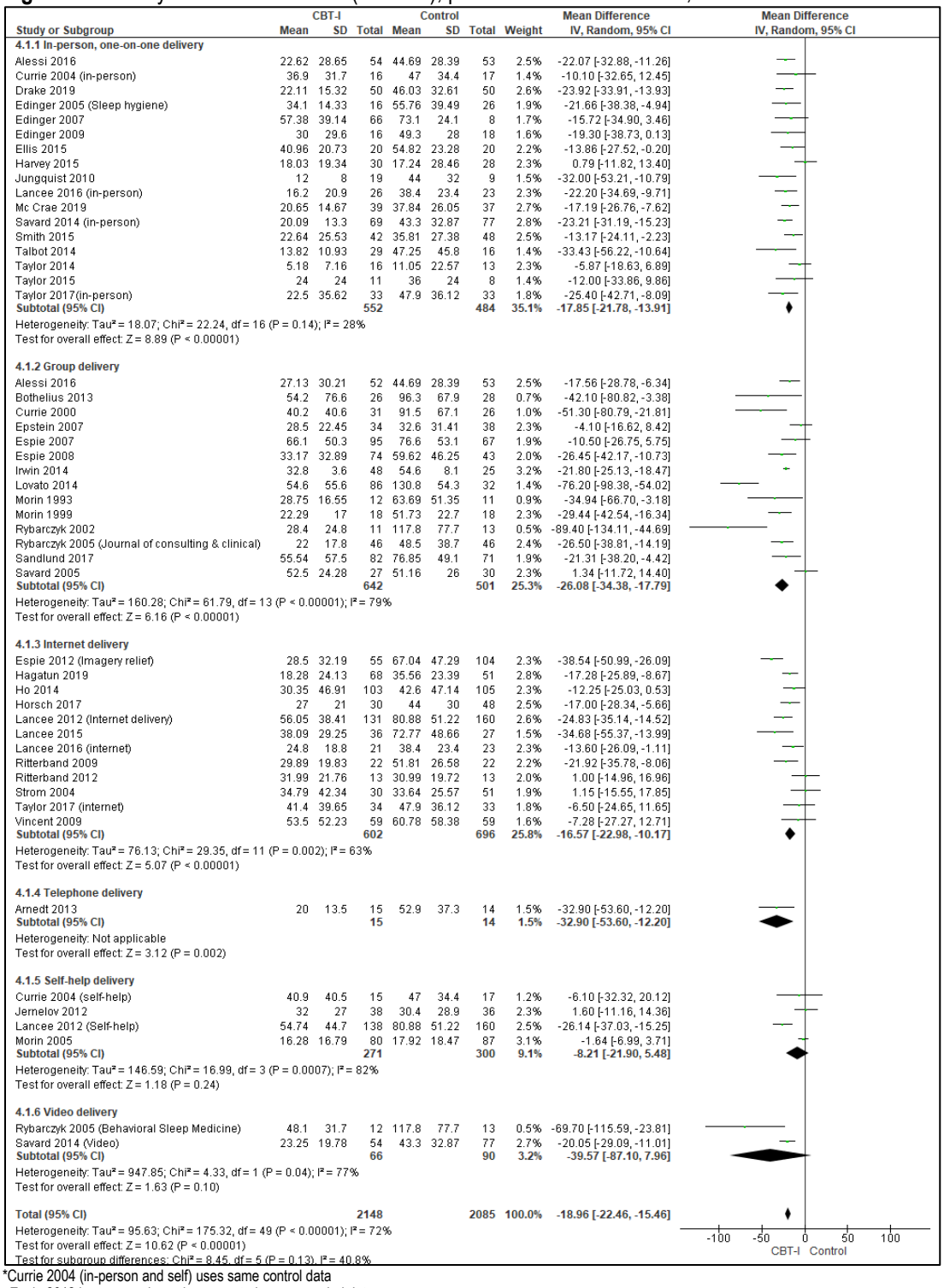
Figure S14. Diary-determined sleep latency (minutes), post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Wake after sleep onset

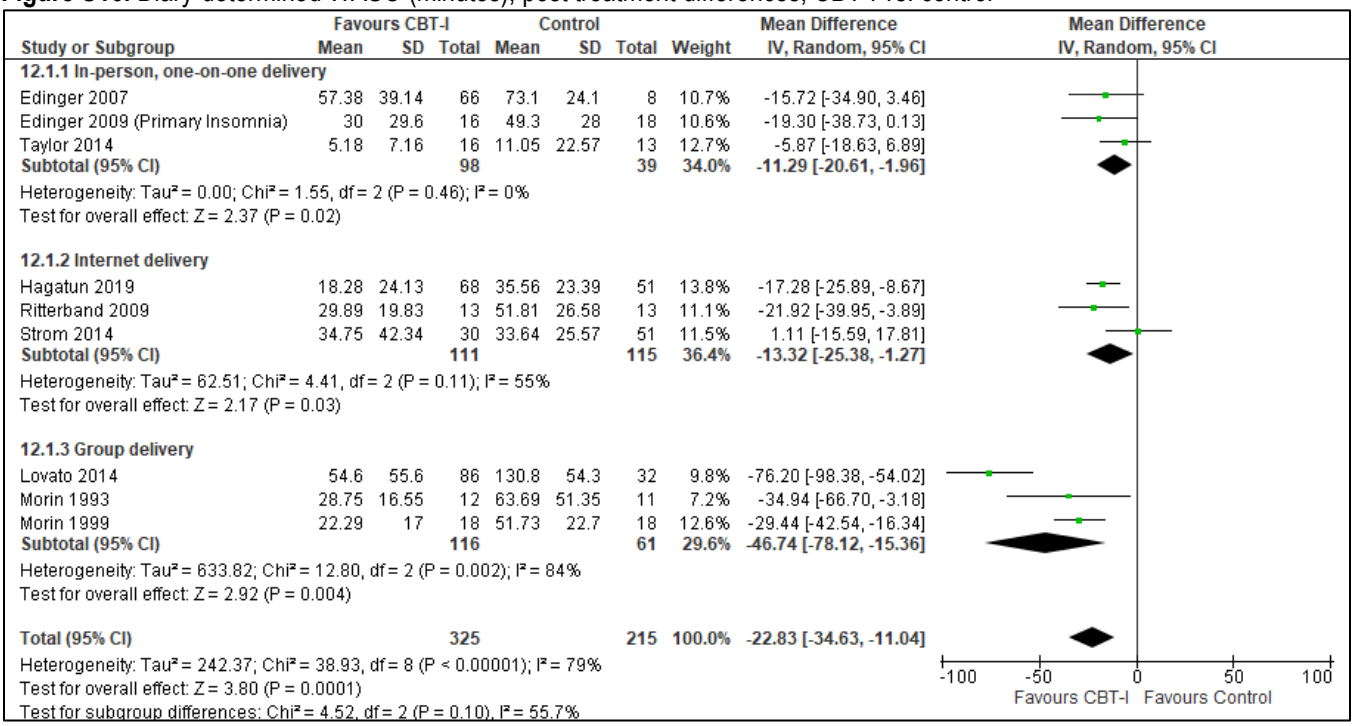
Figure S15. Diary-determined WASO (minutes), post treatment differences, CBT-I vs. control



*Currie 2004 (in-person and self) uses same control data
Espie 2012 imagery and usual care control groups pooled data
Lancee 2016 (in-person and internet) uses same control data
Edinger 2005 usual care and sleep hygiene pooled control data
Savard 2014 (in-person and video) uses same control data
Lancee 2012 (internet and self-help) uses same control data
Taylor 2017 (in-person and internet) uses same control data
Alessi 2016 (in-person and group) uses same control data, SE converted SD

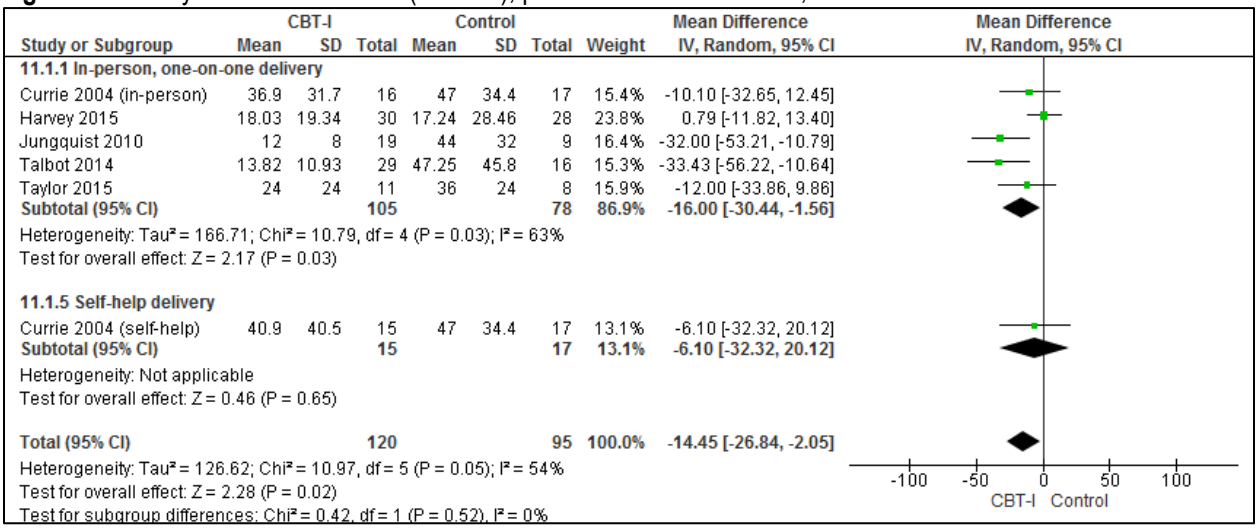
Wake after sleep onset (Diary): Insomnia and no comorbidities

Figure S16. Diary-determined WASO (minutes), post treatment differences, CBT-I vs. control



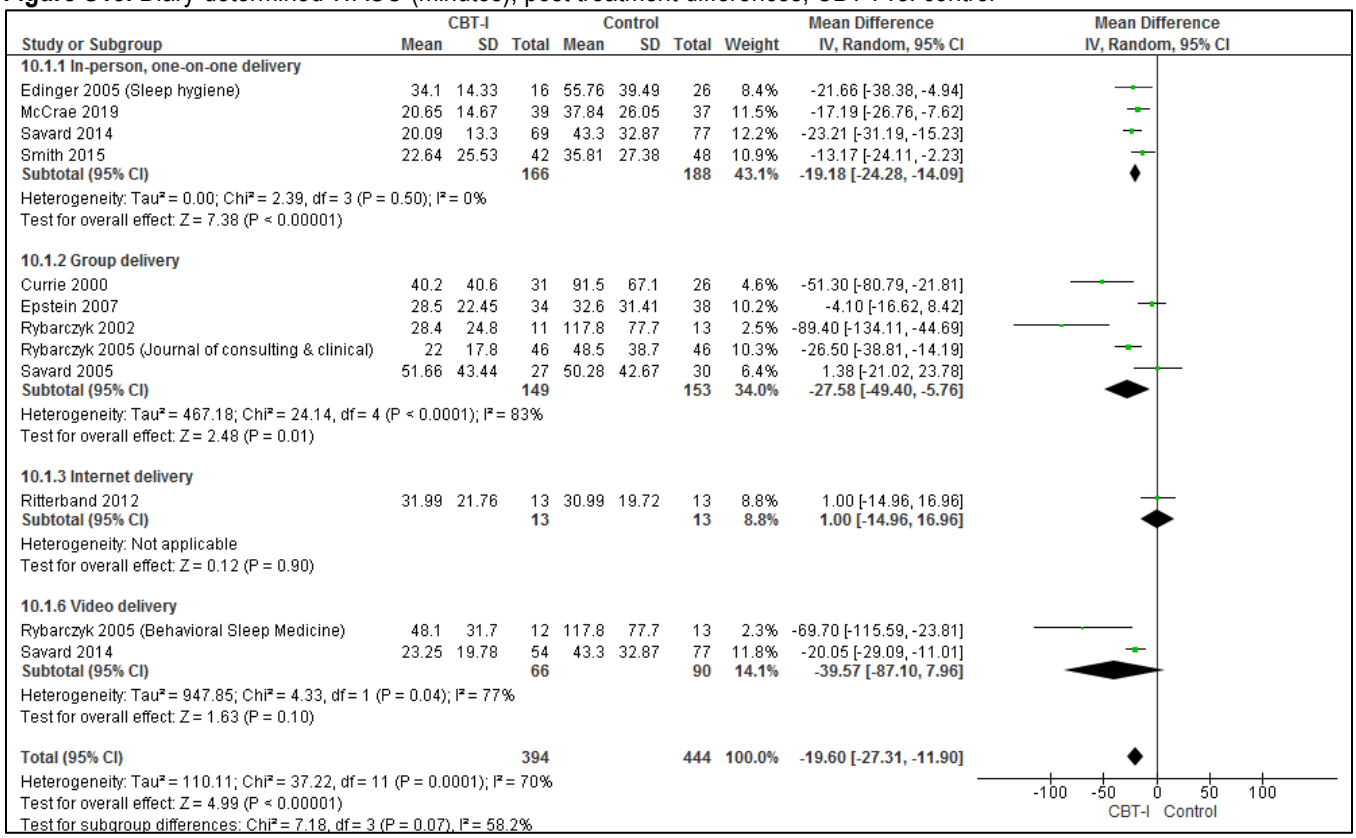
Wake after sleep onset (Diary): Insomnia and comorbid psychiatric conditions

Figure S17. Diary-determined WASO (minutes), post treatment differences, CBT-I vs. control



Wake after sleep onset: Insomnia and comorbid medical conditions

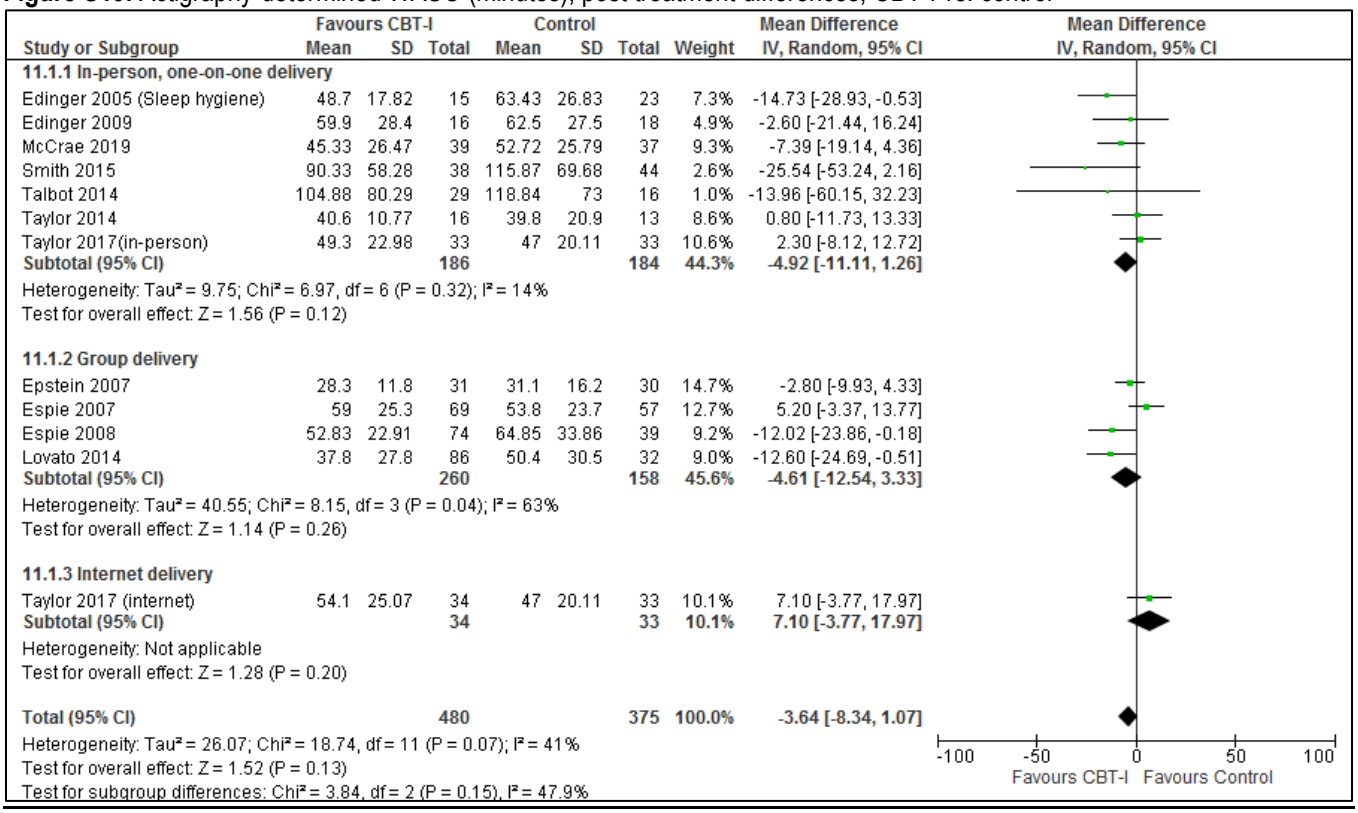
Figure S18. Diary-determined WASO (minutes), post treatment differences, CBT-I vs. control



*Edinger 2005 (in-person and self) pooled control data

Wake after sleep onset (Act)

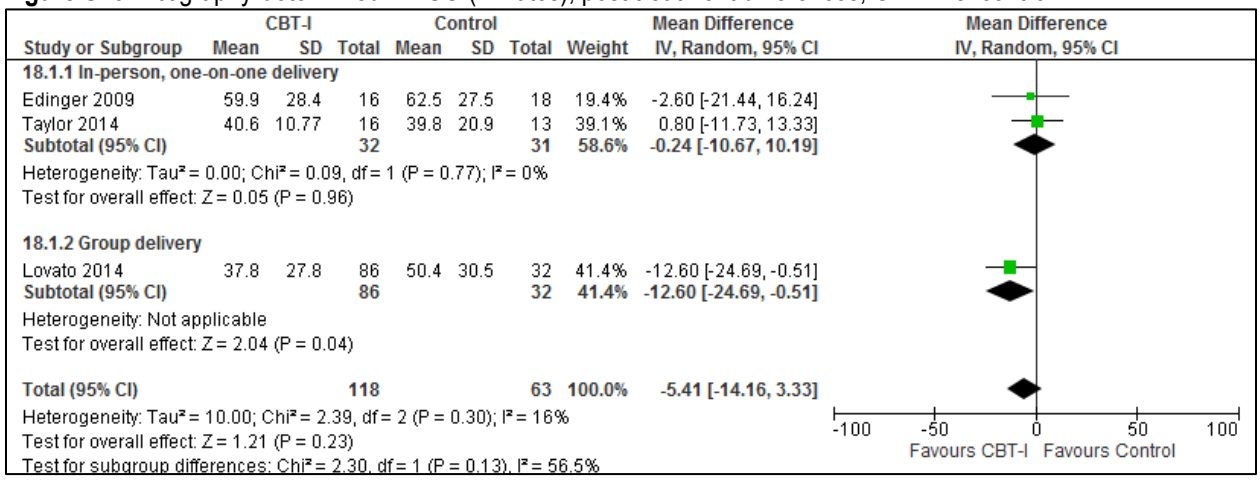
Figure S19. Actigraphy-determined WASO (minutes), post treatment differences, CBT-I vs. control



*Edinger 2005 (in-person and self) pooled control data
Taylor 2017 (in-person and internet) uses same control data, converted SE to SD

Wake after sleep onset (Act): Insomnia and no comorbidities

Figure S20. Actigraphy-determined WASO (minutes), post treatment differences, CBT-I vs. control



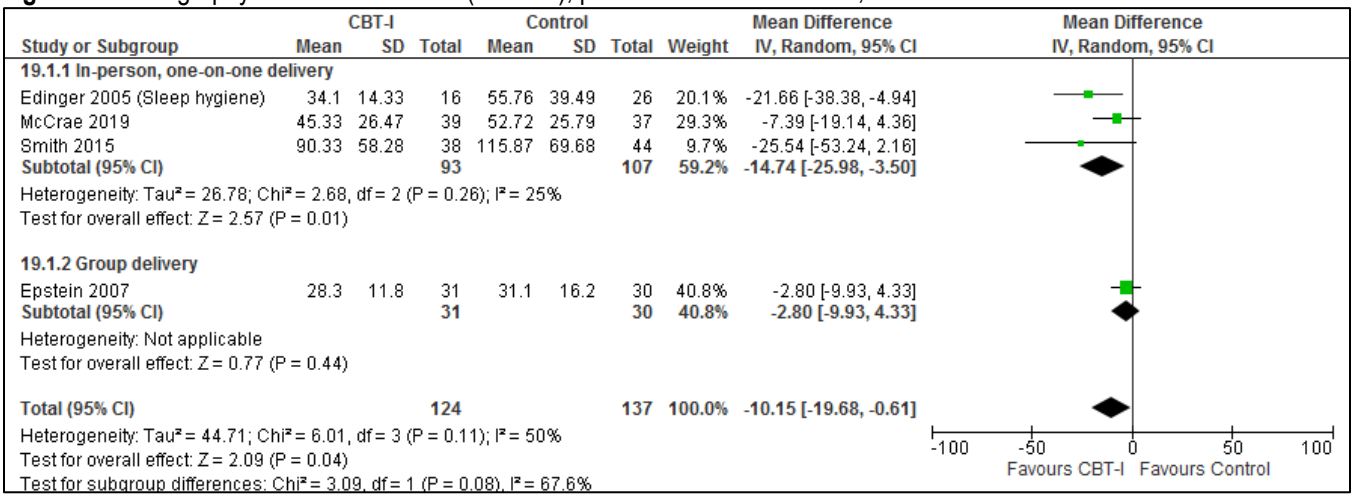
Wake after sleep onset (Act): Insomnia and comorbid psychiatric conditions

Table S5. Actigraphy-determined WASO (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Talbot 2014	In-person, one-on-one delivery	104.88	80.29	29	118.84	73	16	-13.96[-60.15, 32.23]

Wake after sleep onset (Act): Insomnia and comorbid medical conditions

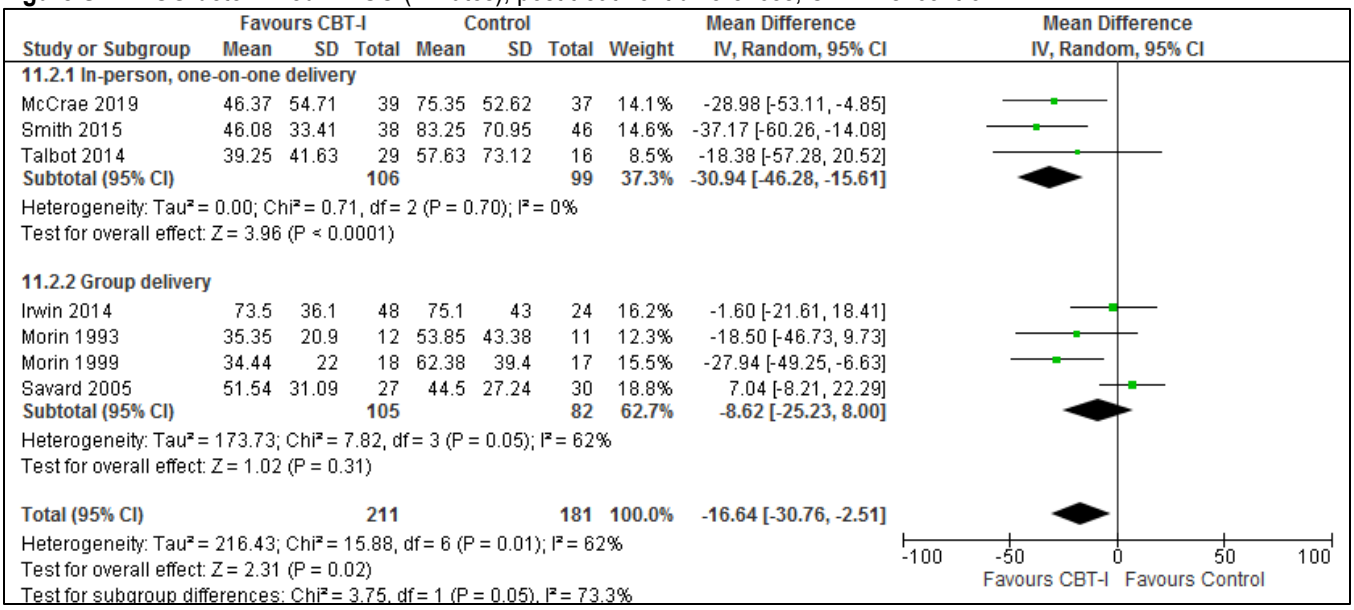
Figure S21. Actigraphy-determined WASO (minutes), post treatment differences, CBT-I vs. control



*Edinger 2005 (in-person and self) pooled control data

Wake after sleep onset (PSG)

Figure S22. PSG-determined WASO (minutes), post treatment differences, CBT-I vs. control



Wake after sleep onset (PSG): Insomnia and no comorbidities

Table S6. PSG-determined WASO (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Morin 1993	Group delivery	35.35	20.9	12	53.85	43.38	11	-18.50[-46.73, 9.73]
Morin 1999	Group delivery	34.44	22	18	62.38	39.4	17	-27.94[-49.25, -6.63]

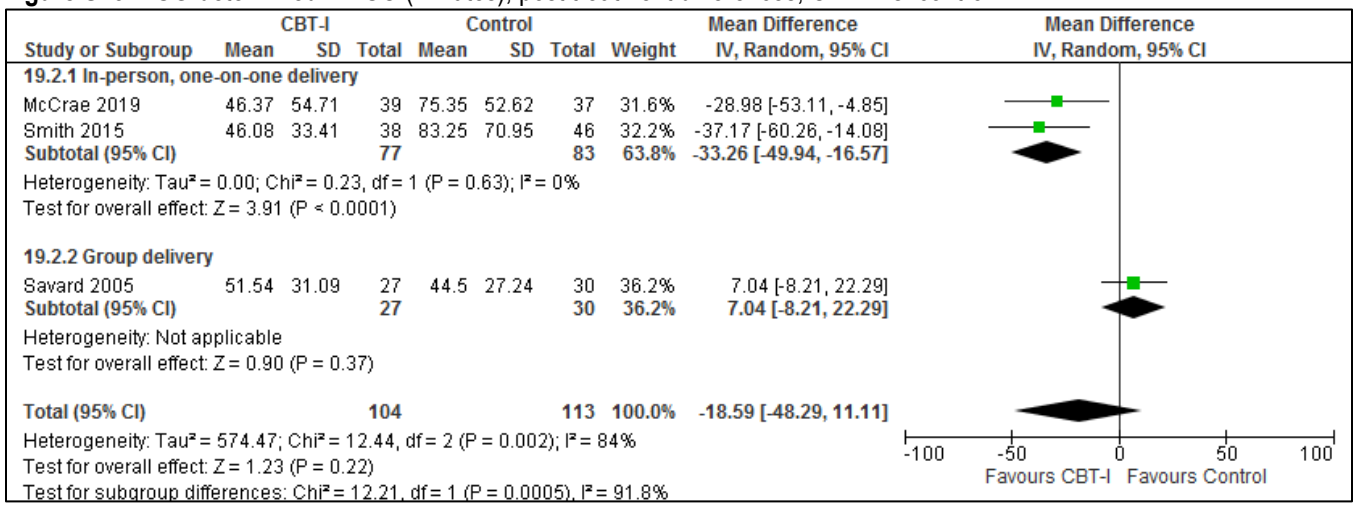
Wake after sleep onset (PSG): Insomnia and comorbid psychiatric conditions

Table S7. PSG-determined WASO (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Talbot 2014	In-person, one-on-one delivery	39.25	41.63	29	57.63	73.12	16	-18.38[-57.28, 20.52]

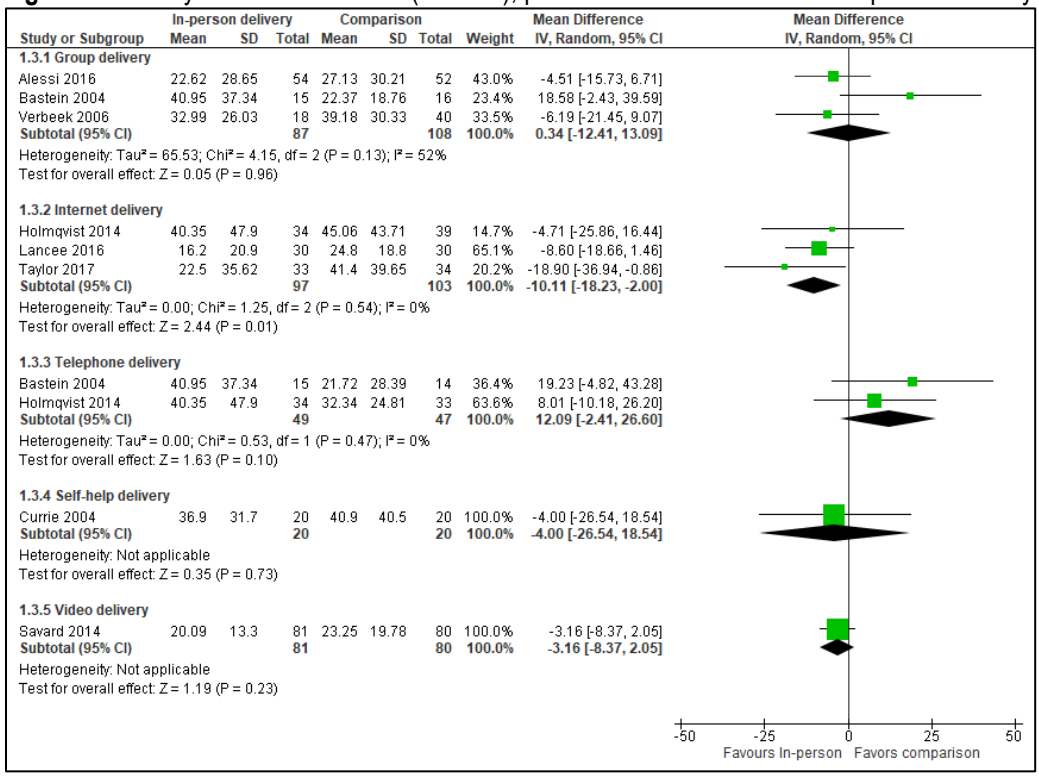
Wake after sleep onset (PSG): Insomnia and comorbid medical conditions

Figure S23. PSG-determined WASO (minutes), post treatment differences, CBT-I vs. control



Wake after sleep onset (Diary): In-person delivery vs. comparison

Figure S24. Diary-determined WASO (minutes), post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Wake after sleep onset (Act): In-person delivery vs. comparison

Table S8. Actigraphy-determined WASO (minutes), post treatment differences for in-person delivery

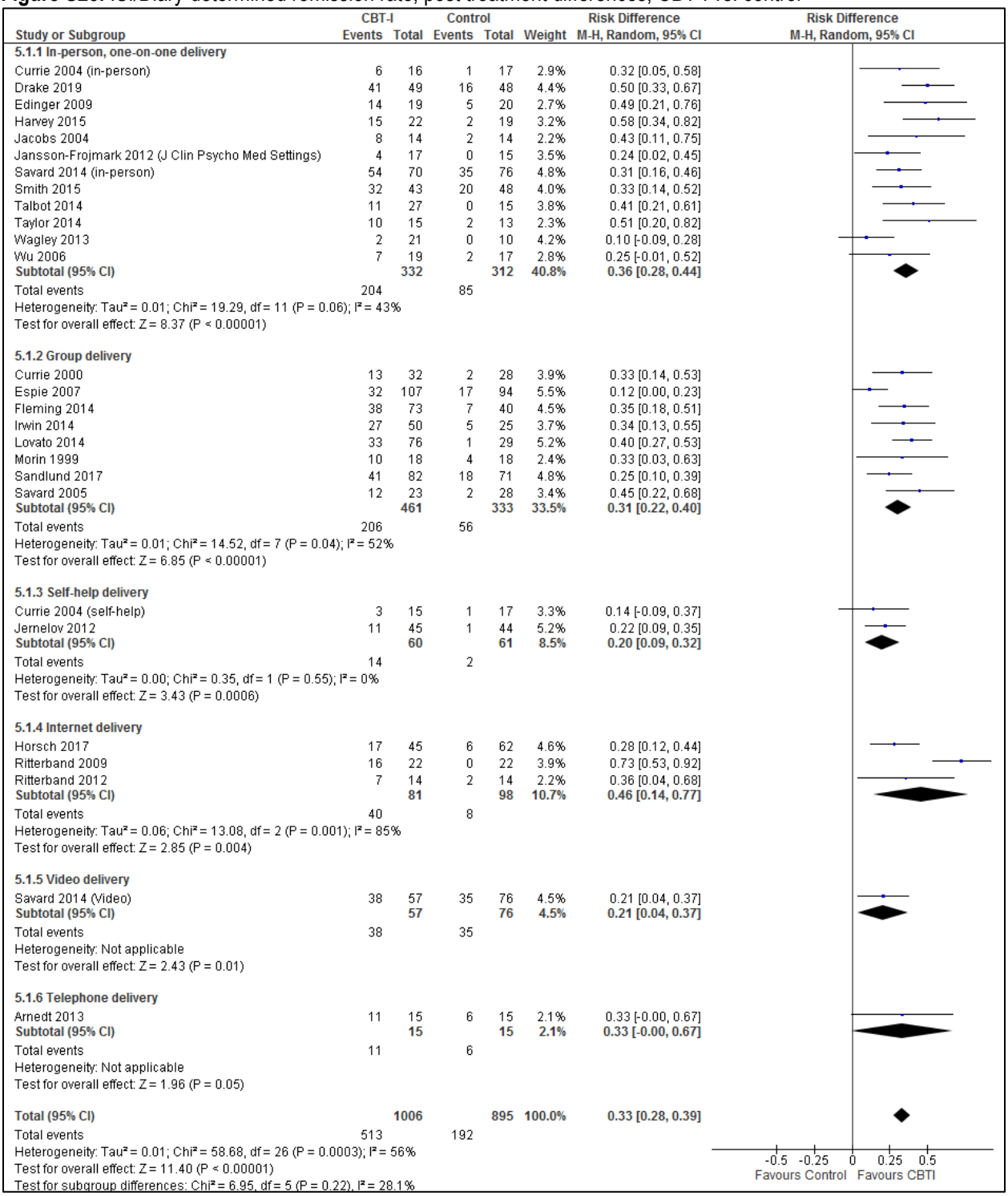
Study	In-person CBT-I			Group delivery CBT-I			Mean Difference, [95% CI]
	Mean	SD	Total	Mean	SD	Total	
Yamadera 2013	15.8	11.18	20	12.5	10.5	25	3.30[-3.10, 9.70]

Table S9. Actigraphy-determined WASO (minutes), post treatment differences for in-person delivery

Study	In-person CBT-I			Internet delivery CBT-I			Mean Difference, [95% CI]
	Mean	SD	Total	Mean	SD	Total	
Taylor 2017	49.3	22.8	33	54.1	25.07	34	-4.80 [-16.27, 6.67]

Remission rates

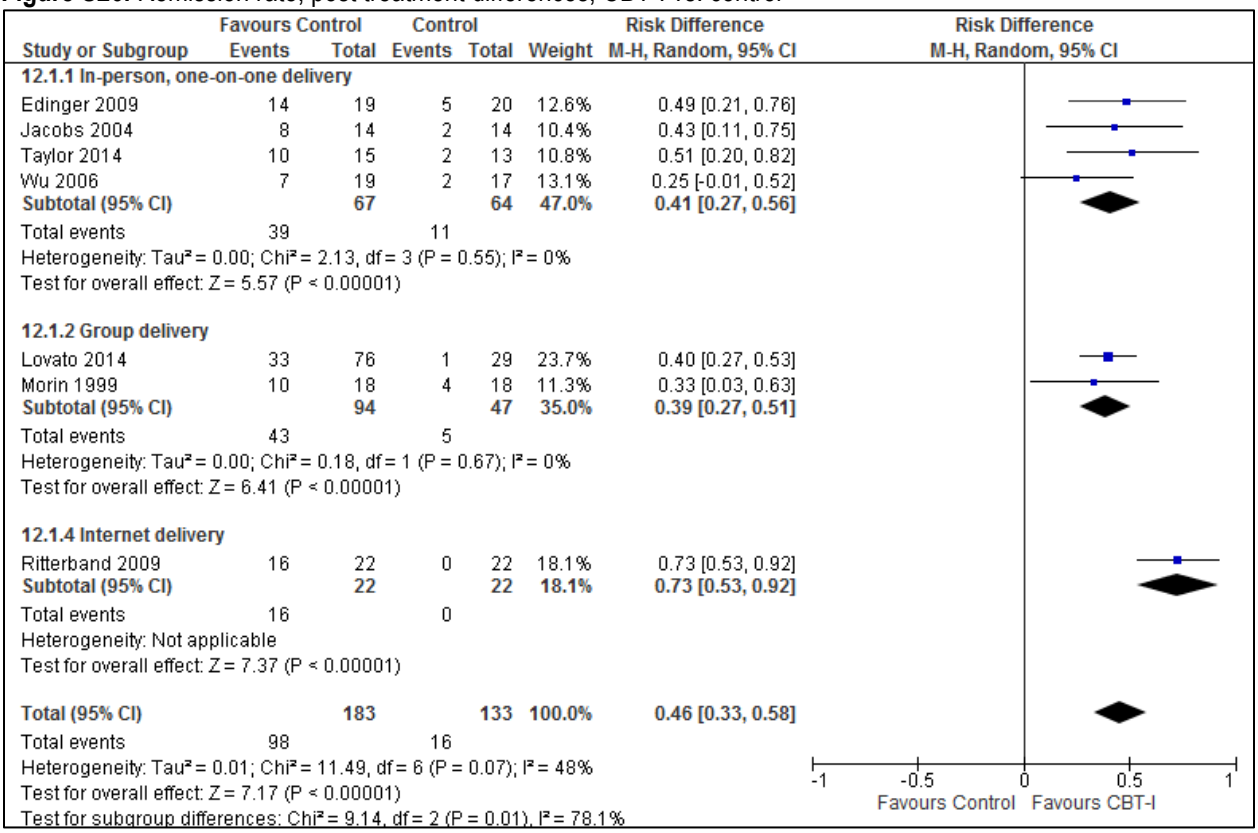
Figure S25. ISI/Diary-determined remission rate, post treatment differences, CBT-I vs. control



*Currie 2004 (in-person and self) uses same control data
Savard 2014 (in-person and video) uses same control data

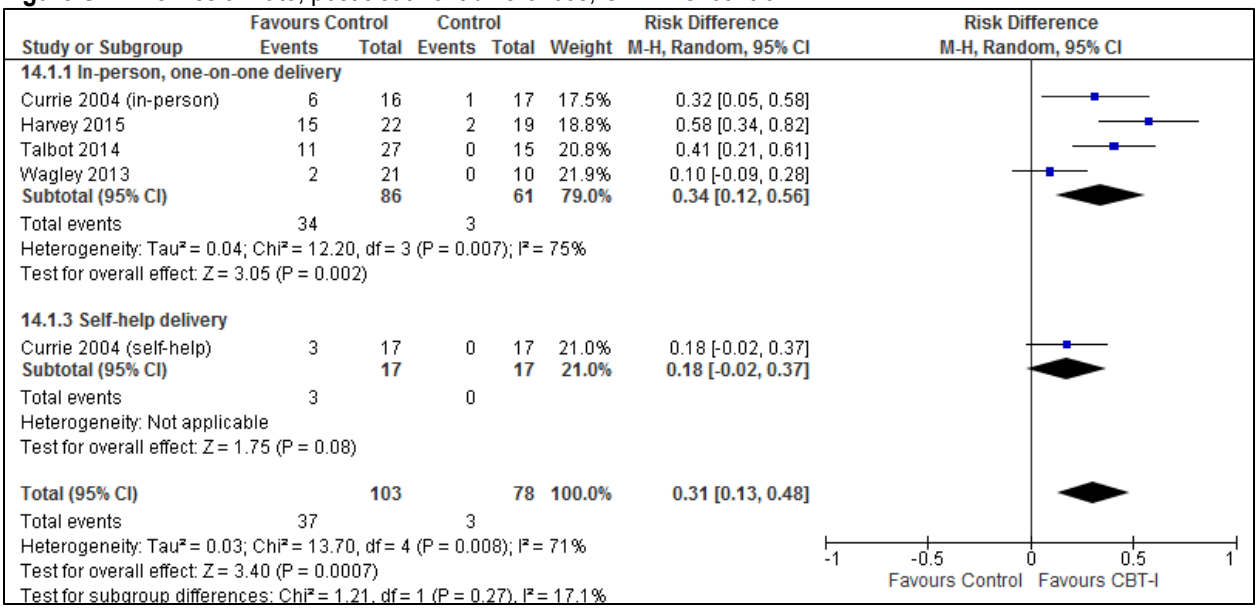
Remission rate: Insomnia and no comorbidities

Figure S26. Remission rate, post treatment differences, CBT-I vs. control



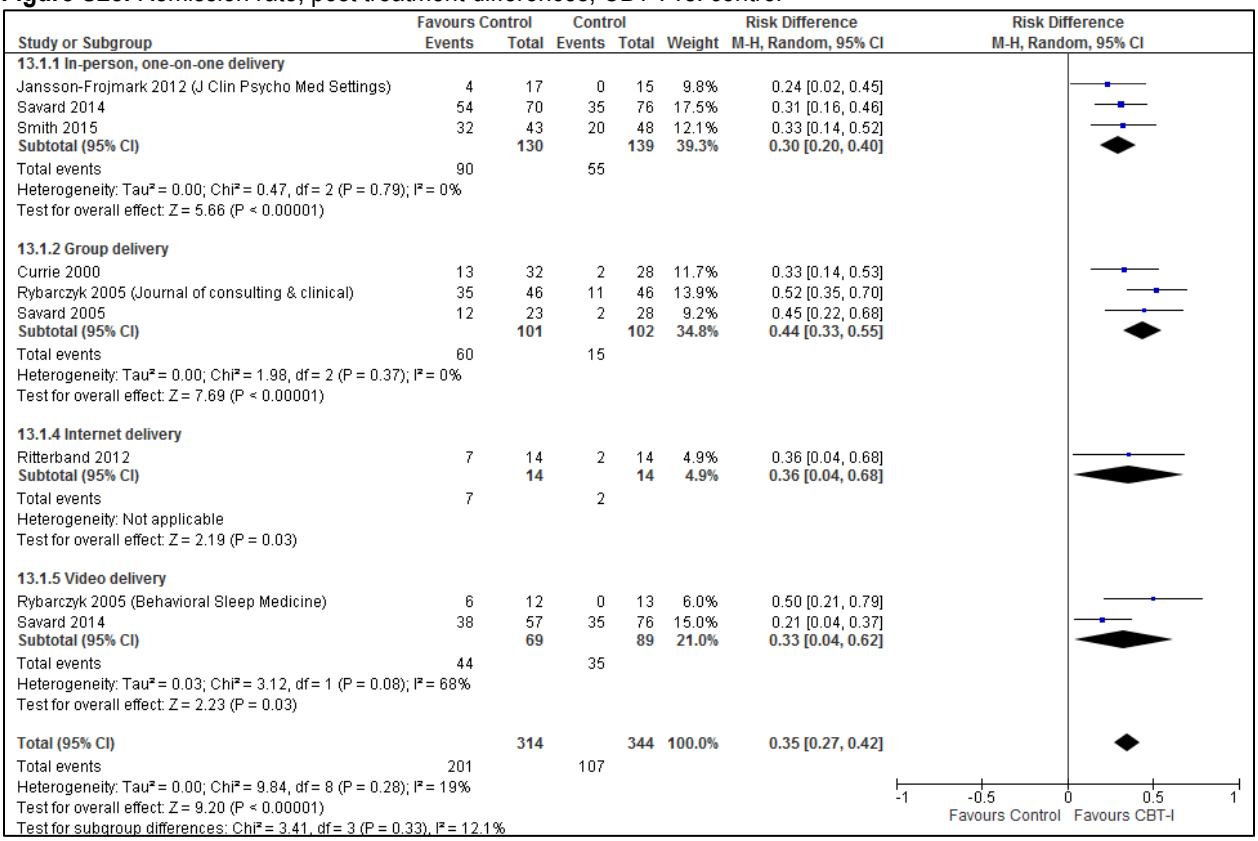
Remission rate: Insomnia and comorbid psychiatric conditions

Figure S27. Remission rate, post treatment differences, CBT-I vs. control



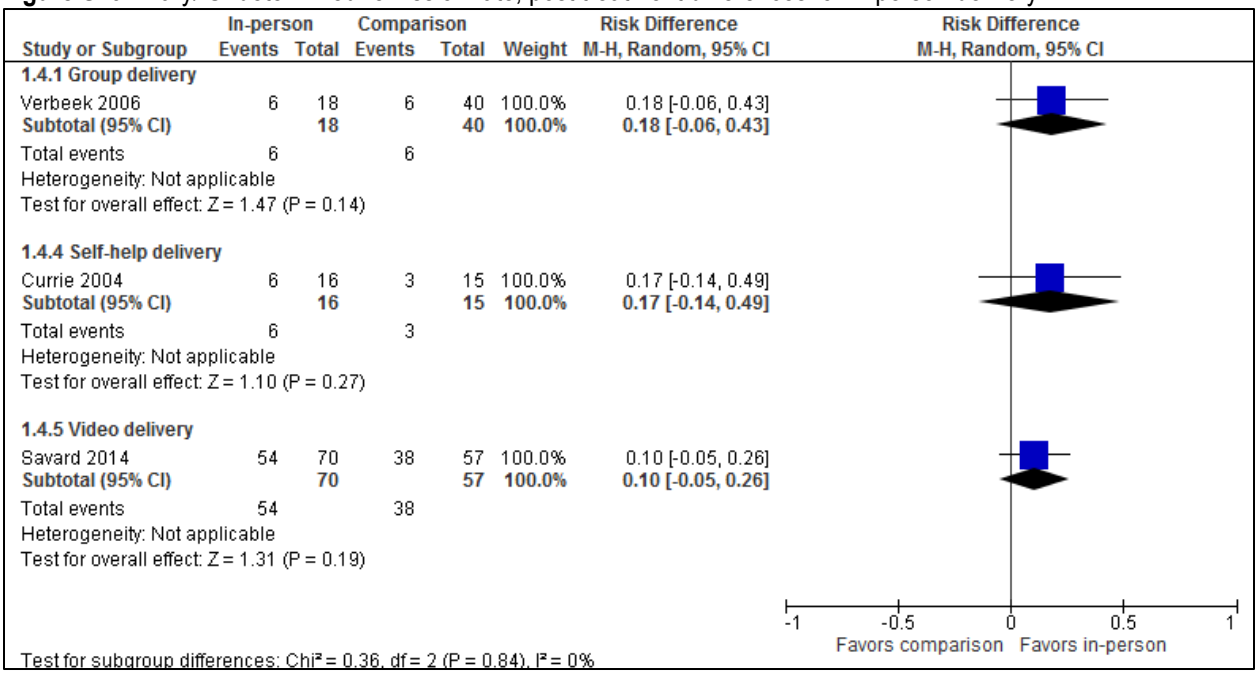
Remission rate: Insomnia and comorbid medical conditions

Figure S28. Remission rate, post treatment differences, CBT-I vs. control



Remission rate: In-person delivery vs. comparison

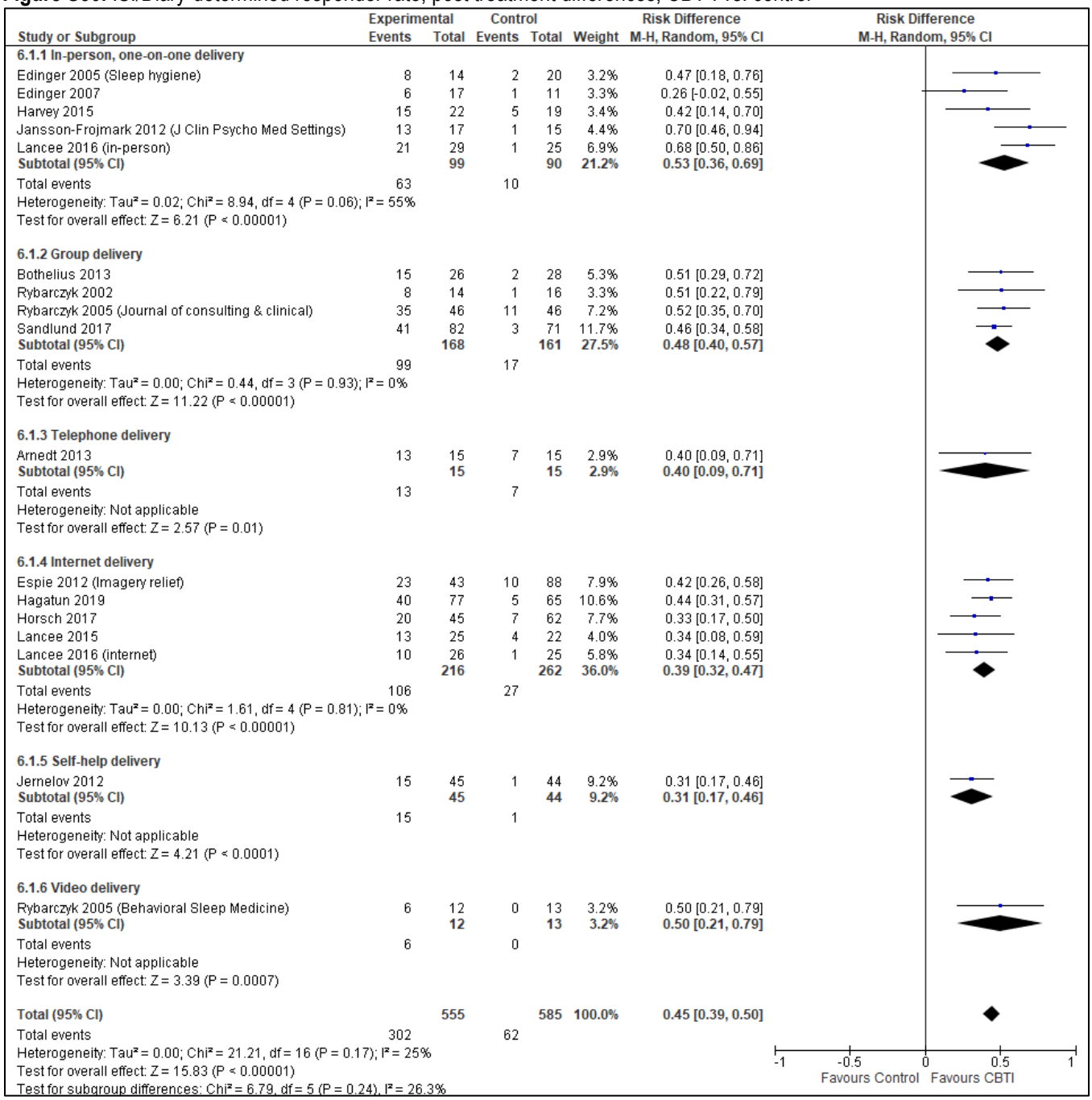
Figure S29. Diary/ISI-determined remission rate, post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Responder rates

Figure S30. ISI/Diary-determined responder rate, post treatment differences, CBT-I vs. control



*Espie 2012 (imagery and usual care) pooled control date
Lancee 2016 (in-person and internet) uses same control data
Edinger 2005 (usual care and sleep hygiene) pooled control data

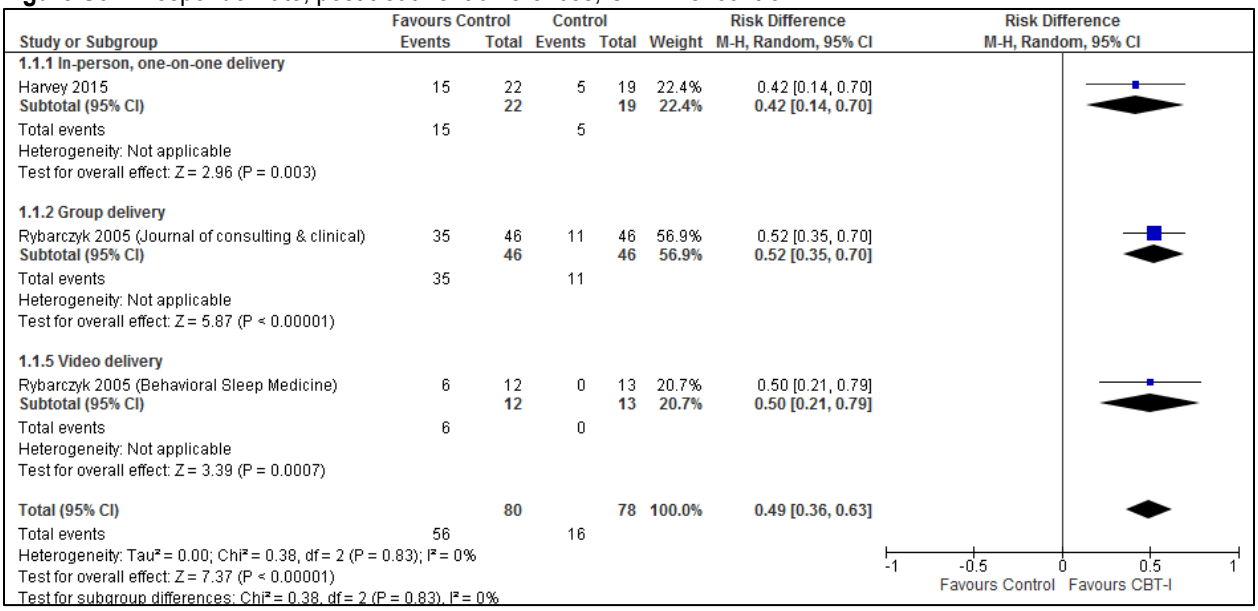
Responder rate: Insomnia and no comorbidities

Table S10. Responder rate, post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I		Control		Risk Difference [95% CI]
		Events	Total	Events	Total	
Edinger 2007	In-person delivery	6	17	1	11	0.26[-0.02, 0.55]
Hagatun 2019	Internet delivery	40	77	5	65	0.44[0.31, 0.57]

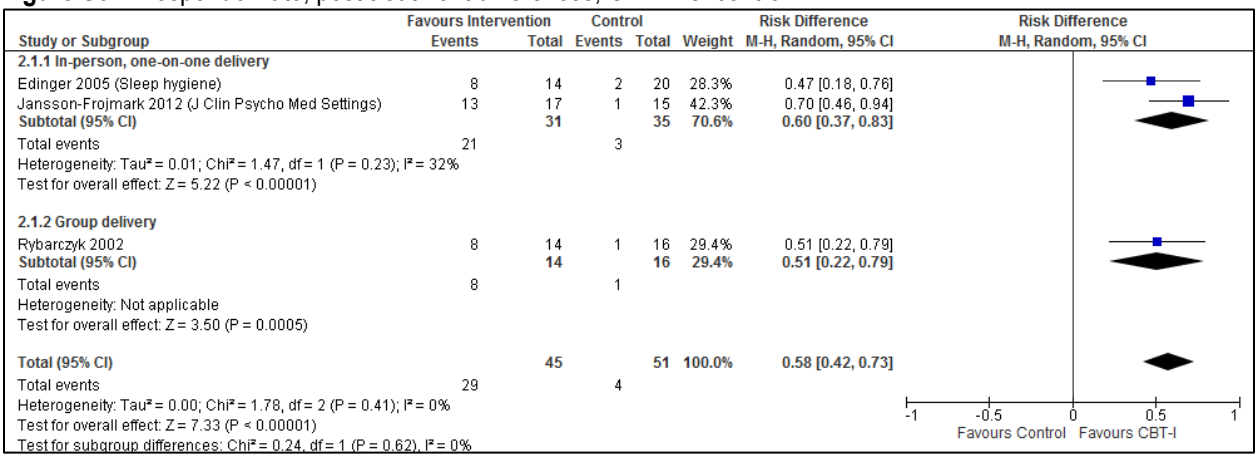
Responder rate: Comorbid insomnia to psychiatric conditions

Figure S31. Responder rate, post treatment differences, CBT-I vs. control



Responder rate: Comorbid insomnia to medical conditions

Figure S32. Responder rate, post treatment differences, CBT-I vs. control



Edinger 2005 (usual care and sleep hygiene) pooled control data

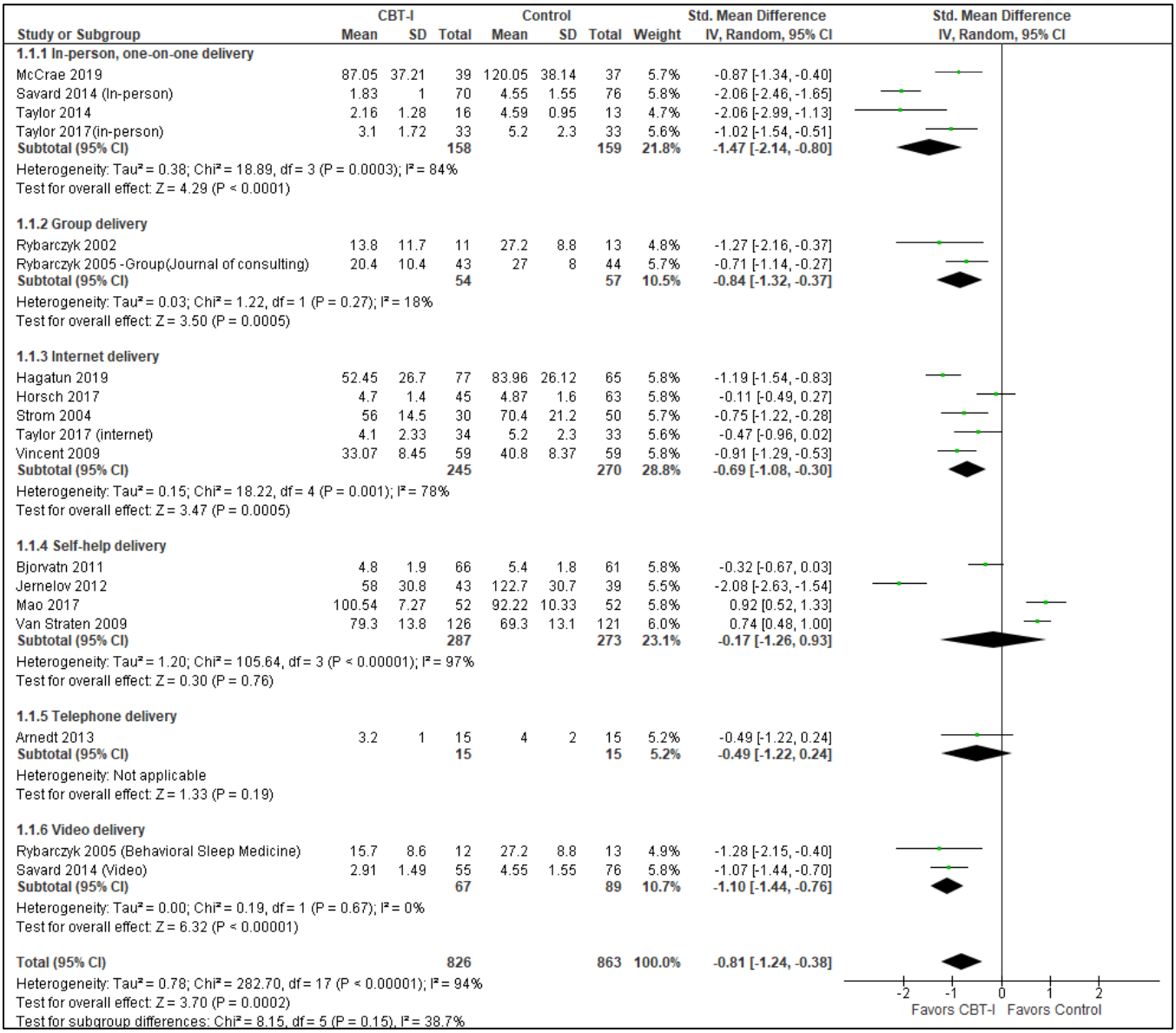
Responder rate: In-person delivery vs. comparison

Table S11. ISI -determined remission rate, post treatment differences for in-person delivery

Study	CBT-I In-person delivery		CBT-I Internet delivery		Risk Difference [95% CI]
	Events	Total	Events	Total	
Lancee 2016	21	30	10	27	0.33[0.08, 0.57]

Beliefs and attitudes about sleep

Figure S33. Dysfunctional Beliefs and Attitudes about Sleep (DBAS)-determined beliefs and attitudes about sleep, post treatment differences, CBT-I vs. control

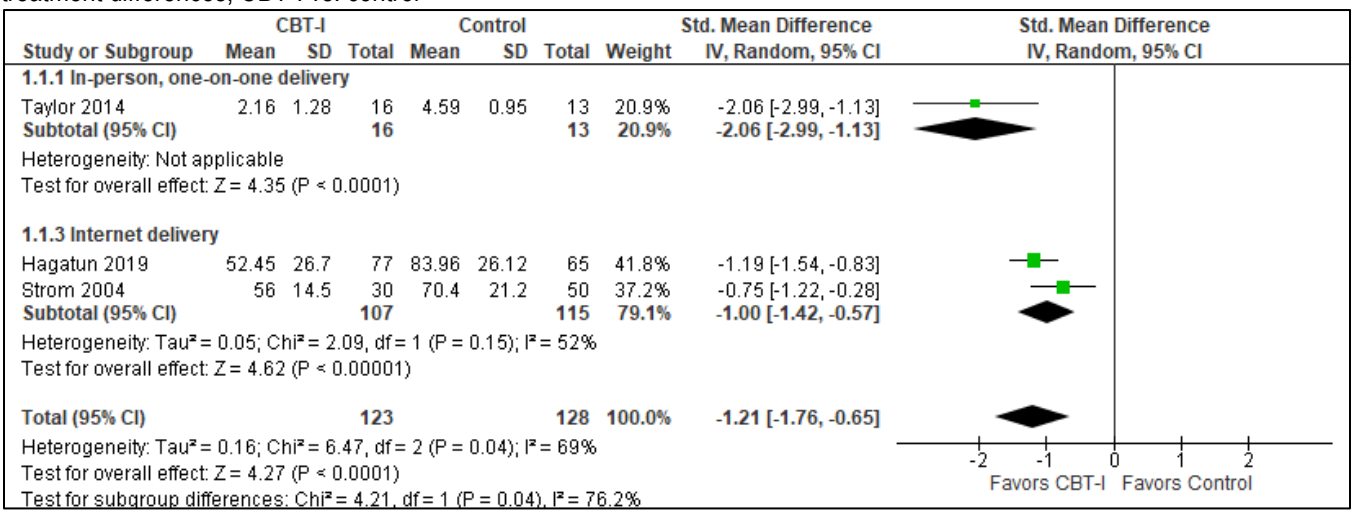


*Savard 2014 (in-person and video) uses same control data

*Taylor 2017 (in-person and internet) uses same control data

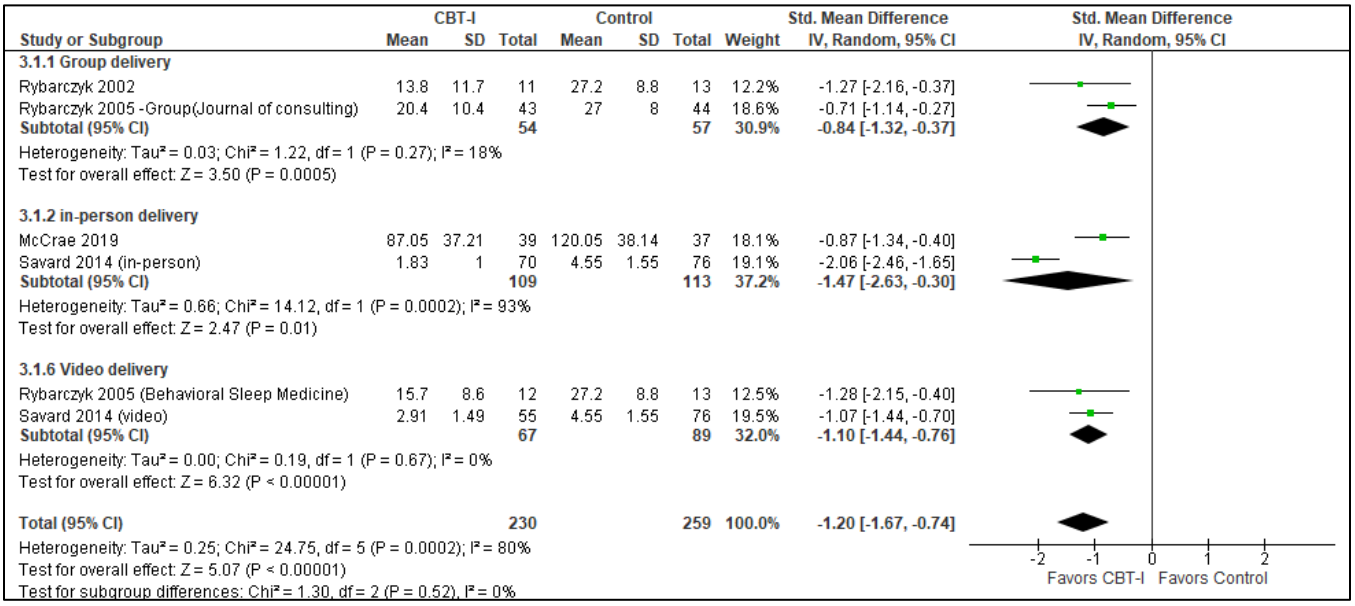
Beliefs and attitudes about sleep: Insomnia and no comorbidities

Figure S34. Dysfunctional Beliefs and Attitudes about Sleep (DBAS)-determined beliefs and attitudes about sleep, post treatment differences, CBT-I vs. control



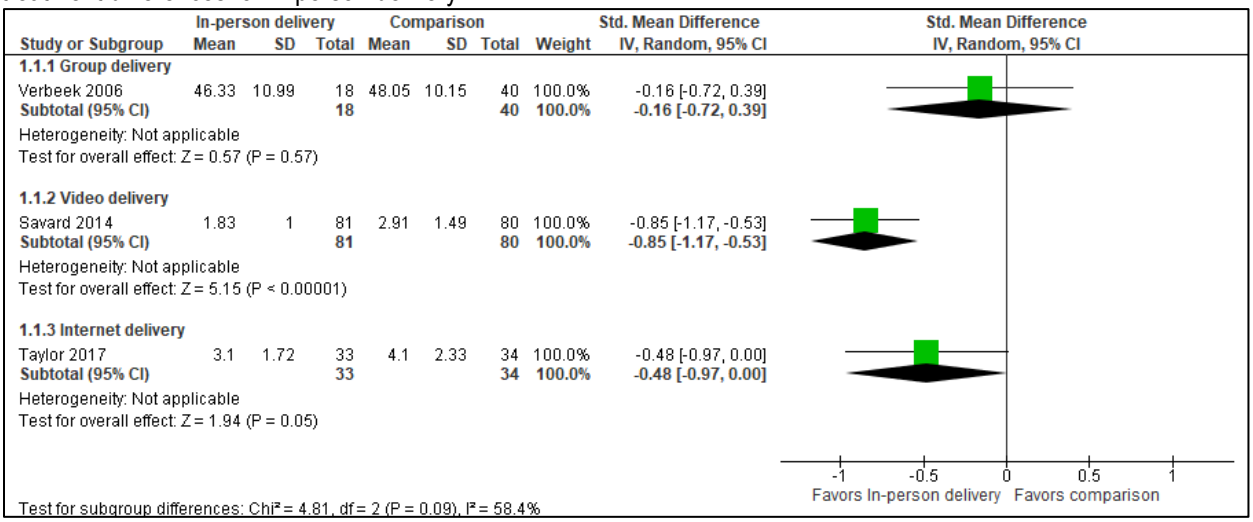
Beliefs and attitudes about sleep: Insomnia and comorbid medical conditions

Figure S35. Dysfunctional Beliefs and Attitudes about Sleep (DBAS)-determined beliefs and attitudes about sleep, post treatment differences, CBT-I vs. control



Beliefs and attitudes about sleep: In-person delivery vs. comparison

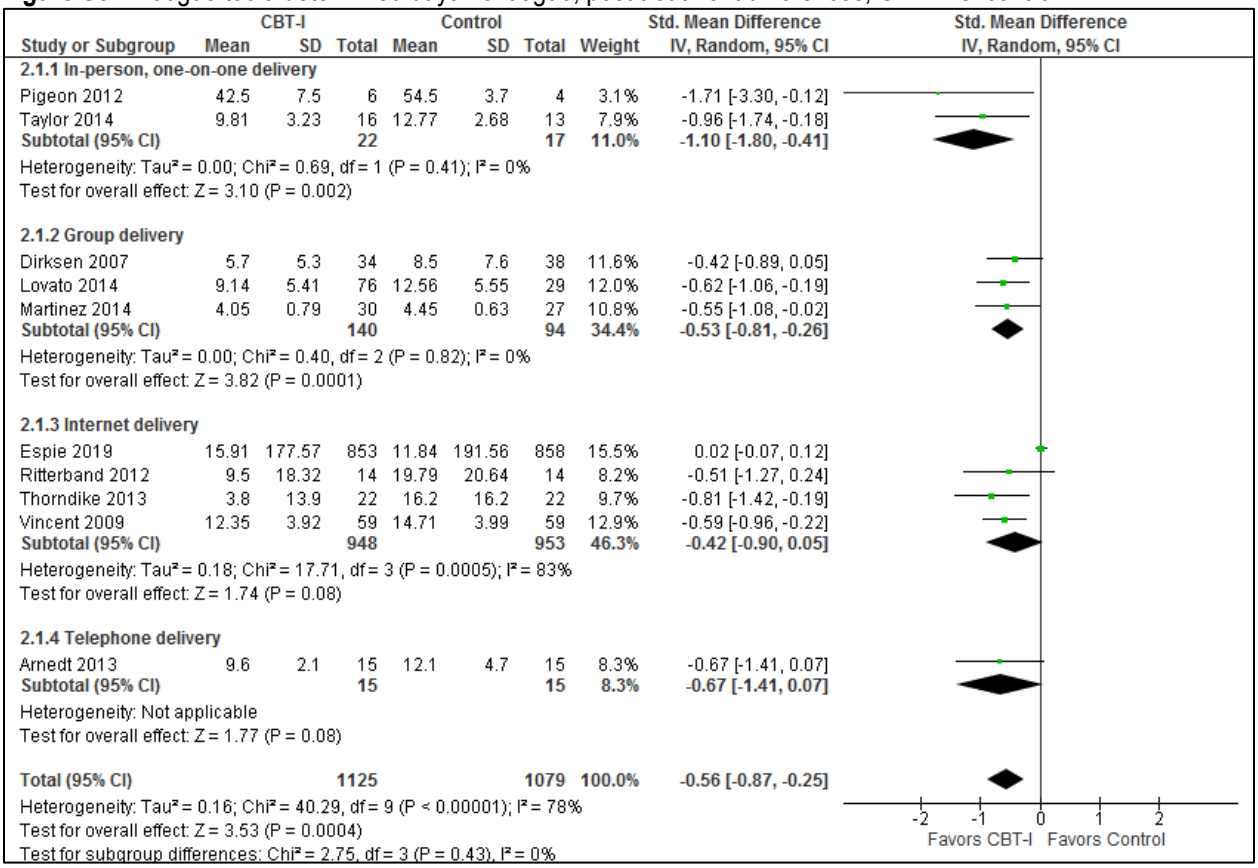
Figure S36. Dysfunctional Beliefs and Attitudes about Sleep (DBAS)-determined beliefs and attitudes about sleep, post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Daytime fatigue

Figure S37. Fatigue tools-determined daytime fatigue, post treatment differences, CBT-I vs. control



*Espie 2019 converted SE to SD

*Vincent 2009 converted SE to SD

Daytime fatigue: Insomnia and no comorbidities

Table S12. Fatigue tools-determined daytime fatigue, post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Taylor 2014	In-person delivery	9.81	3.23	16	12.77	2.68	13	-0.96[-1.74, -0.18]
Lovato 2014	Group delivery	9.14	5.41	76	12.56	5.55	29	-0.62[-1.06, -0.19]

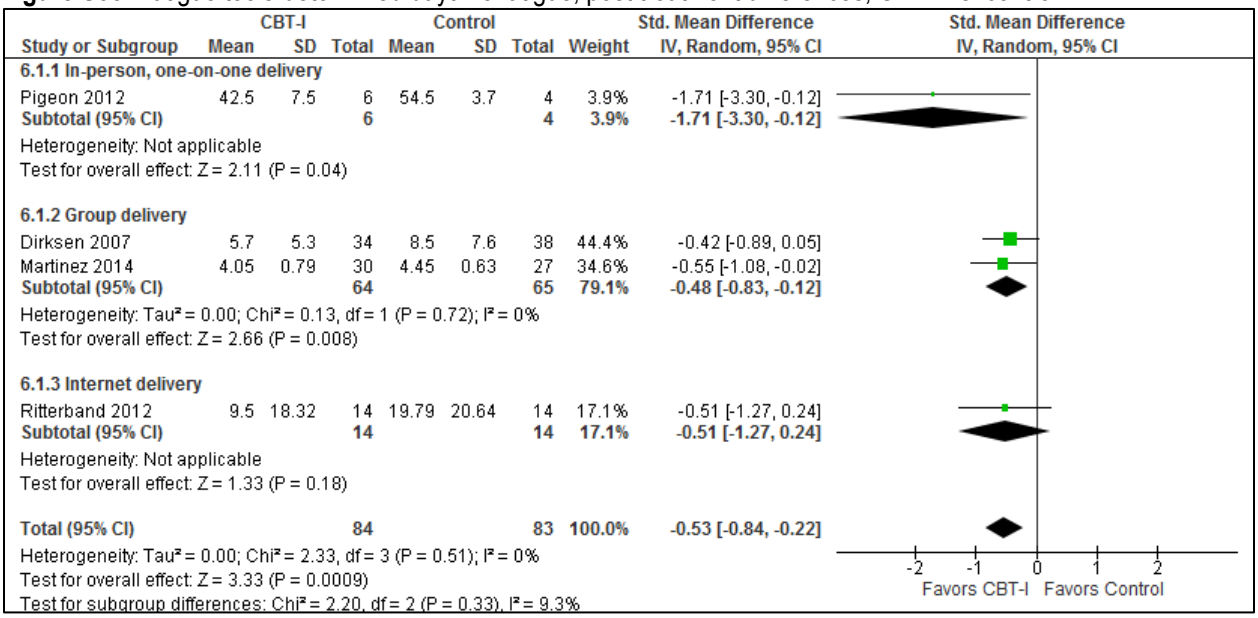
Daytime fatigue: Insomnia and comorbid psychiatric conditions

Table S13. Fatigue tools-determined daytime fatigue, post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Thorndike2013	Internet delivery	3.8	13.9	22	16.18	16.16	22	-0.81[-1.42, -0.19]

Daytime fatigue: Insomnia and comorbid medical conditions

Figure S38. Fatigue tools-determined daytime fatigue, post treatment differences, CBT-I vs. control



Daytime fatigue: In-person delivery vs. comparison:

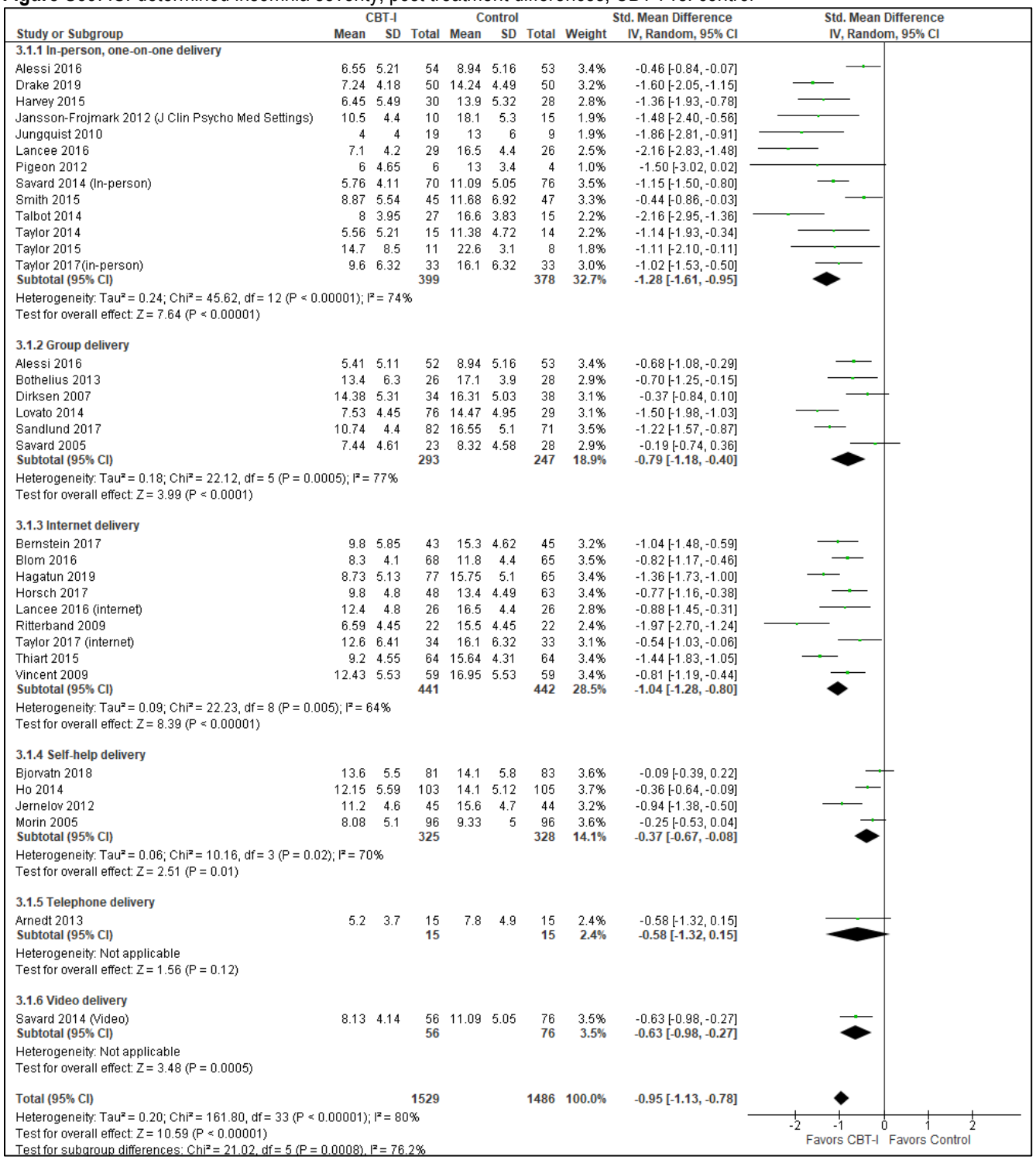
Table S14. Diary-determined quality of sleep, post treatment differences for in-person delivery

Study	CBT-I In-person delivery			CBT-I Internet			Std. Mean Difference, [95% CI]
	Mean	SD	Total	Mean	SD	Total	
Holmqvist 2014	12.65	4.72	32	13.53	5.24	38	-0.17[-0.64, 0.30]

Study	CBT-I In-person delivery			CBT-I Telehealth delivery			Std. Mean Difference, [95% CI]
	Mean	SD	Total	Mean	SD	Total	
Holmqvist 2014	12.65	4.72	32	12.5	4.75	32	0.03[-0.46, 0.52]

Insomnia severity

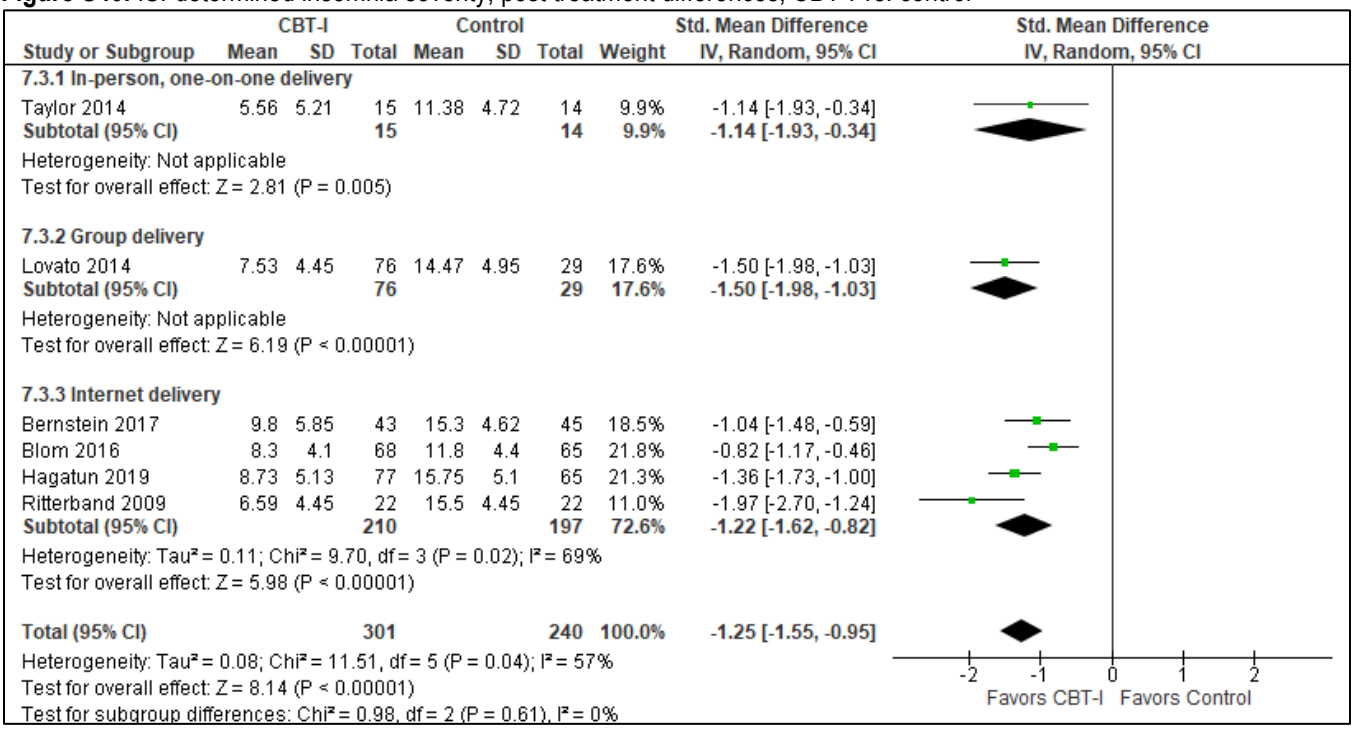
Figure S39. ISI-determined insomnia severity, post treatment differences, CBT-I vs. control



*Lancee 2016 (in-person and internet) uses same control data
*Savard 2014 (in-person and video) uses same control data
*Taylor 2017 (in-person and internet) uses same control data
*Bernstein 2017 SD calculated from CI
*Morin 2005 SD calculated from CI
*Alessi 2016 (in-person and group use same control data) SD calculated from SE
*Ritterband 2009 SD calculated from CI

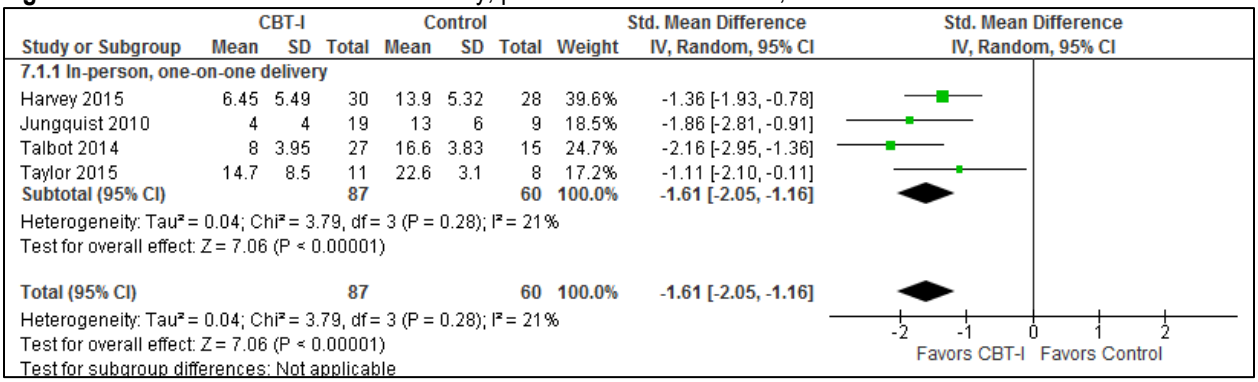
Insomnia severity: Insomnia and no comorbidities

Figure S40. ISI-determined insomnia severity, post treatment differences, CBT-I vs. control



Insomnia severity: Insomnia and comorbid psychiatric conditions

Figure S41. ISI-determined insomnia severity, post treatment differences, CBT-I vs. control



Insomnia severity: Insomnia and comorbid medical conditions

Figure S42. ISI-determined insomnia severity, post treatment differences, CBT-I vs. control

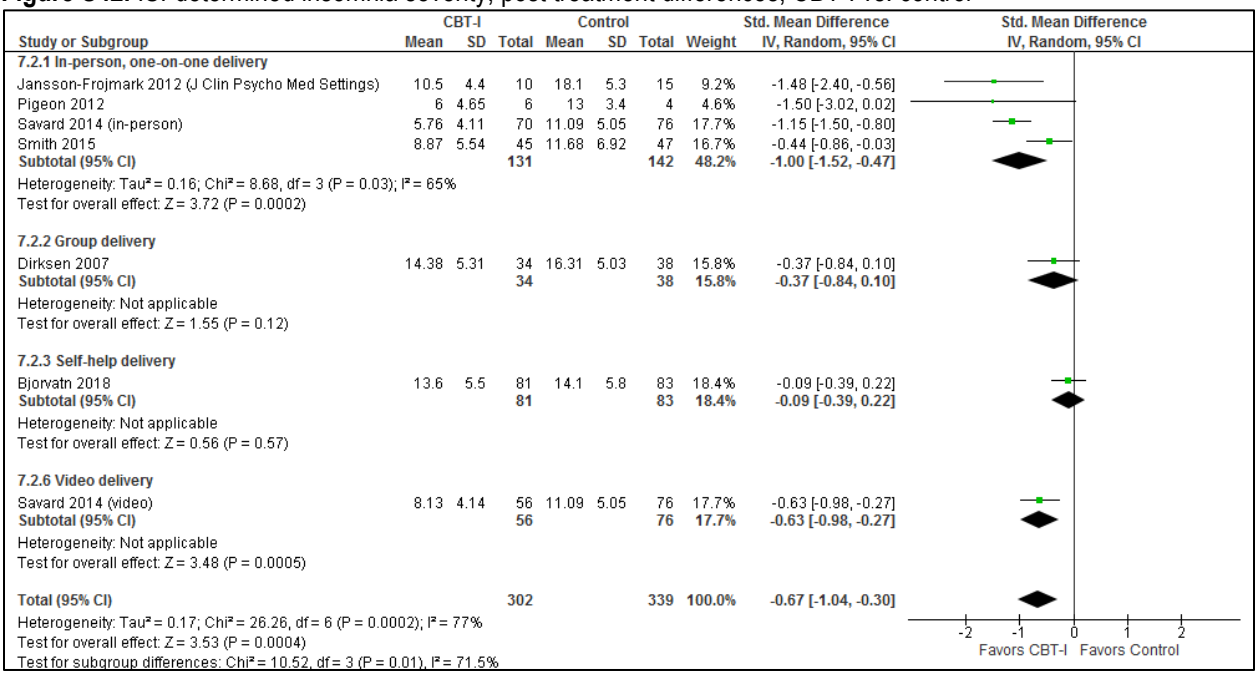
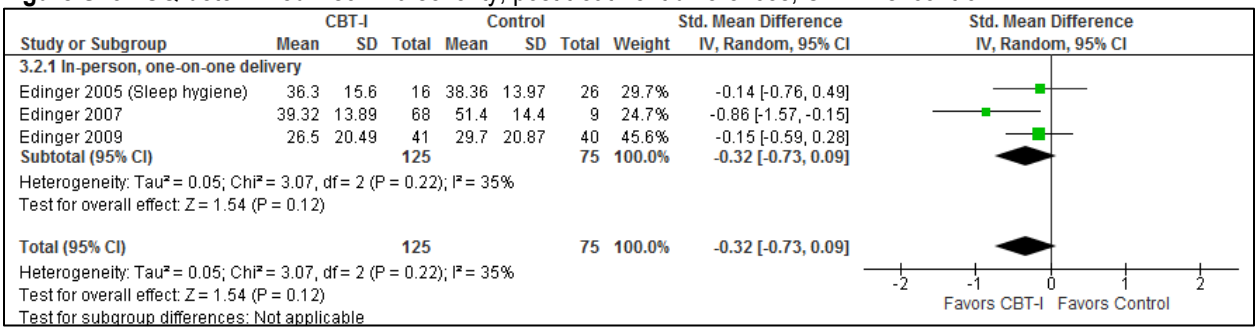


Figure S43. ISQ-determined insomnia severity, post treatment differences, CBT-I vs. control



*Edinger 2005 usual care and sleep hygiene data pooled

Insomnia severity: Insomnia and no comorbidities

Table S15 ISQ-determined insomnia severity, post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2007	In-person delivery	39.32	13.89	68	51.4	14.4	9	-0.86[-1.57, -0.15]
Edinger 2009	In-person delivery	26.5	20.49	41	29.7	20.87	40	-0.15[-0.59, 0.28]

Insomnia severity: Insomnia and comorbid medical conditions

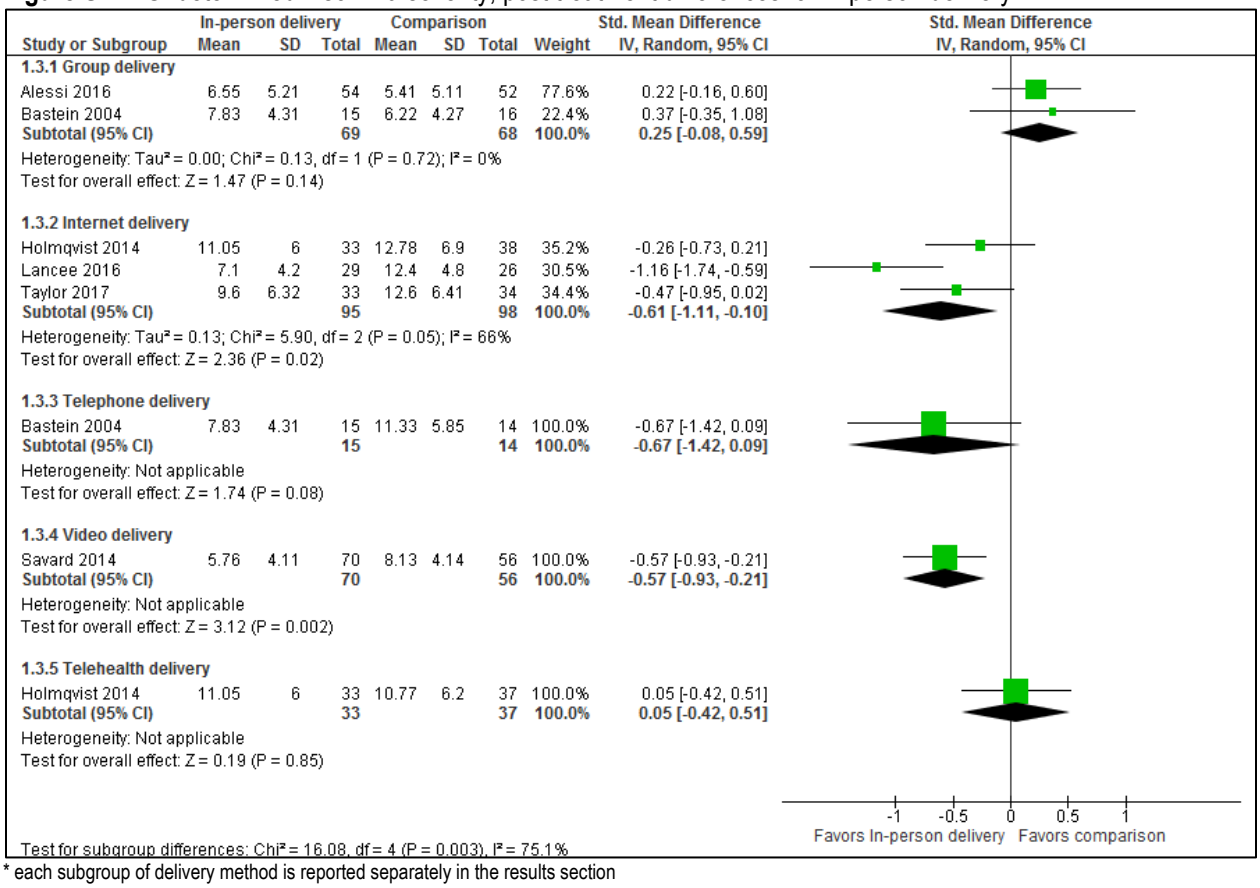
Table S16. ISQ-determined insomnia severity, post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	36.3	15.6	16	38.36	13.97	26	-0.14[-0.76, -0.49]

*pooled data of sleep hygiene and usual care groups

Insomnia severity: In-person delivery vs. comparison:

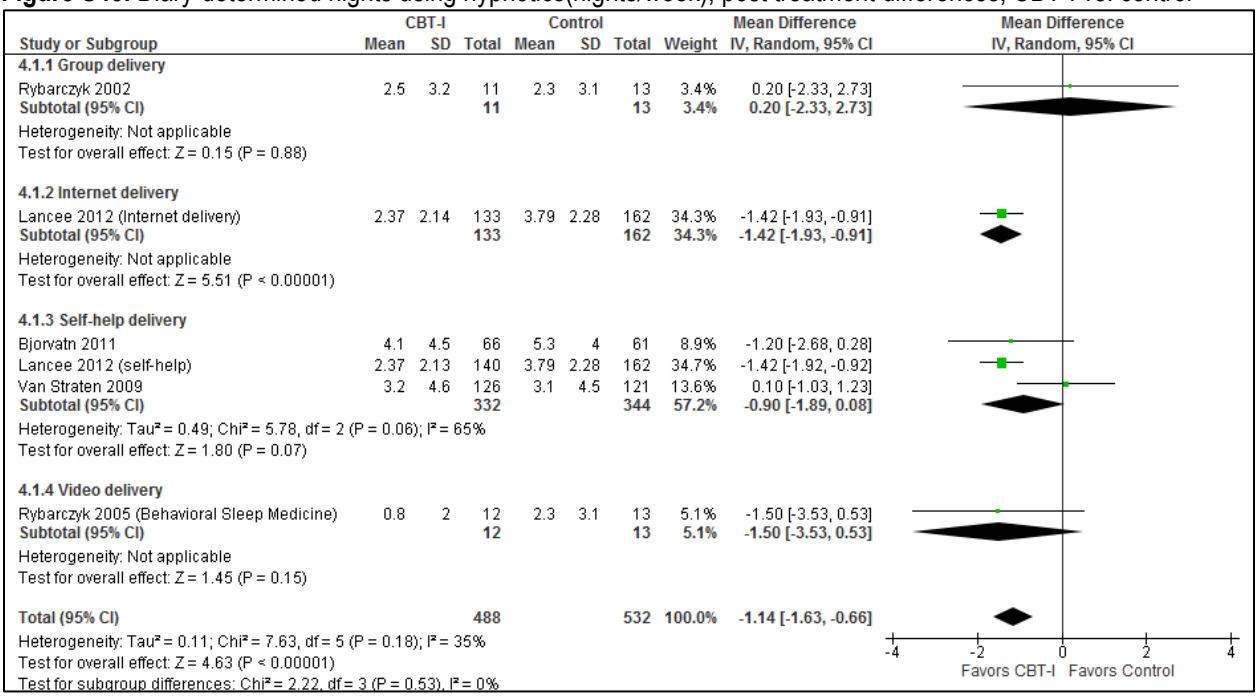
Figure S44. ISI-determined insomnia severity, post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Nights using hypnotics

Figure S45. Diary-determined nights using hypnotics(nights/week), post treatment differences, CBT-I vs. control



*Lancee 2012 (internet and self-help) uses same control data

Nights using hypnotics: Insomnia and no comorbidities

Table S17. Diary-determined number of awakenings (no./night), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Morin 1993	Group delivery	2.5	3.2	11	2.3	3.1	13	0.20[-2.33, 2.73]

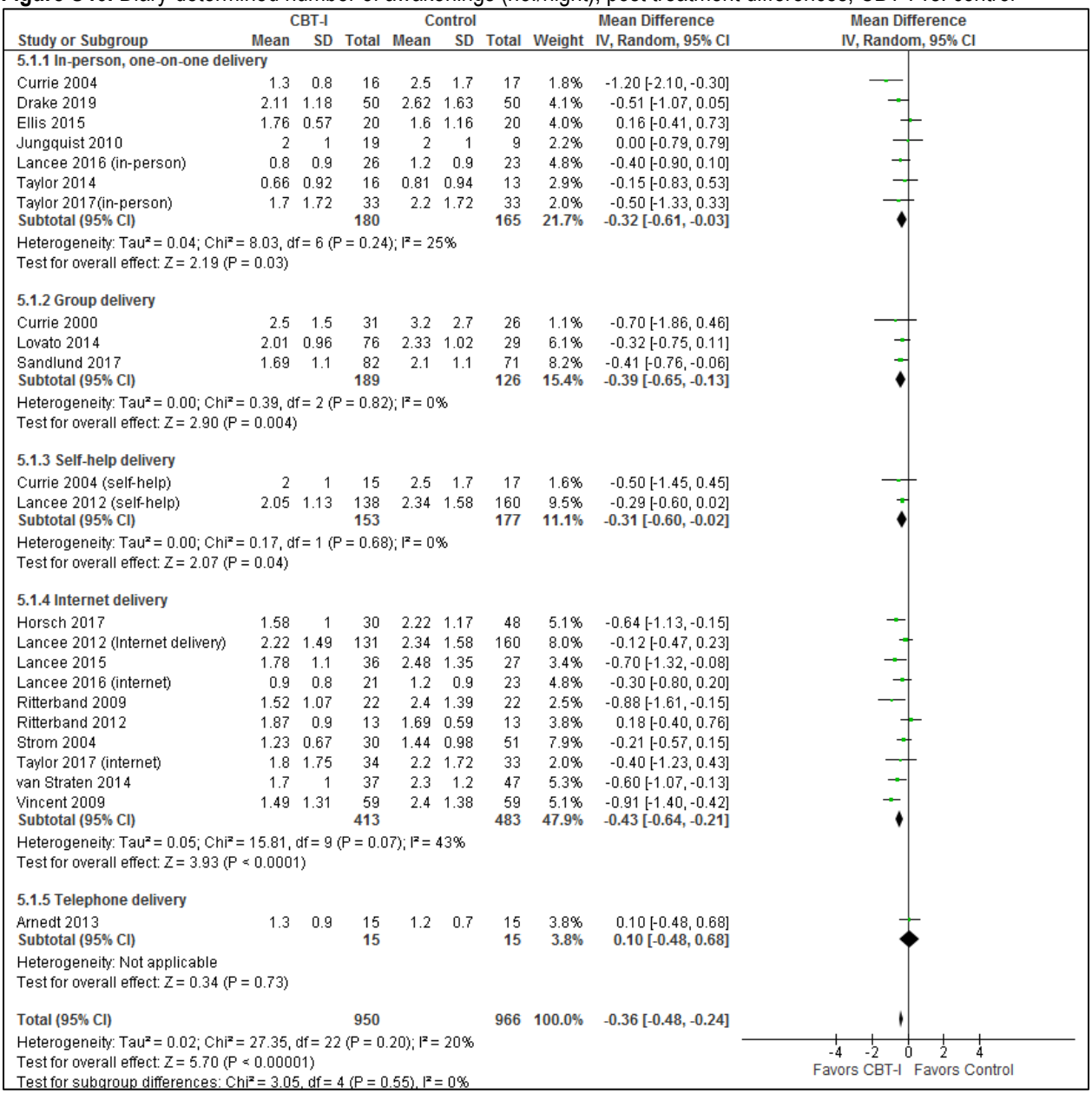
Nights using hypnotics: Insomnia and comorbid psychiatric conditions

Table S18. Diary-determined number of awakenings (no./night), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Rybarczyk 2005	Video Delivery	0.8	2	12	2.3	3.1	13	-1.50[-3,53, 0.53]

Number of nighttime awakenings

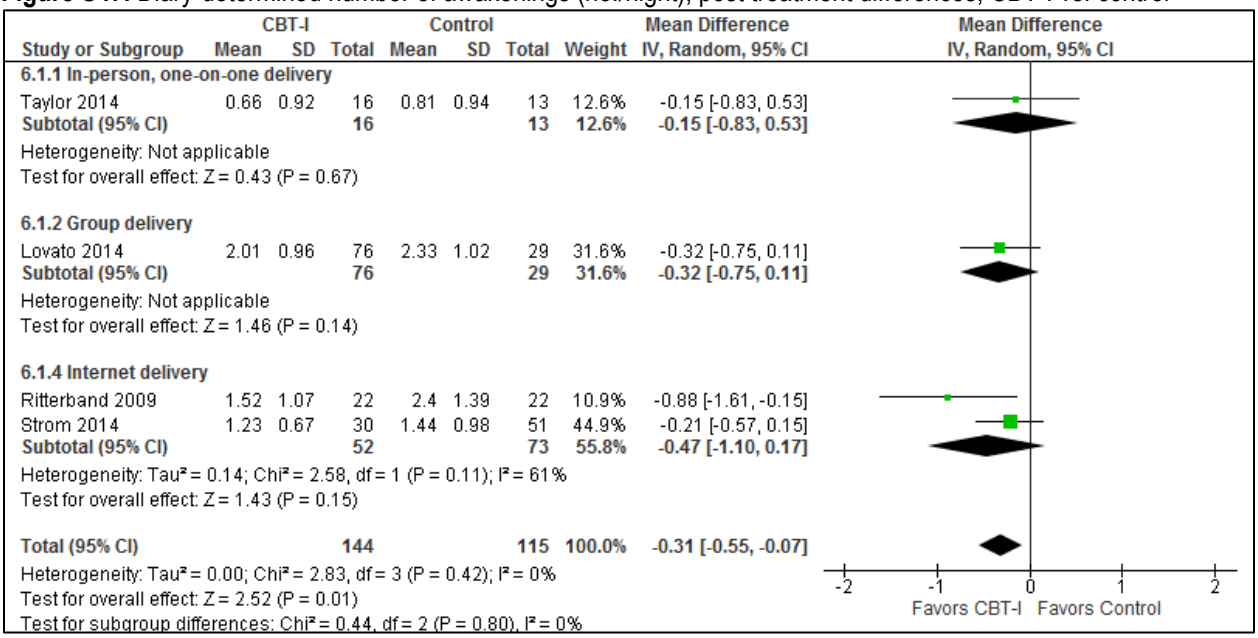
Figure S46. Diary-determined number of awakenings (no./night), post treatment differences, CBT-I vs. control



*Currie 2004 (in-person and self-help) uses same control data
Lancee 2012 (internet and self-help) uses same control data
Lancee 2016 (in-person and internet) uses same control data
*Taylor 2017 (in-person and internet) uses same control data

Number of awakenings: Insomnia and no comorbidities

Figure S47. Diary-determined number of awakenings (no./night), post treatment differences, CBT-I vs. control



Number of awakenings: Insomnia and comorbid psychiatric conditions

Table S19. Diary-determined number of awakenings (no./night), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Currie 2004	In-person delivery	1.64	0.9	31	2.5	1.7	17	-0.86[-1.73, 0.01]
Jungquist 2010	In-person delivery	2	1	19	2	1	9	0.00[-0.79, 0.79]

*Currie 2004 (self-help and in-person) pooled data

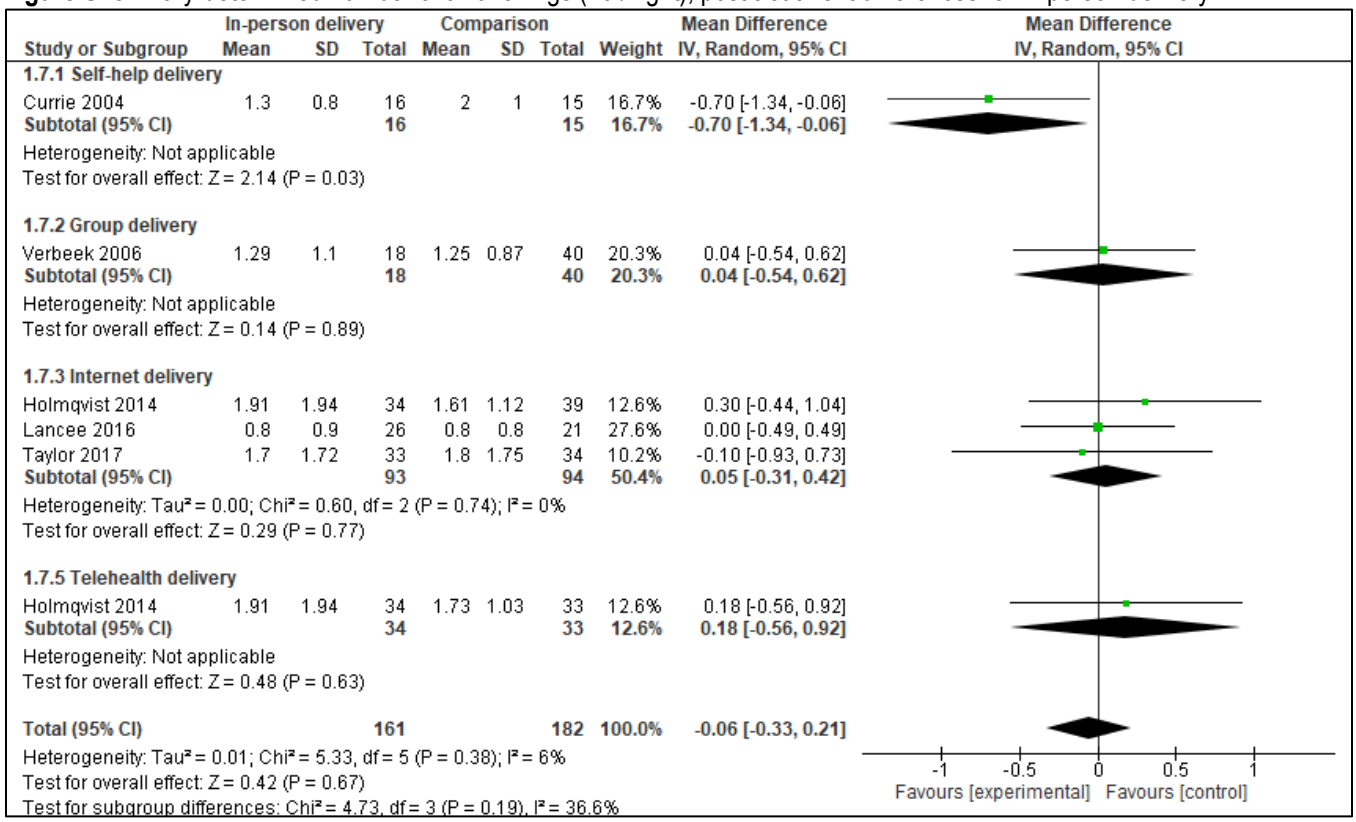
Number of awakenings: Insomnia and comorbid medical conditions

Table S20. Diary-determined number of awakenings (no./night), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Currie 2000	group delivery	2.5	1.5	31	3.2	2.7	26	-0.70[-1.86, 0.46]
Ritterband 2012	internet delivery	1.87	0.9	13	1.69	0.59	13	0.18[-0.40, 0.76]

Number of awakenings: In-person delivery vs. comparison:

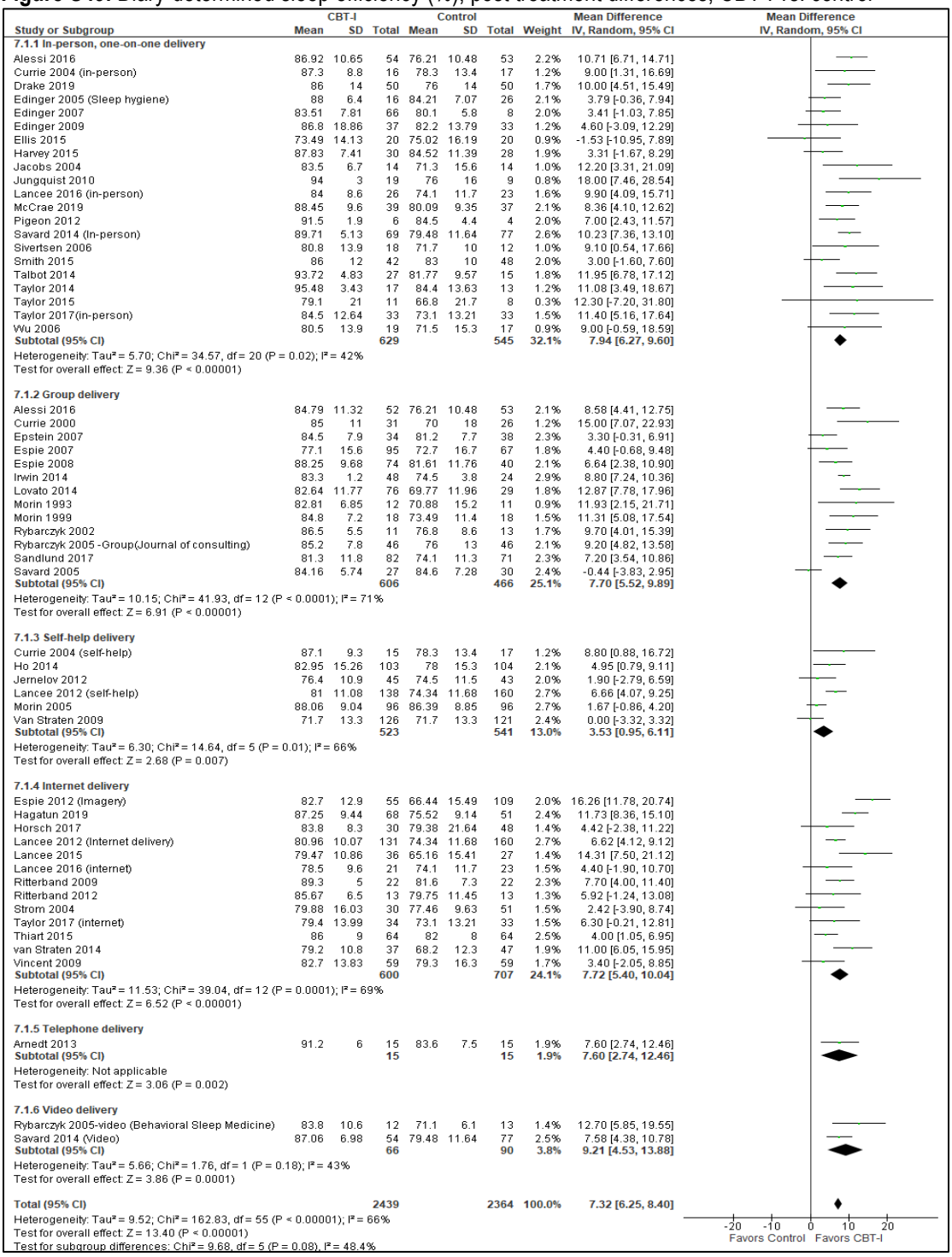
Figure S48. Diary-determined number of awakenings (no./night), post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Sleep efficiency

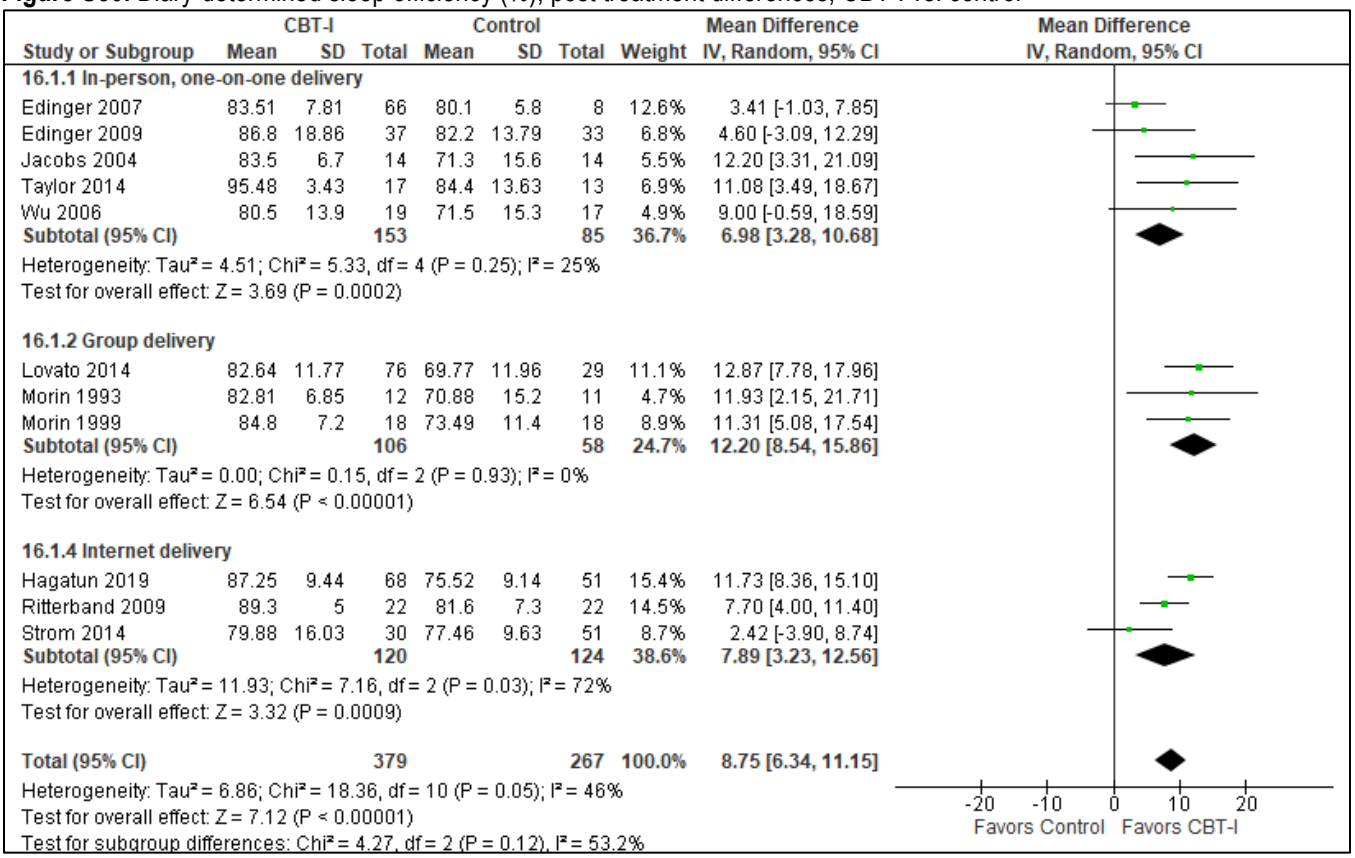
Figure S49. Diary-determined sleep efficiency (%), post treatment differences, CBT-I vs. control



*Currie 2004 (in-person and self-help) uses same control data
Edinger 2005 usual and sleep hygiene pooled control data
Lancee 2012 (internet and self-help) uses same control data
Lancee 2016 (in-person and internet) uses same control data
Savard 2014 (in-person and video) uses same control data
Espie 2012 (imagery and usual care pooled control data
Taylor 2017 (in-person and internet) uses same control data, converted SE to SD
Morin 2005 SD calculated from 95% CI
Alessi 2016 (in-person and group) uses same control data, converted SE to SD

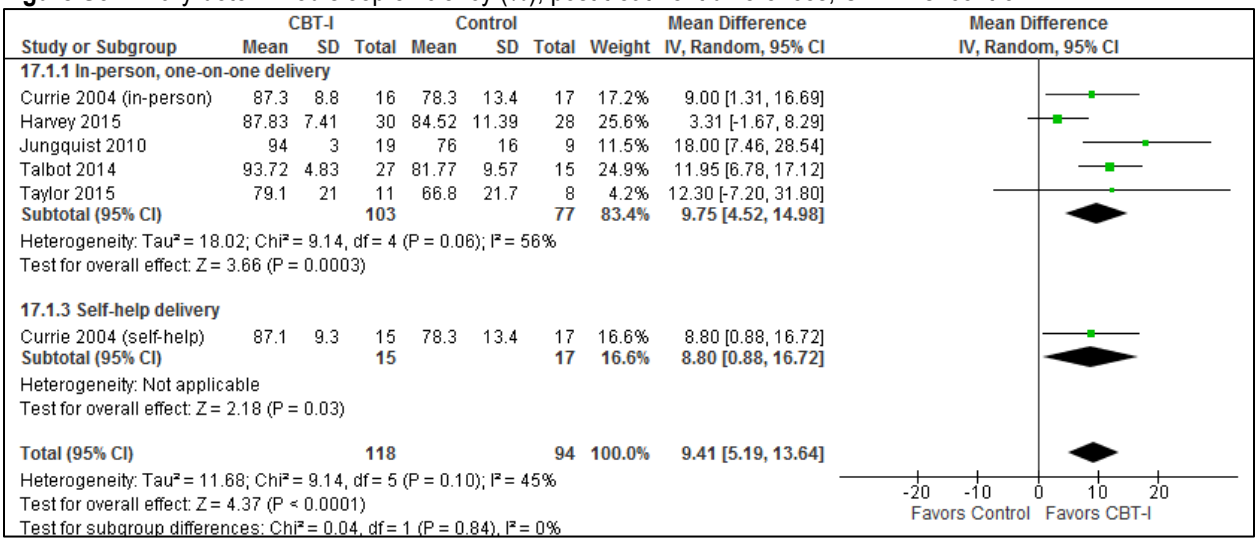
Sleep efficiency (Diary): Insomnia and no comorbidities

Figure S50. Diary-determined sleep efficiency (%), post treatment differences, CBT-I vs. control



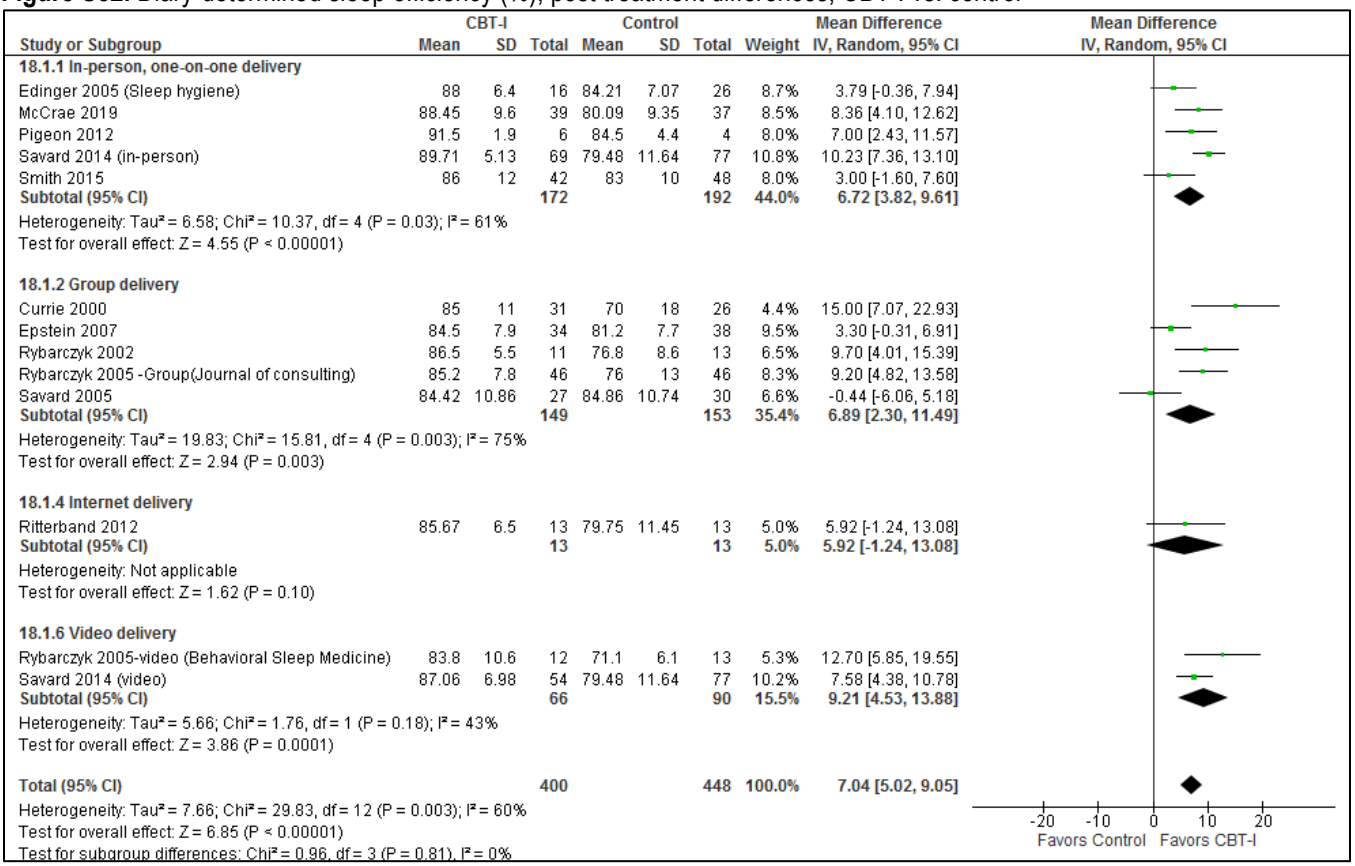
Sleep efficiency (Diary): Insomnia and comorbid psychiatric conditions

Figure S51. Diary-determined sleep efficiency (%), post treatment differences, CBT-I vs. control



Sleep efficiency (Diary): Comorbid medical insomnia

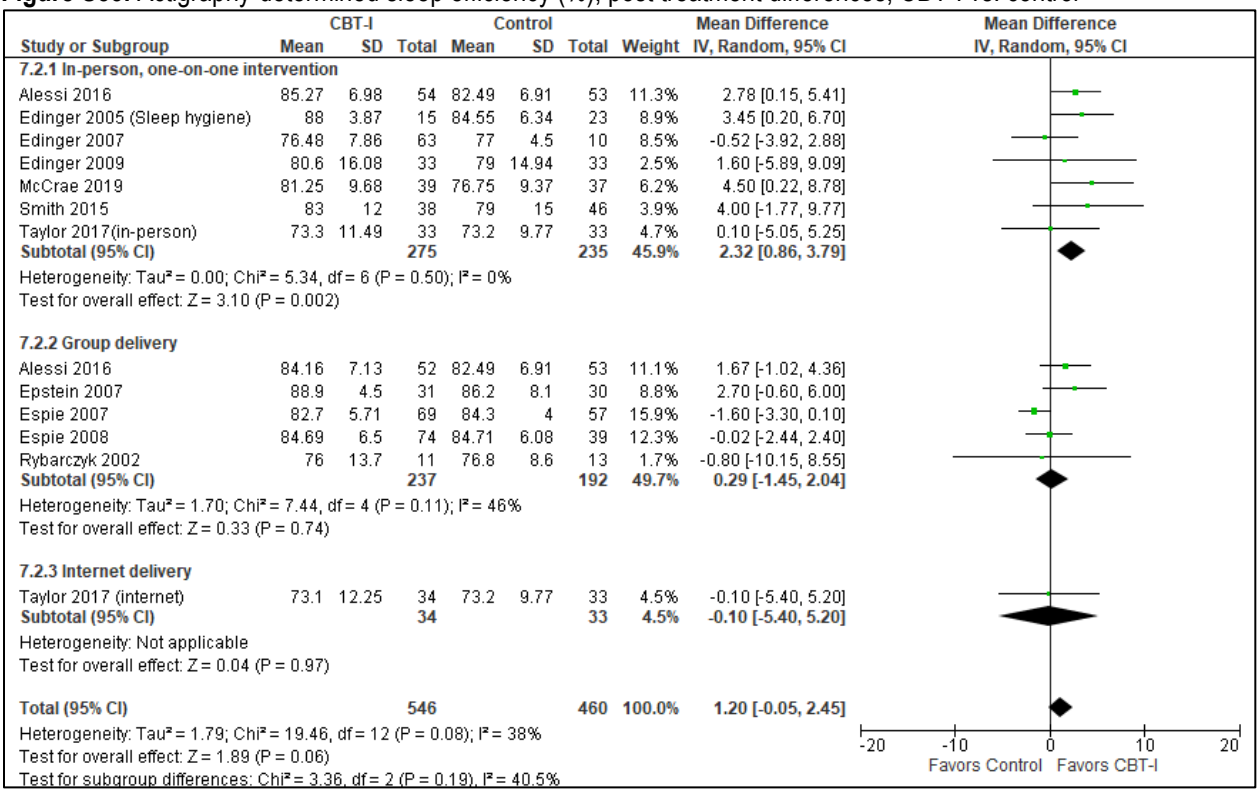
Figure S52. Diary-determined sleep efficiency (%), post treatment differences, CBT-I vs. control



*pooled control data (usual care and sleep hygiene) for Edinger 2005

Sleep efficiency (Actigraphy)

Figure S53. Actigraphy-determined sleep efficiency (%), post treatment differences, CBT-I vs. control



* Edinger 2005 (usual and sleep hygiene control data pooled) converted SE to SD
Taylor 2017 (in-person and internet) uses same control data, converted SE to SD
Alessi 2016 (in-person and group) uses same control data, converted SE to SD

Sleep efficiency (Act): Insomnia and no comorbidities

Table S21. Actigraphy-determined sleep efficiency (%), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2007	In-person, one-on-one	76.48	7.86	63	77	4.5	10	-0.52[-3.92, 2.88]
Edinger 2009	In-person, one-on-one	80.6	16.08	33	79	14.94	33	1.60[-5.89, 9.09]

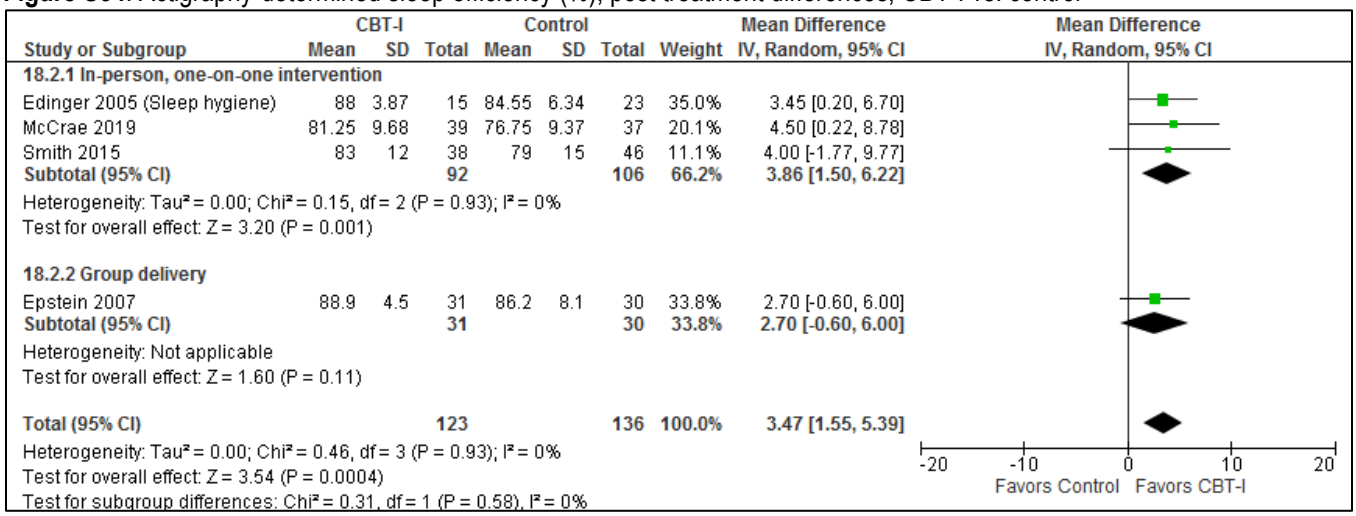
Sleep efficiency (Act): Insomnia and comorbid psychiatric conditions

Table S22. Actigraphy-determined sleep efficiency (%), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Rybarczyk 2002	Group delivery	76	13.7	11	76.8	8.6	13	-0.80 [-10.15, 8.55]

Sleep efficiency (Act): Comorbid medical insomnia

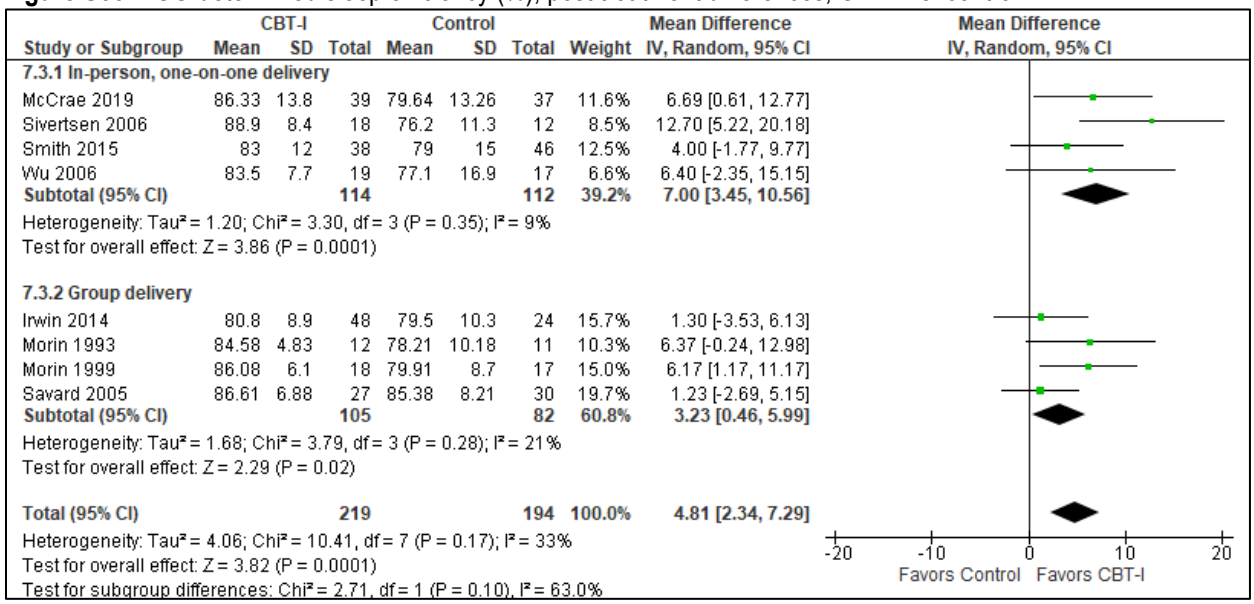
Figure S54. Actigraphy-determined sleep efficiency (%), post treatment differences, CBT-I vs. control



*pooled control data (usual care and sleep hygiene) for Edinger 2005

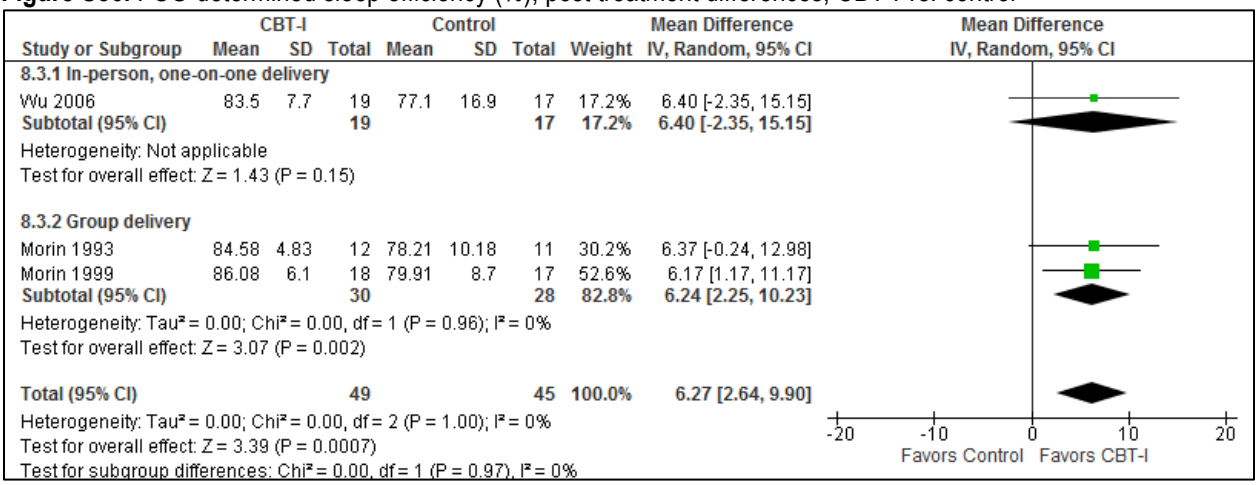
Sleep efficiency (PSG)

Figure S55. PSG-determined sleep efficiency (%), post treatment differences, CBT-I vs. control



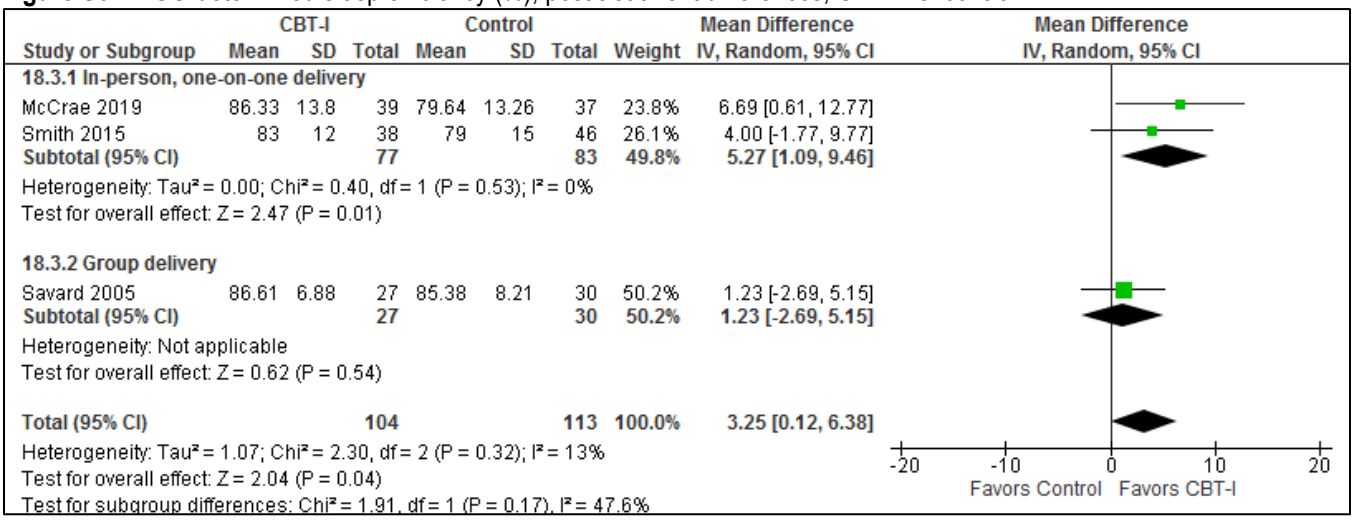
Sleep efficiency (PSG): Insomnia and no comorbidities

Figure S56. PSG-determined sleep efficiency (%), post treatment differences, CBT-I vs. control



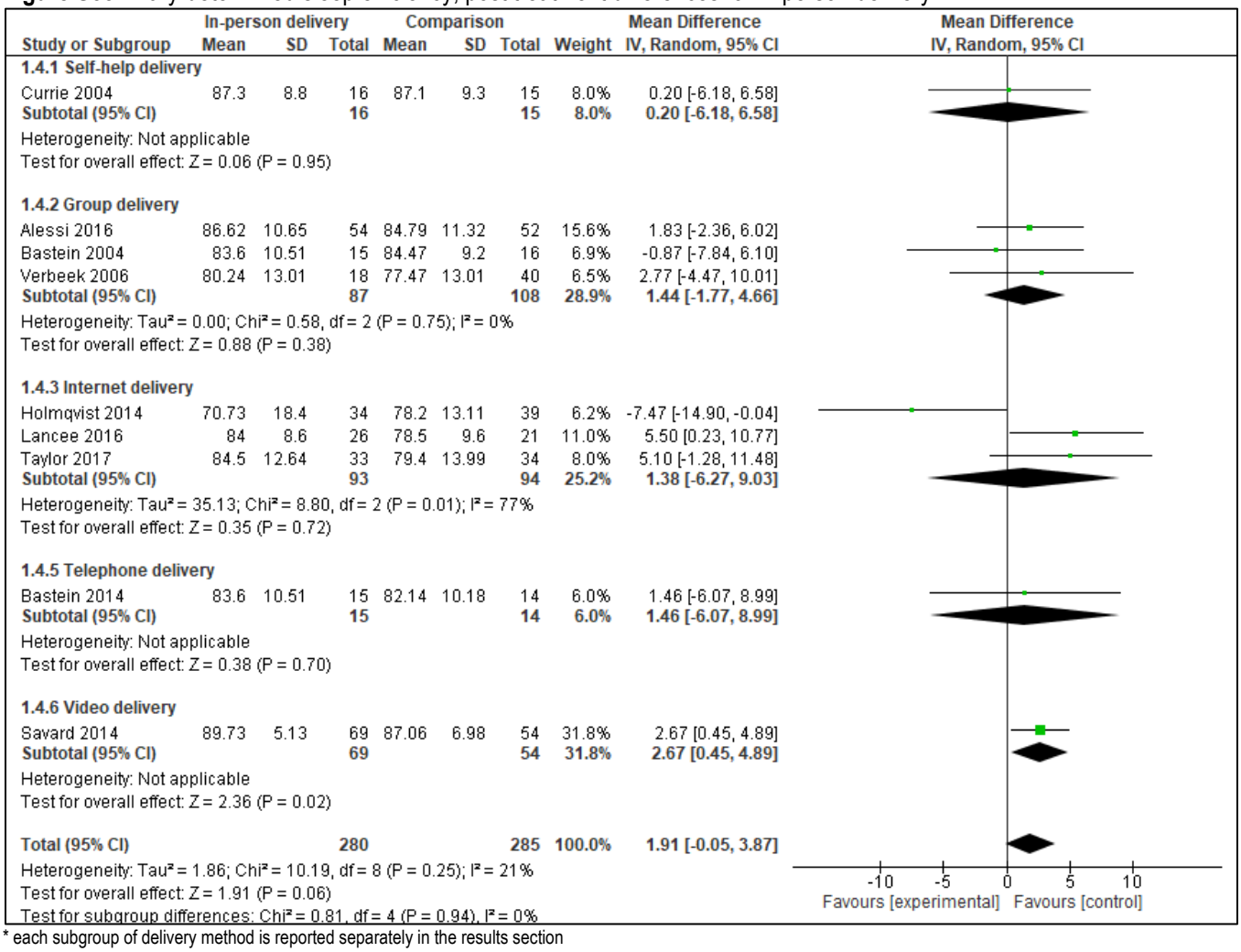
Sleep efficiency (PSG): Comorbid medical insomnia

Figure S57. PSG-determined sleep efficiency (%), post treatment differences, CBT-I vs. control



Sleep efficiency (Diary): In-person delivery vs. comparison:

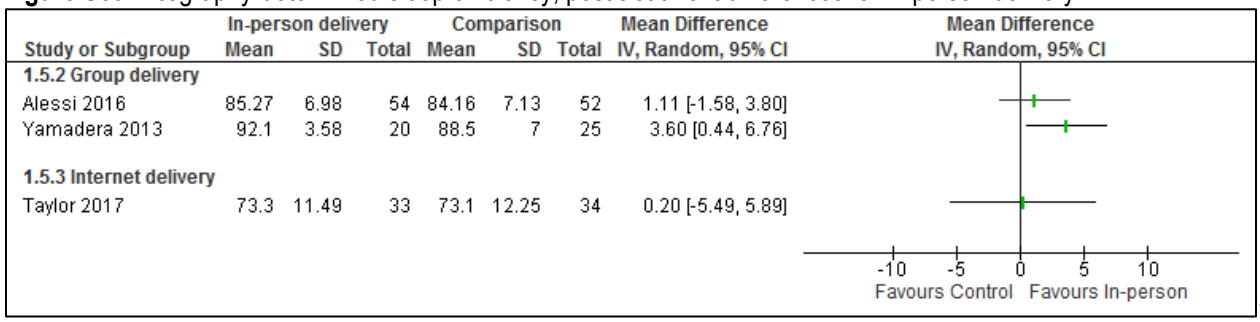
Figure S58. Diary-determined sleep efficiency, post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Sleep efficiency (Act): In-person delivery vs. comparison:

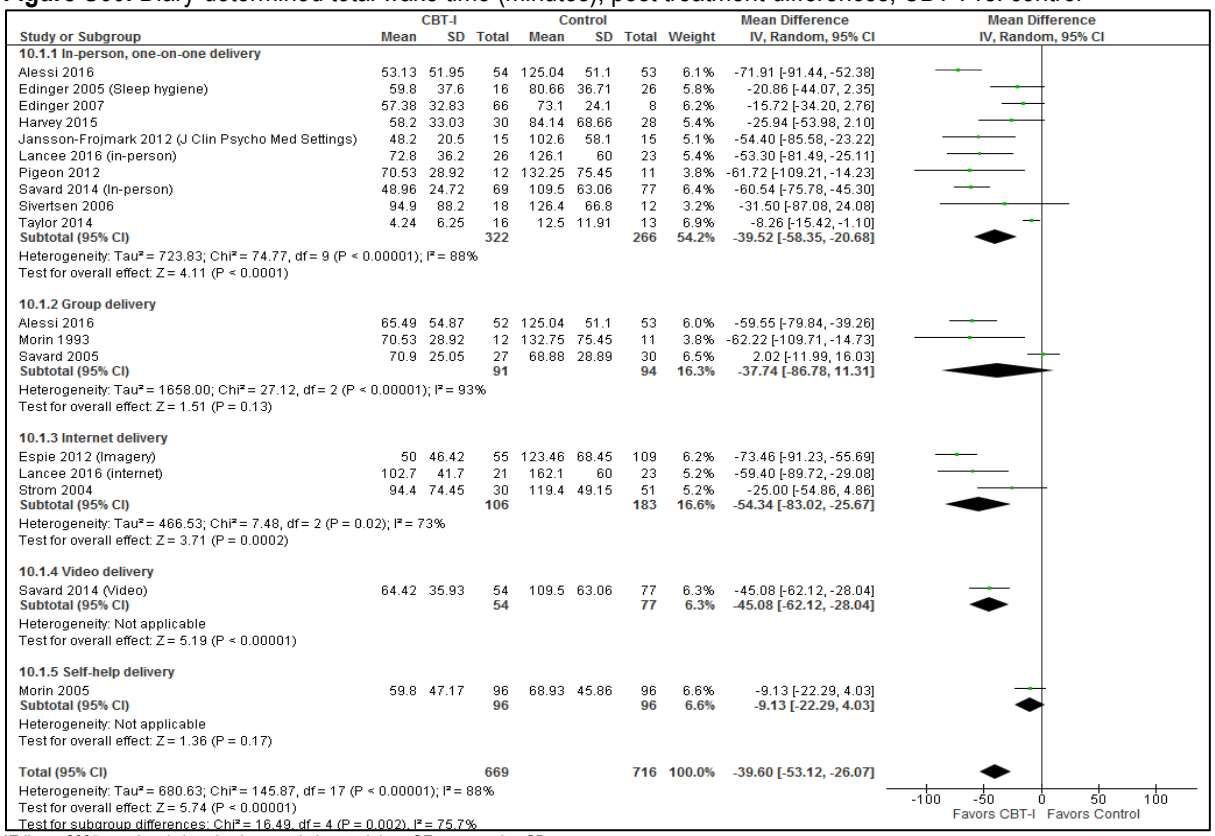
Figure S59. Actigraphy-determined sleep efficiency, post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Total wake time

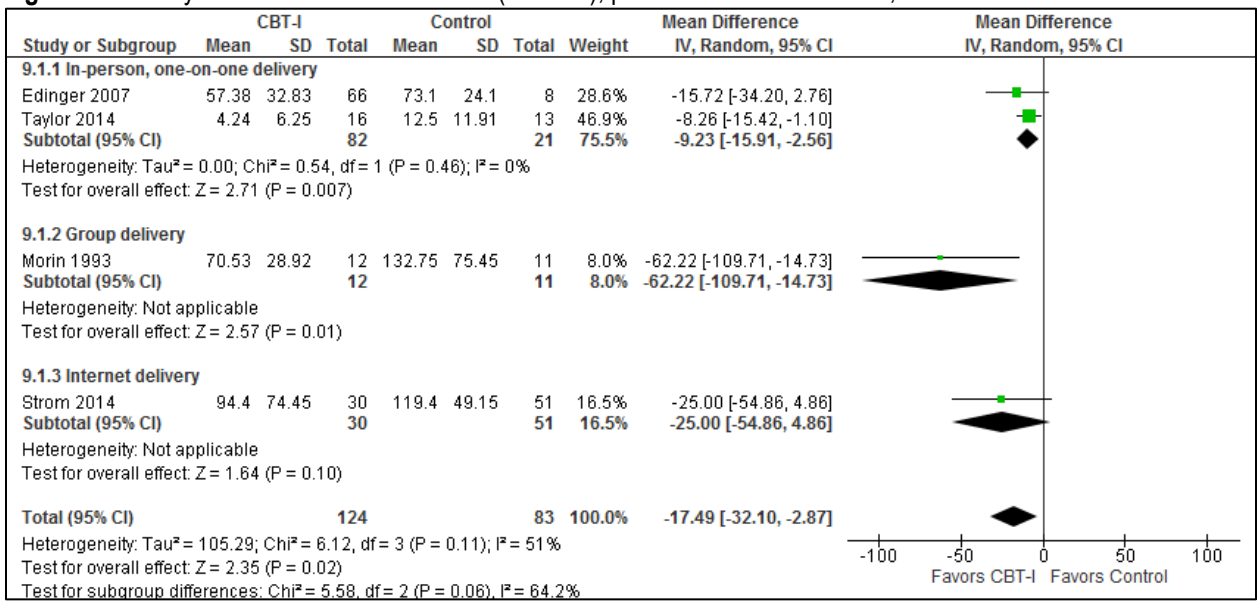
Figure S60. Diary-determined total wake time (minutes), post treatment differences, CBT-I vs. control



*Edinger 2005 usual and sleep hygiene pooled control data, SE converted to SD
Lancee 2016 (in-person and internet) uses same control data
Savard 2014 (in-person and video) uses same control data
Espie 2012 (imagery and usual care pooled data, SE converted to SD
Morin 2005 SD calculated using 95%CI
Alessi 2016 (in-person and group) uses same control data, SE converted to SD

Total wake time (Diary): Insomnia and no comorbidities

Figure S61. Diary-determined total wake time (minutes), post treatment differences, CBT-I vs. control



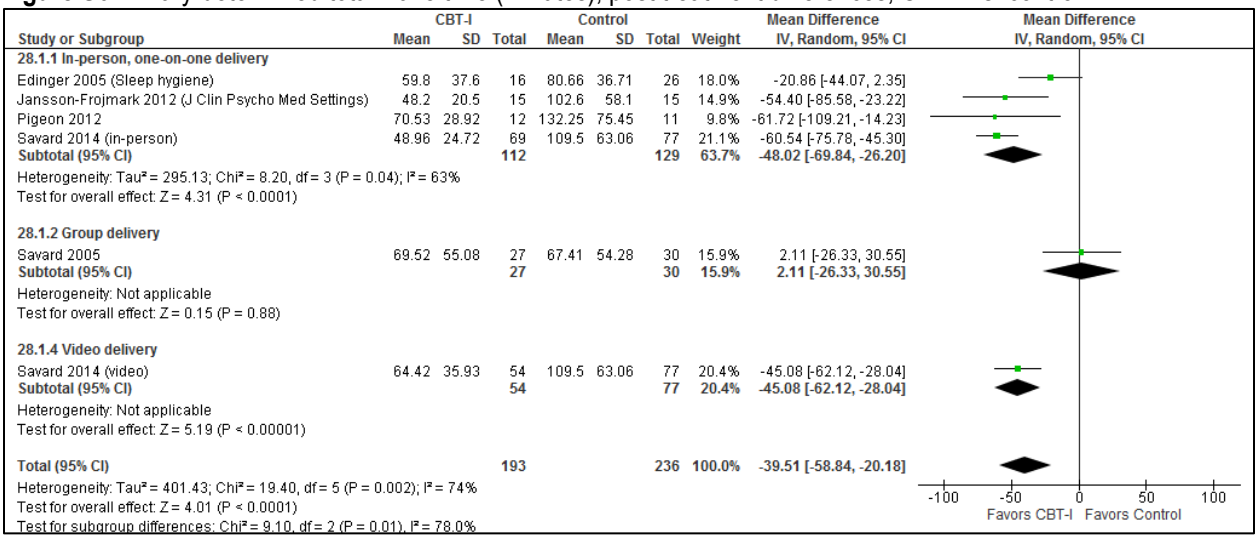
Total wake time: Insomnia and comorbid psychiatric conditions

Table S23. Diary-determined total wake time (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harvey 2015	In-person, one-on-one	58.2	33.03	30	84.14	68.66	28	-25.94 [-53.98, 2.10]

Total wake time: Insomnia and comorbid medical conditions

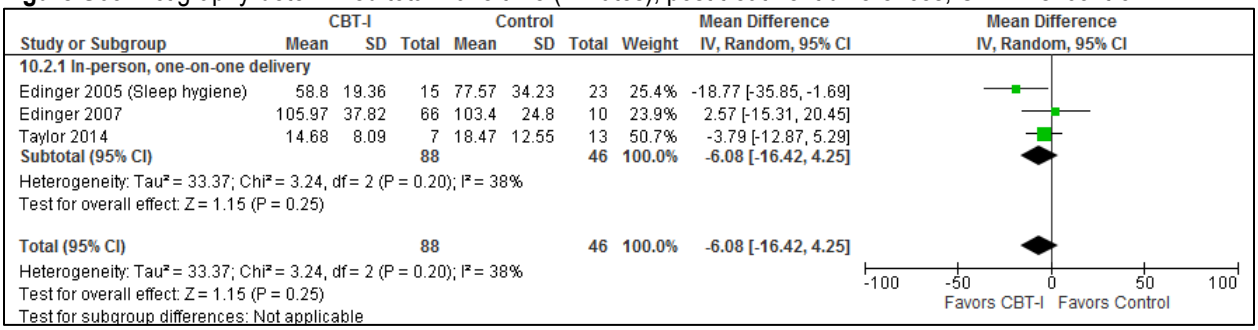
Figure S62. Diary-determined total wake time (minutes), post treatment differences, CBT-I vs. control



*pooled control data (usual care and sleep hygiene) for Edinger 2005

Total wake time (Actigraphy)

Figure S63. Actigraphy-determined total wake time (minutes), post treatment differences, CBT-I vs. control



*Edinger 2005 usual and sleep hygiene pooled control data, SE converted to SD

Total wake time (Actigraphy): Insomnia and comorbid psychiatric conditions

Table S24. Act-determined total wake time (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2007	In-person, one-on-one	105.97	37.82	66	103.4	24.8	10	2.57 [-15.31, 20.45]
Taylor 2014	In-person, one-on-one	14.68	8.09	7	18.47	12.55	13	-3.79[-12.87, 5.29]

Total wake time: Insomnia and comorbid medical conditions

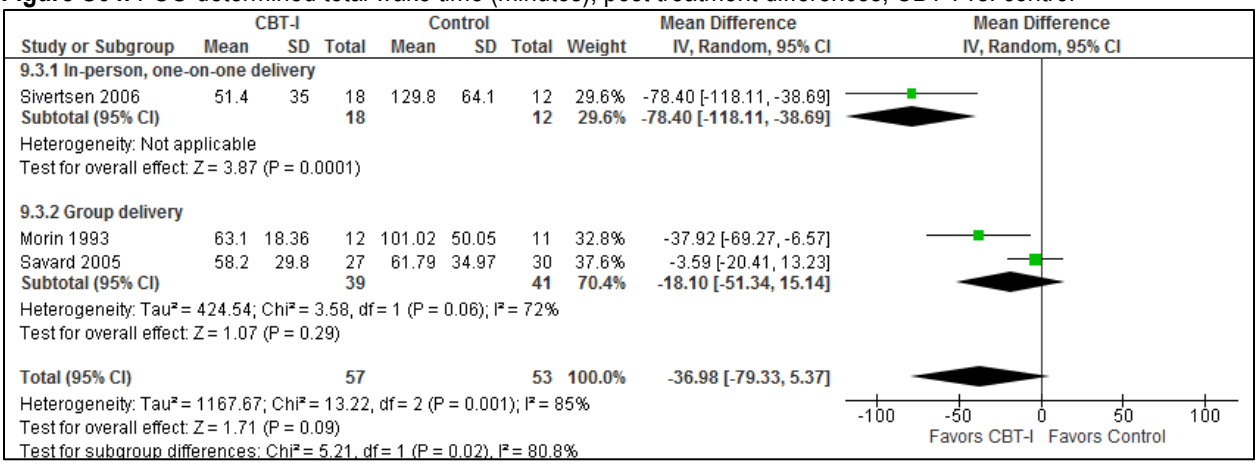
Table S25. Act-determined total wake time (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person, one-on-one	58.8	19.36	15	77.57	34.23	23	-18.77[-35.85, -1.69]

*pooled control data (usual care and sleep hygiene) for Edinger 2005

Total wake time (PSG)

Figure S64. PSG-determined total wake time (minutes), post treatment differences, CBT-I vs. control



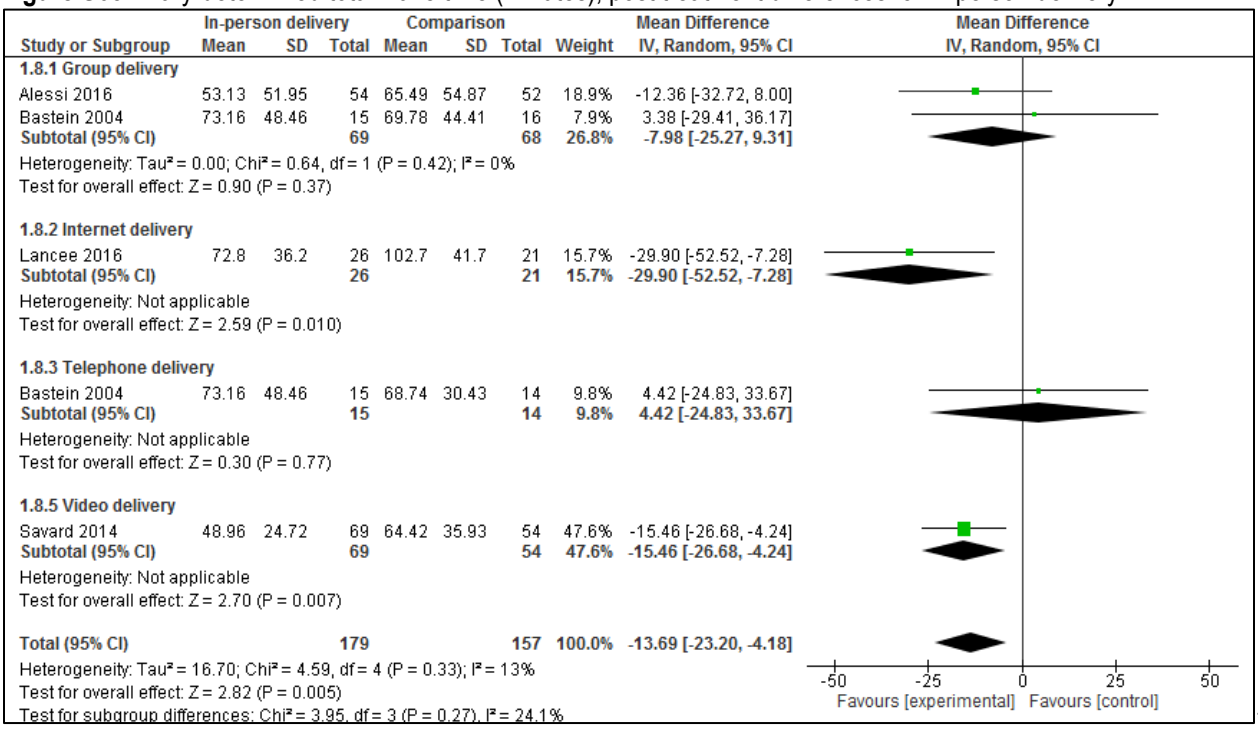
Total wake time (PSG): Insomnia and no comorbidities

Table S26. PSG-determined total wake time (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Morin 1993	Group delivery	63.1	18.36	12	101.02	50.05	11	-37.92 [-69.27, -6.57]

Total wake time (Diary): In-person delivery vs. comparison:

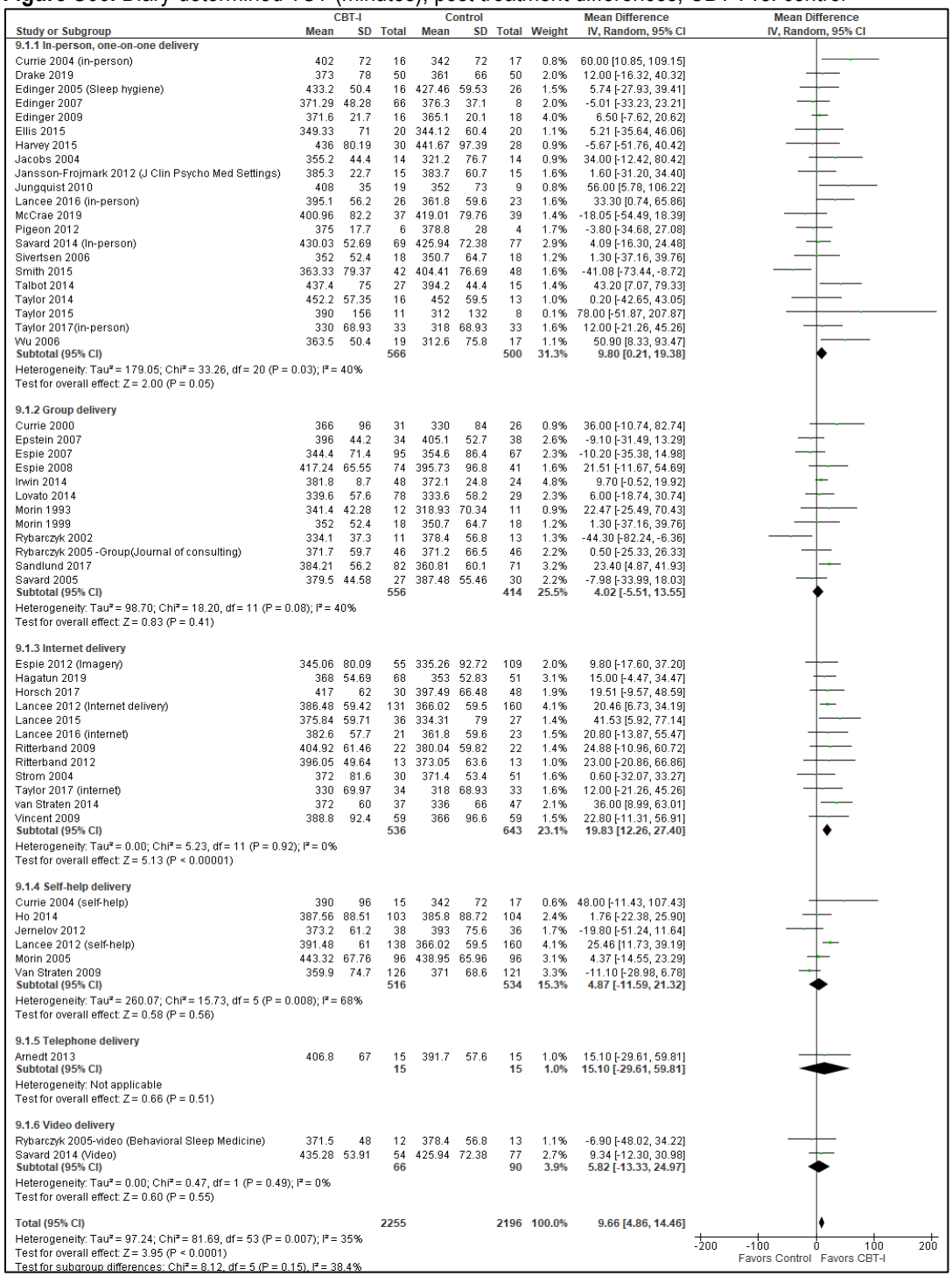
Figure S65. Diary-determined total wake time (minutes), post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Total sleep time

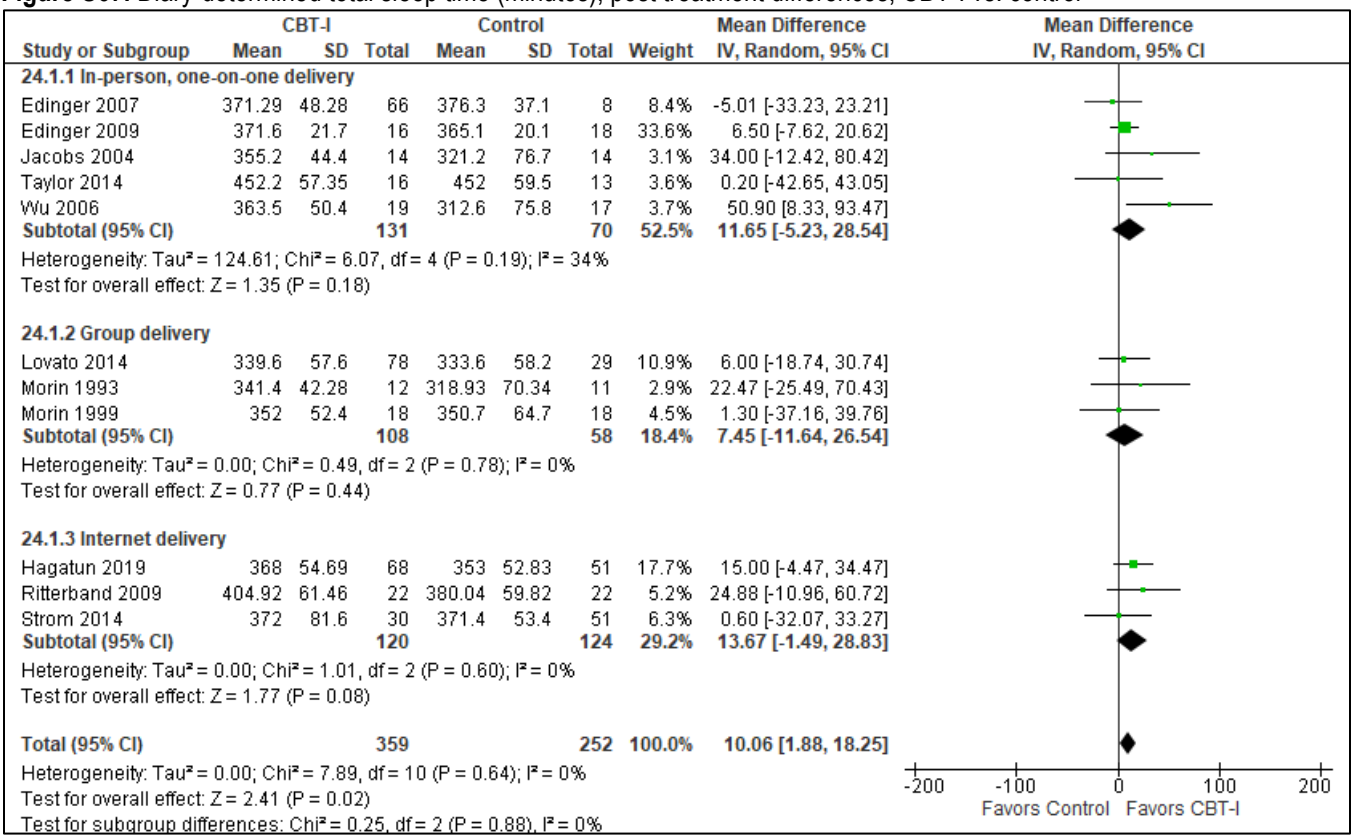
Figure S66. Diary-determined TST (minutes), post treatment differences, CBT-I vs. control



*Currie 2004 (in-person and self-help) uses same control data
Edinger 2005 (usual and sleep hygiene) pooled control data, converted SE to SD
Lancee 2012 (internet and self-help) uses same control data
Lancee 2016 (in-person and internet) uses same control data
Savard 2014 (in-person and video) uses same control data
Espie 2012 (imagery and usual care) pooled control data, converted SE to SD
Taylor 2017 (in-person and internet) uses same control data, converted SE to SD

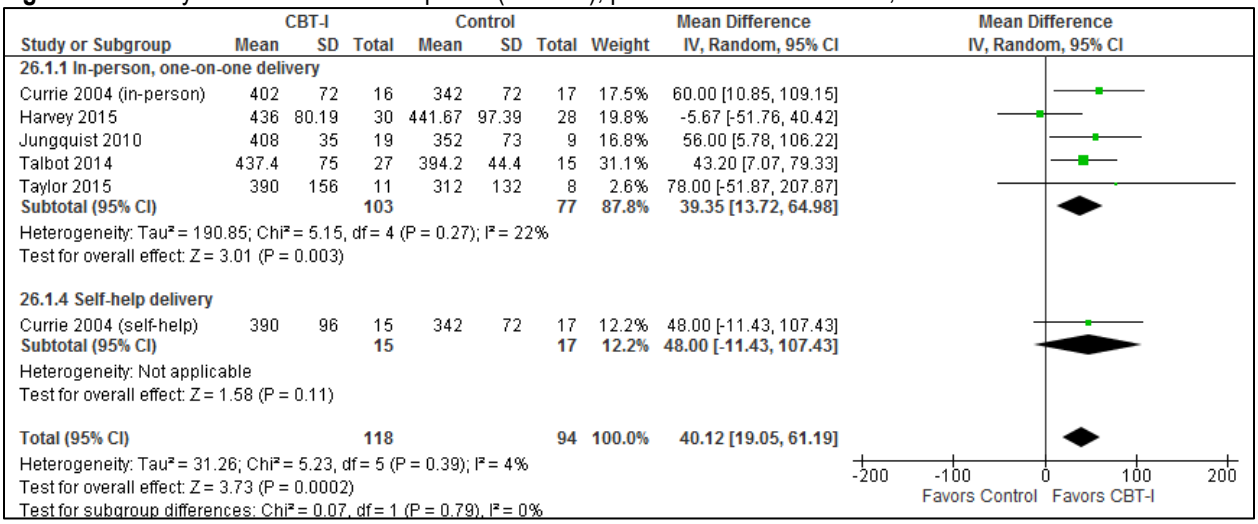
Total sleep time (Diary): Insomnia and no comorbidities

Figure S67. Diary-determined total sleep time (minutes), post treatment differences, CBT-I vs. control



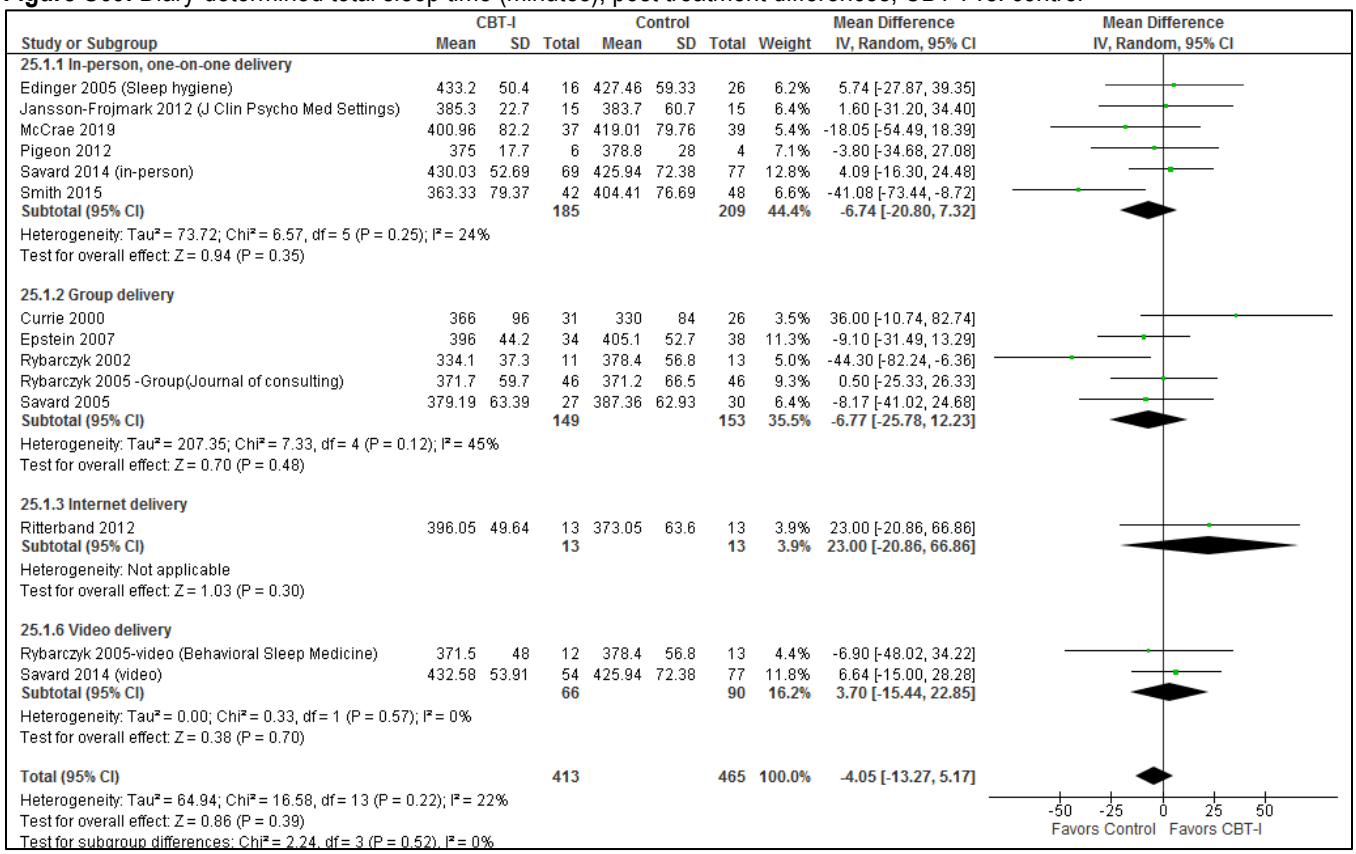
Total sleep time (Diary): Insomnia and comorbid psychiatric conditions

Figure S68. Diary-determined total sleep time (minutes), post treatment differences, CBT-I vs. control



Total sleep time (Diary): Insomnia and comorbid medical conditions

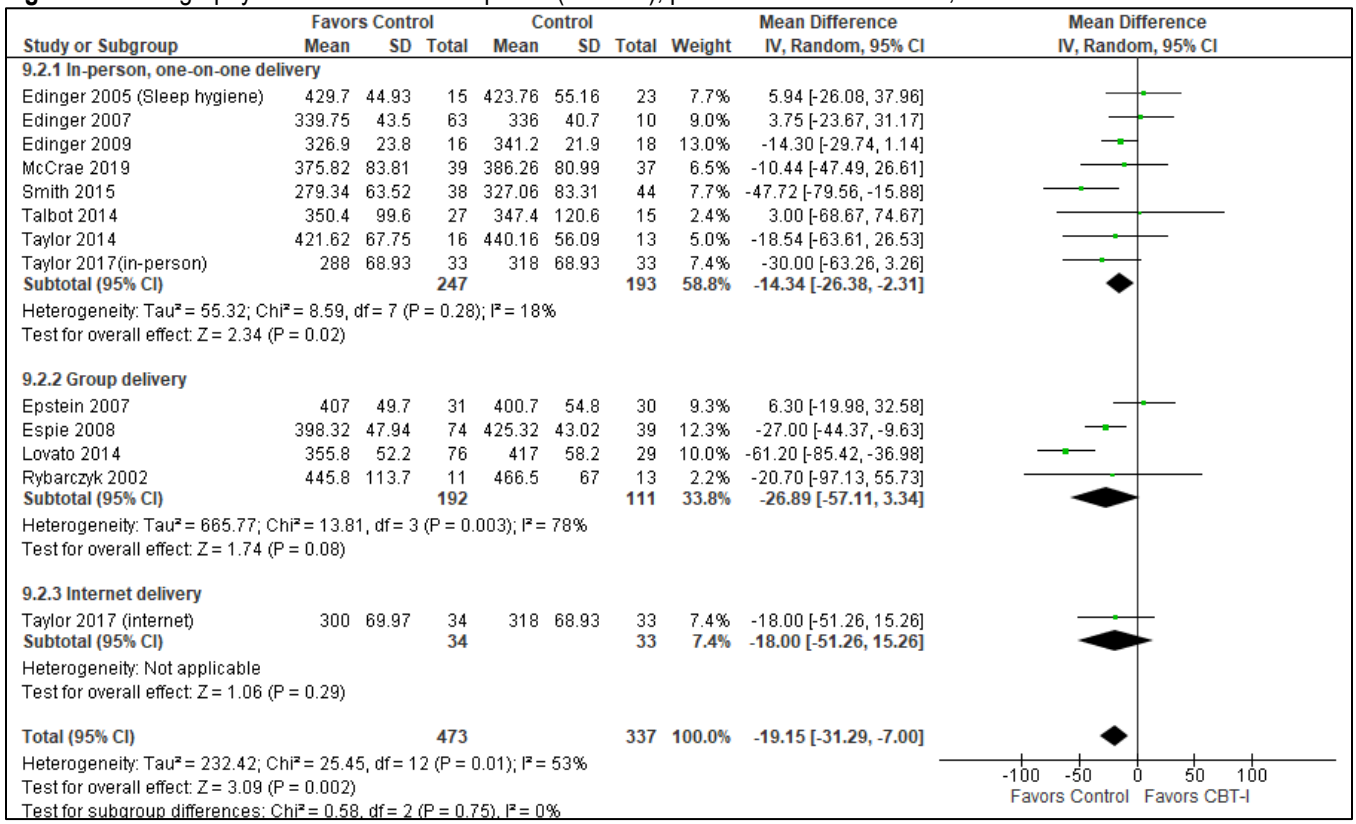
Figure S69. Diary-determined total sleep time (minutes), post treatment differences, CBT-I vs. control



*pooled control data (usual care and sleep hygiene) for Edinger 2005

Total sleep time (Actigraphy)

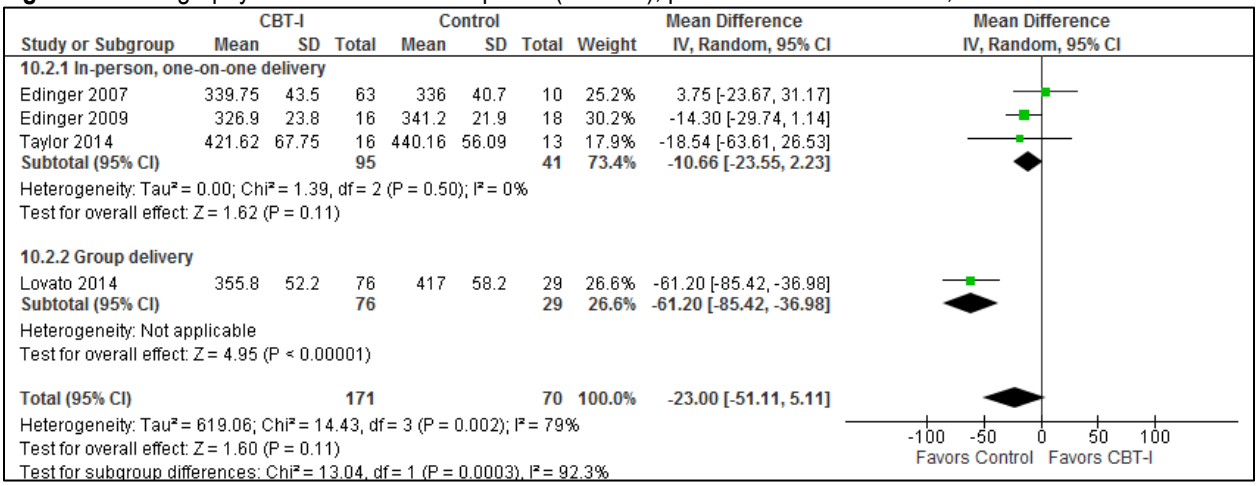
Figure S70. Actigraphy-determined total sleep time (minutes), post treatment differences, CBT-I vs. control



*Edinger 2005 (usual and sleep hygiene) pooled control data, converted SE to SD
Taylor 2017 (in-person and internet) uses same control data, converted SE to SD

Total sleep time (Act): Insomnia and no comorbidities

Figure S71. Actigraphy-determined total sleep time (minutes), post treatment differences, CBT-I vs. control



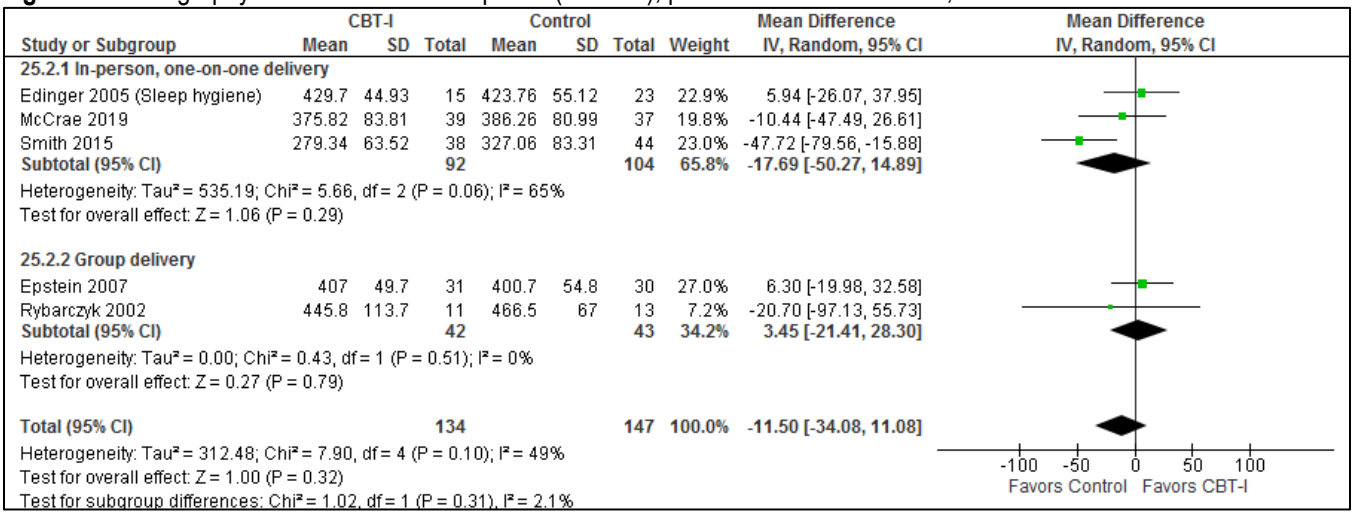
Total sleep time (Act): Insomnia and comorbid psychiatric conditions

Table S27. Actigraphy-determined total sleep time (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Talbot 2014	In-person, one-on-one	350.4	99.6	27	347.4	120.6	15	3.00[-68.67, 74.67]

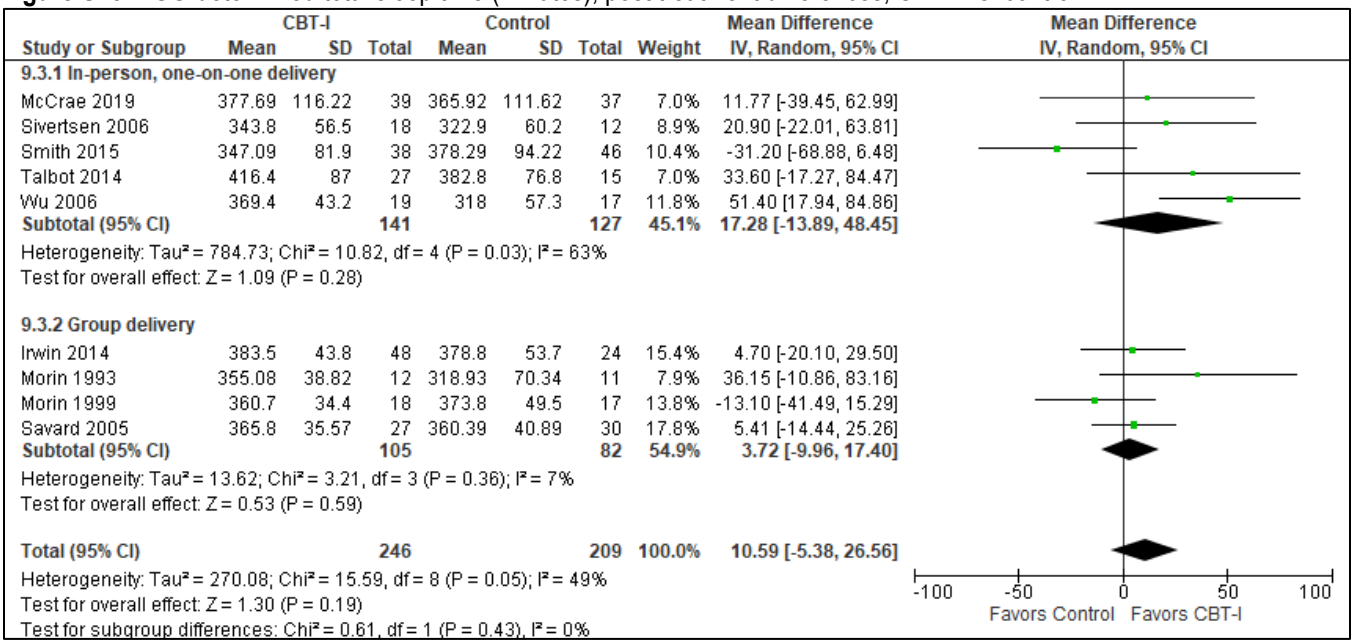
Total sleep time (Act): Insomnia and comorbid medical conditions

Figure S72. Actigraphy-determined total sleep time (minutes), post treatment differences, CBT-I vs. control



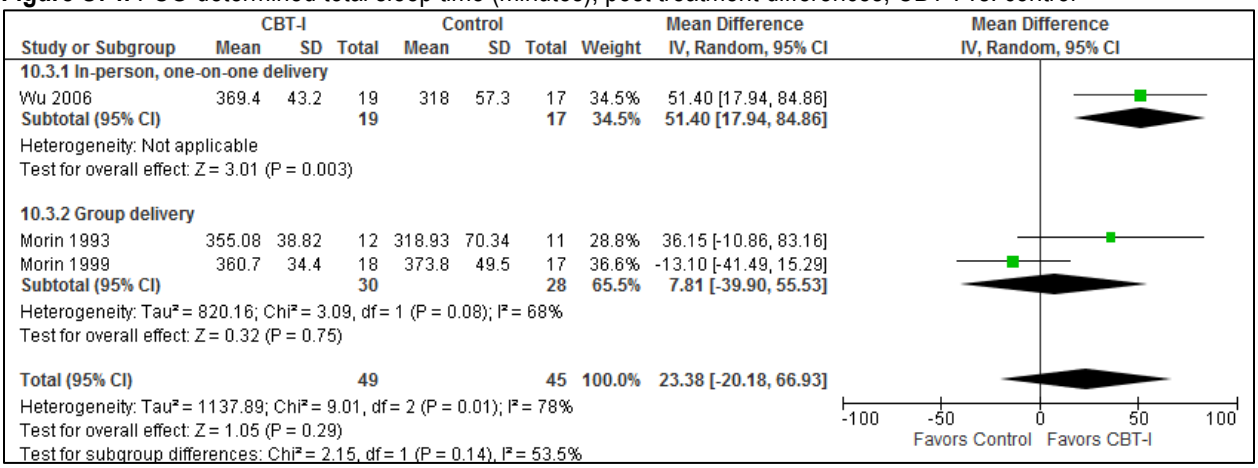
Total sleep time (PSG)

Figure S73. PSG-determined total sleep time (minutes), post treatment differences, CBT-I vs. control



Total sleep time (PSG): Insomnia and no comorbidities

Figure S74. PSG-determined total sleep time (minutes), post treatment differences, CBT-I vs. control



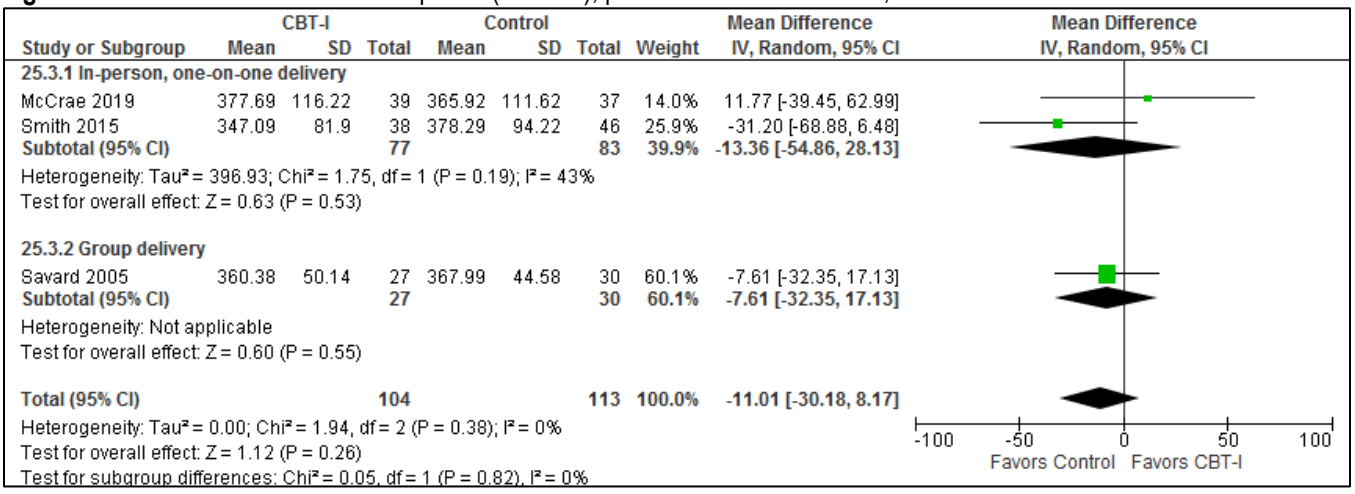
Total sleep time (PSG): Insomnia and comorbid psychiatric conditions

Table S28. PSG-determined total sleep time (minutes), post treatment differences, CBT-I vs. control

Study	Delivery method	CBT-I			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Talbot 2014	In-person, one-on-one	416.4	87	27	382.8	76.8	15	33.60 [-17.27, 84.47]

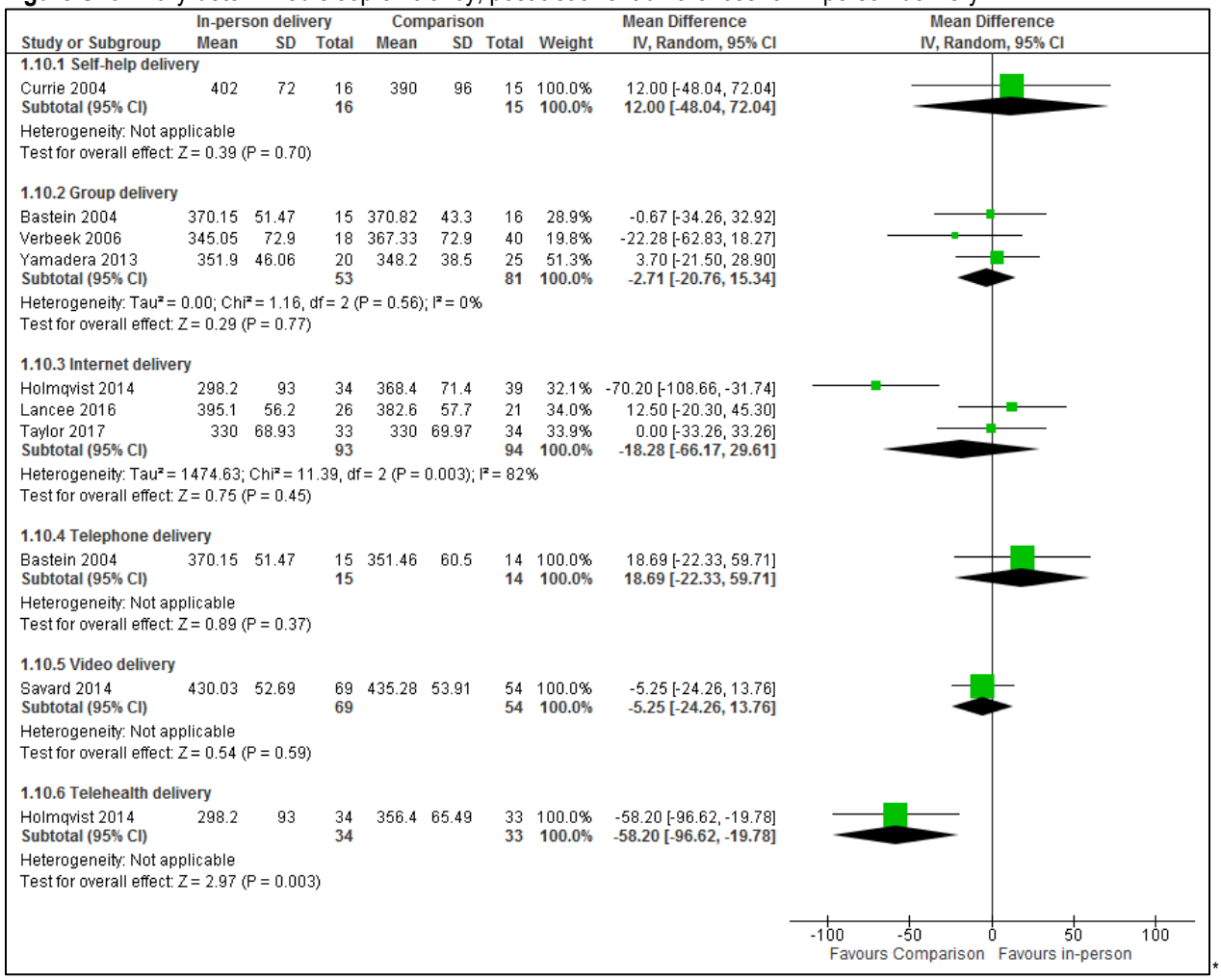
Total sleep time: Insomnia and comorbid medical conditions (PSG)

Figure S75. PSG-determined total sleep time (minutes), post treatment differences, CBT-I vs. control



Total sleep time (Diary): In-person delivery vs. comparison:

Figure S76. Diary-determined sleep efficiency, post treatment differences for in-person delivery



* each subgroup of delivery method is reported separately in the results section

Table S29. Summary of findings table for CBT-I for the psychological and behavioral treatment of insomnia in adults

References: Currie 2004 (A); Jansson-Frojmark 2012 (B); Lancee 2016 (C); Taylor 2014 (D); Epstein 2007 (E); Espie 2012 (F); Lancee 2015 (G) Strom 2004 (H); Vincent 2009 (I); Arnedt 2013 (J); Ho 2014 (K); Jernelov 2012 (L); Van Straten 2009 (M); Edinger 2005 (N)); Edinger 2007 (O); Edinger 2009 (P) ; Ellis 2015 (Q); Harvey 2015 (R); Jacobs 2004 (S); Jungquist 2010 (T); Savard 2014 (U); Smith 2015 (V); Talbot 2014 (W); Kaku 2011 (X), Taylor 2015 (Y); Wu 2006 (Z); Bothelius 2013 (AA); Currie 2000 (BB); Espie 2007 (CC); Espie 2008 (DD); Irwin 2014 (EE);); Lovato 2014 (FF); Morin 1993 (GG); Rybarczyk 2002 (HH); Rybarczyk, JCC 2005 (II); Savard 2005 (JJ); Lancee 2012 (KK); Ritterband 2009 (LL); Ritterband 2012 (MM); Van Straten 2014 (NN); Rybarczyk, BSM 2005 (OO); Morin 1999 (PP); Wagley 2013 (QQ); Fleming 2014 (RR); Bjorvatn 2011 (SS); Pigeon 2012 (UU); Dirksen 2007 (VV); Martinez 2014 (WW); Thorndike 2013 (XX); Blom 2016 (ZZ); Thiart 2015 (AAA); Miro 2011 (BBB); Sivertsen 2006 (CCC); Taylor 2017 (DDD); Drake 2019 (EEE); Sandlund 2017 (FFF), Espie 2019 (GGG); Bjorvatn 2018 (HHH); Mao 2017 (III); Bernstein 2017 (JJJ); Morin 2005 (KKK); Alessi 2016 (LLL); Horsch 2017 (MMM); Hagatun 2019 (NNN); McCrae 2019 (OOO)

Outcomes [Tool]	**Quality of the evidence (GRADE)**	**Absolute Difference** **CBTI vs Control**	**No of Participants (studies)**
Quality of sleep * [Diary]	⊕⊕◯◯ **LOW** [a,c]	The standardized mean difference in the CBTI group was 0.44 points higher[2] [0.28 to 0.61 points higher] compared to control	2012 patients (19 RCT) [A-M,DDD-FFF,KKK,MMM,OOO]
Quality of sleep [PSQI]	⊕⊕⊕◯ **MODERATE** [c]	The standardized mean difference in the CBTI group was 0.66 points lower[1] [0.54 to 0.78 points lower] compared to control	1839 patients (21 RCTs) [A,D,E,J,K,P,R,X,BB,HH, II,NN,OO,QQ,SS,WW,BBB ,III,KKK,LLL,MMM]
Sleep latency * [Diary]	⊕⊕⊕◯ **MODERATE** [c]	The mean difference in the CBTI group was 12.68 minutes lower[2] [10.48 min to 14.88 mins lower] compared to control	4295 patients (47 RCTs) [A,C-W,Y,Z,AA,-NN, OO,DDD,EEE,FFF,KKK,LLL,MMM,NNN,OOO]
Sleep latency [PSG]	⊕⊕⊕◯ **MODERATE** [c]	The mean difference in the CBTI group was 7.26 minutes lower[2] [17.41 min lower to 2.90 mins higher] compared to control	351 patients (6 RCTs) [V,Z,EE,GG,JJ,OOO]
Wake after sleep onset * [Diary]	⊕⊕◯◯ **LOW** [a,c]	The mean difference in the CBTI group was 18.95 minutes lower[2] [15.43 to 22.46 minutes lower] compared to control	3756 patients (44 RCT) [A,C,D,E,F,G,H,I,J,K,L,N, O,P,Q,R,T,U,V,W,Y,AA,BB,CC,DD,EE, FF,GG,HH,II,JJ,KK,LL,MM,OO,PP,EEE,FFF,KKK,LLL,MMM,NNN,OOO]
Wake after sleep onset [Act]	⊕⊕⊕◯ **MODERATE** [c]	The mean difference in the CBTI group was 3.64 minutes lower[2] [8.34 mins lower to 1.07 min higher] compared to control	955 patients (11 RCT) [D,E,N,P,V,W,CC,DD,FF,DDD,OOO]
Wake after sleep onset [PSG]	⊕⊕◯◯ **LOW** [a,c]	The mean difference in the CBTI group was 16.64 minutes lower[2] [30.76 min lower to 2.51 mins higher] compared to control	392 patients (7 RCT) [V,W,EE,GG,JJ,PP,OOO]
Remission rate* [ISI, Diary]	⊕⊕⊕◯ **MODERATE** [c]	The percentage of patients achieving "remission" in the CBTI group was 33% higher[1] [28% to 39% higher] compared to control	1775 patients (25 RCT) [A, B,D,J,L,P,R,S,U,V,W,Z,BB,CC,EE,FF,JJ,LL,MM,PP,QQ,RR,EEE,FFF,MMM]
Responder rate* [ISI, Diary]	⊕⊕⊕◯ **MODERATE** [c]	The percentage of patients considered "responders" in the CBTI group was 44% higher[1] [39% to 51% higher] compared to control	1152 patients (17 RCT) [B,C,F,G,J,L,N,O,R,AA, HH,II,OO,PP,FFF,MMM,NNN]
Beliefs and attitudes about sleep [DBAS]	⊕⊕⊕◯ **VERY LOW** [a,b,c]	The standardized mean difference in the CBTI group was 0.81 points lower[1] [0.35 to 1.26 points lower] compared to control	1580 patients (16 RCT) [D,H,I,J,L,M,U,HH,II,OO,SS,DDD,III, MMM,NNN,OOO]
Daytime fatigue [MFI, FFS]	⊕⊕◯◯ **LOW** [a,c]	The standardized mean difference in the CBTI group was 0.56 points lower[1] [0.25 to 0.87 points lower] compared to control	2250 patients (10 RCT) [D,I,J,FF,MM,UU,VV, WW,XX, GGG]
Insomnia severity [ISI]	⊕⊕⊕◯ **MODERATE** [c]	The standardized mean difference in the CBTI group was 0.95 points lower[1] [0.78 to 1.13 points lower] compared to control	2827 patients (30 RCT)[B,C,D,I,J,K,L,R,T,U,V,W,Y,AA,FF,JJ,LL,UU,VV,ZZ,AAA,DDD,EEE,FFF,HHH,JJJ,KKK, LLL,MMM,NNN]
Insomnia severity [ISQ]	⊕⊕◯◯ **LOW** [a,c]	The standardized mean difference in the CBTI group was 0.32 points lower[2] [0.73 points lower to 0.09 points higher] compared to control	200 patients (3 RCT) [N,O,P]
Nights using hypnotics [Diary]	⊕⊕⊕◯ **MODERATE** [c]	The mean difference in the CBTI group was 1.14 nights per week lower[2] [0.66 to 1.63 nights per week lower] compared to control	858 patients (5 RCT) [M,HH,KK,OO,SS]
Number of nighttime awakenings [Diary]	⊕⊕⊕◯ **MODERATE** [c]	The mean difference in the CBTI group was 0.36 points lower[2] [0.24 to 0.48 points lower] compared to control	1683 patients (19 RCT) [A,C,D,G,H,I,J,Q,T,BB,FF, KK,LL,MM,NN,DDD,EEE,FFF,MMM]
Number of nighttime awakenings [Act]	⊕⊕◯◯ **LOW** [a,c]	The mean difference in the CBTI group was 0.33 points lower[2] [0.19 to 0.48 points lower] compared to control	100 patients (1 RCT)[DDD]

Sleep efficiency [Diary]	⊕⊕⊕◯ **MODERATE** [c]	The mean difference in the CBTI group was 7.32% higher[2] [6.25% to 8.40% higher] compared to control	4440 patients (50 RCTs) [A,C,D,E,F,G,H,I,J,K,L, M,N,O,P,Q,R,S,T,U,V,W,Y,Z,BB,CC, DD,EE,FF,GG,HH,II,JJ,KK,LL,MM,NN, OO,PP,UU,AAA,CCC,DDD,EEE,FFF,KKK,LLL,MMM,NNN,OOO]
Sleep efficiency [Actigraphy]	⊕⊕⊕◯ **MODERATE** [c]	The mean difference in the CBTI group was 1.20% higher[2] [0.05% lower to 2.45% higher] compared to control	923 patients (11 RCTs) [E,N,O,P,V,CC,DD,HH,DDD,LLL,OOO]
Sleep efficiency [PSG]	⊕⊕⊕◯ **MODERATE** [c]	The mean difference in the CBTI group was 4.81% higher[2] [2.34% to 7.29% higher] compared to control	413 patients (8 RCTs) [V,Z,EE,GG,JJ,PP,CCC,OOO]
Total wake time [Diary]	⊕⊕◯◯ **LOW** [a,c]	The mean difference in the CBTI group was 39.60 minutes lower[1] [26.07 to 53.12 minutes lower] compared to control	1231 patients (15 RCTs) [B,C,D,F,H,N,O,R,U, GG,JJ,UU,CCC,KKK,LLL]
Total wake time [Act]	⊕⊕◯◯ **LOW** [a,c]	The mean difference in the CBTI group was 6.08 minutes lower[2] [16.42 minutes lower to 4.25 minutes higher] compared to control	134 patients (3 RCTs) [D,N,O]
Total wake time [PSG]	⊕⊕◯◯ **LOW** [a,c]	The mean difference in the CBTI group was 36.98 minutes lower[1] [79.33 minutes lower to 5.37 minutes higher] compared to control	110 patients (3 RCTs) [GG,JJ,CCC]
Total sleep time [Diary]	⊕⊕⊕◯ **MODERATE** [c]	The mean difference in the CBTI group was 9.66 minutes higher[2] [4.86 minutes to 14.46 minutes higher] compared to control	3983 patients (49 RCTs) [A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S, T,U,V,W,Y,Z,BB,CC,DD,EE,FF,GG,HH, II,JJ,KK,LL,MM,NN,OO,PP,UU,CCC,DDD,EEE,FFF,MMM,NNN,OOO]
Total sleep time [Actigraphy]	⊕⊕◯◯ **LOW** [a,c]	The mean difference in the CBTI group was 19.15 minutes lower[1] [7.00 minutes to 31.29 minutes lower] compared to control	817 patients (12 RCTs) [D,E,N,O,P,V,W,DD,FF, HH,DDD,OOO]
Total sleep time [PSG]	⊕◯◯◯ **VERY LOW** [a,b,c]	The mean difference in the CBTI group was 10.59 minutes higher[2] [5.38 minutes lower to 26.56 minutes higher] compared to control	455 patients (9 RCTs) [V,W,Z,EE,GG,JJ,PP, CCC,OOO]

* Critical Outcome

[a.] 95% CI crosses clinical significance threshold and/or <200 participants

[b.] Inconsistent subgroup differences

[c.] Risk of bias [no patient blinding, allocation concealment]

[1] Meets the clinical significance threshold

[2] Does not meet the clinical significance threshold

Table S30. Summary of findings table for CBT-I for the psychological and behavioral treatment of insomnia in adults with insomnia and no comorbidities

References: Edinger 2001 (A); Soeffing 2008(B); Taylor 2014 (C); Edinger 2009 (D); Edinger 2007 (E); Jacobs 2004 (F); Wu 2006 (G); Lovato 2014 (H); Morin 1993 (I); Ritterband 2009 (J); Morin 1999 (K); Strom 2004 (L); Blom 2016 (M); Hagatun 2019 (N),Bernstein 2017(O)

Outcomes [Tool]	Quality of the evidence (GRADE)	Absolute Difference CBTI vs Control	No of Participants (studies)
Quality of sleep * [Diary]	⊕◯◯◯ **VERY LOW** a,b,c	The standardized mean difference in the CBTI group was 0.77 points higher [0.52 points lower to 2.07 points higher] compared to control[1]	110 patients (2 RCT) C,L
Quality of sleep * [PSQI]	⊕⊕◯◯ **LOW** a,b,c	The standardized mean difference in the CBTI group was 1.08 points lower [2.17 points lower to 0.02 points higher] compared to control[1]	63 patients (2 RCT) C,D
Sleep latency * [Diary]	⊕⊕⊕◯ **MODERATE** c	The mean difference in the CBTI group was 12.82 minutes lower [7.56 min to 18.09 mins lower] compared to control[2]	569 patients (10 RCTs) C,D,E,F,G,H,I,J,L,N
Sleep latency [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 17.11 minutes lower [43.65 min lower to 9.43 mins higher] compared to control[2]	58 patients (2 RCTs) G,I
Wake after sleep onset * [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 22.83 minutes lower [11.04 to 34.63 minutes lower] compared to control[1]	540 patients (9 RCTs) C,D,E,H,I,J,K,L,N
Wake after sleep onset [Act]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 5.41 minutes lower [14.16 mins lower to 3.33 min higher] compared to control[2]	181 patients (3 RCT) C,D,H
Wake after sleep onset [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 24.51 minutes lower [7.51 min lower to 41.52 mins higher] compared to control[1]	58 patients (2 RCT) I,K
Remission rate* [ISI, Diary]	⊕⊕⊕◯ **MODERATE** c	The percentage of patients achieving "remission" in the CBTI group was 47% higher [33% to 61% higher] compared to control[1]	278 patients (6 RCT) C,D,F,G,H,J
Responder rate* [ISI, Diary]	⊕⊕⊕◯ **MODERATE** a	The percentage of patients considered "responders" in the CBTI group was 44% higher [31% to 57% higher] compared to control[1]	222 patients (2 RCT) D,N
Beliefs and attitudes about sleep [DBAS]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 1.21 points lower [0.65 to 1.76 points lower] compared to control[1]	251 patients (3 RCT) C,L,N
Daytime fatigue [MFI, FFS]	⊕⊕◯◯ **LOW** a,c	The std mean difference in the CBTI group was 0.7 points lower [0.32 to 1.08 points lower] compared to control[1]	134 patients (2 RCT) C,H
Insomnia severity [ISI]	⊕⊕◯◯ **LOW** b,c	The mean difference in the CBTI group was 1.25 points lower [0.95 to 1.55 points lower] compared to control[1]	541 patients (6 RCT) C,H,J,M,N,O
Insomnia severity [ISQ]	⊕⊕⊕◯ **MODERATE** a	The mean difference in the CBTI group was 0.45 points lower [1.13 points lower to 0.23 points higher] compared to control[2]	258 patients (2 RCT) D,E
Nights using hypnotics [Diary]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 0.2 nights per week higher [2.33 nights lower to 2.73 nights per week higher] compared to control[2]	24 patients (1 RCT) I
Number of nighttime awakenings [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 0.31 points lower [0.07 to 0.55 points lower] compared to control[2]	259 patients (4 RCTs) C,H,J,L
Sleep efficiency [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 8.75% higher [6.34 % to 11.15% higher] compared to control[2]	646 patients (11 RCTs) C-L,N
Sleep efficiency [Actigraphy]	⊕⊕⊕◯ **MODERATE** a	The mean difference in the CBTI group was 0.16% lower [3.25% lower to 2.94% higher] compared to control[2]	139 patients (2 RCTs) D,E
Sleep efficiency [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 6.27% higher [2.64% to 9.9% higher] compared to control[2]	94 patients (3 RCTs) G,I,K
Total wake time [Diary]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 17.49 minutes lower [2.87 to 32.1 minutes lower] compared to control[2]	207 patients (4 RCTs) C,E,I,L
Total wake time [Act]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 2.49 minutes lower [10.58 minutes lower to 5.61 minutes higher] compared to control[2]	96 patients (2 RCTs) C,E
Total wake time [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 37.92 minutes lower [6.57 minutes to 69.27 minutes lower] compared to control[1]	23 patients (1 RCT) I
Total sleep time [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 10.06 minutes higher [1.88 minutes lower to 18.25 minutes higher] compared to control[2]	611 patients (11 RCTs) C-L
Total sleep time [Actigraphy]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 23 minutes lower [51.11 minutes lower to 5.11 minutes higher] compared to control[2]	241 patients (4 RCTs) C,D,E,H

Total sleep time [PSG]	⊕⊕◯◯ **LOW** [a,b,c]	The mean difference in the CBTI group was 23.28 minutes higher [20.18 minutes lower to 66.93 minutes higher] compared to control[1]	94 patients (3 RCTs) [G,I,K]

***** Critical Outcome
[a.] 95% CI crosses clinical significance threshold and/or <200 participants
[b.] Inconsistent subgroup differences or overall inconsistency
[c.] Risk of bias [no patient blinding, allocation concealment]
[1] Meets the clinical significance threshold
[2] Does not meet the clinical significance threshold

Table S31. Summary of findings table for CBT-I for the psychological and behavioral treatment of insomnia in adults with insomnia and psychiatric comorbidities

References: Currie 2004 (A); Freeman 2015 (B); Harvey 2015 (C); Wagley 2013 (D);); Jungquist 2010 (H); Talbot 2014 (I); Taylor 2015 (J); Jansson-Frojmark 2012 (K); Thorndike 2013 (L)

Outcomes [Tool]	Quality of the evidence (GRADE)	Absolute Difference CBTI vs Control	No of Participants (studies)
Quality of sleep * [Diary]	⊕⊕◯◯ **LOW** a,c	The standardized mean difference in the CBTI group was 0.82 points higher [0.15 points to 1.48 points higher] compared to control[1]	47 patients (1 RCT) A
Quality of sleep [PSQI]	⊕⊕⊕◯ **MODERATE** c	The standardized mean difference in the CBTI group was 0.78 points lower [0.55 points to 1 point lower] compared to control[1]	316 patients (7 RCT) A-G
Sleep latency * [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 23.02 minutes lower [15.20 min to 30.84 mins lower] compared to control[1]	339 patients (8 RCTs) A,C,E,F,G,H,I,J
Wake after sleep onset * [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 24.57 minutes lower [10.63 to 38.50 minutes lower] compared to control[1]	339 patients (8 RCTs) A,C,E,F,G,H,I,J
Wake after sleep onset [Act]	⊕⊕⊕◯ **MODERATE** a	The mean difference in the CBTI group was 13.96 minutes lower [57.28 mins lower to 20.52 min higher] compared to control[2]	45 patients (1 RCT) I
Wake after sleep onset [PSG]	⊕⊕⊕◯ **MODERATE** a	The mean difference in the CBTI group was 18.38 minutes lower [60.15 mins lower to 32.23 min higher] compared to control[2]	102 patients (1 RCT) I
Remission rate* [ISI, Diary]	⊕⊕◯◯ **LOW** a,c	The percentage of patients achieving "remission" in the CBTI group was 31% higher [13% to 48% higher] compared to control[1]	196 patients (5 RCT) A,CD,H,I
Responder rate* [ISI, Diary]	⊕⊕◯◯ **LOW** a,c	The percentage of patients considered "responders" in the CBTI group was 50% higher [38% to 62% higher] compared to control[1]	188 patients (4RCT) C,E,F,G
Cognitive function [DBAS]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 0.9 points lower [0.53 to 1.28 points lower] compared to control[1]	123 patients (3 RCT) E,F,G
Daytime fatigue [MFI, FFS]	⊕⊕◯◯ **LOW** a,c	The std mean difference in the CBTI group was 0.81 points lower [0.19 to 1.42 points lower] compared to control[1]	44 patients (1 RCT) L
Insomnia severity [ISI]	⊕⊕⊕◯ **MODERATE** a	The mean difference in the CBTI group was 1.61 points lower [1.16 to 2.05 points lower] compared to control[1]	147 patients (4 RCT) C,H,I,J
Nights using hypnotics [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the CBTI group was 1.5 nights per week lower [3.53 nights lower to 0.53 nights per week higher] compared to control[2]	25 patients (1 RCT) G
Number of nighttime awakenings [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 0.54 points lower 1.25 points lower to 0.59 points higher] compared to control[1]	93 patients (2 RCTs) A,H
Sleep efficiency [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 9.52% higher [7.05 % to 11.99% higher] compared to control[2]	353 patients (7 RCTs) A,C,E,F,G,H,I,J
Sleep efficiency [Actigraphy]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 0.80% lower [10.15% lower to 8.55% higher] compared to control[2]	24 patients (1 RCT)E
Total wake time [Diary]	⊕⊕◯◯ **LOW** a	The mean difference in the CBTI group was 25.94 minutes lower [53.98 mins lower to 2.10 minutes higher] compared to control[2]	58 patients (1 RCTs) C
Total sleep time [Diary]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 17.69 minutes higher [5.66 minutes lower to 41.04 minutes higher] compared to control[2]	371 patients (9 RCTs) A-C,E,F,G,H,I,J
Total sleep time [Actigraphy]	⊕⊕⊕◯ **MODERATE** a	The mean difference in the CBTI group was 27.47 minutes lower [69.89 minutes lower to 14.94 minutes higher] compared to control[2]	103 patients (3 RCTs) B,E,I
Total sleep time [PSG]	⊕⊕⊕◯ **MODERATE** a	The mean difference in the CBTI group was 33.60 minutes higher [17.27 minutes lower to 84.47 minutes higher] compared to control[1]	42 patients (1 RCTs) I

* Critical Outcome
a. 95% CI crosses clinical significance threshold and/or <200 participants
b. Inconsistent subgroup differences or overall inconsistency
c. Risk of bias [no patient blinding, allocation concealment]
[1] Meets the clinical significance threshold
[2] Does not meet the clinical significance threshold

Table S32. Summary of findings table for CBT-I for the psychological and behavioral treatment of insomnia in adults with insomnia and medical comorbidities

References: Epstein 2007 (A); Jansson-Frojmark 2012 (B); Edinger 2005 (C); Savard 2014 (D); Ritterband 2012 (E); Currie 2000 (F); Savard 2005 (G); Smith 2015 (H); Martinez 2014 (I); Miro 2011 (J); Hou 2014 (K); Pigeon 2012 (L); Dirksen 2007 (M); Chen 2008 (N); Mathews 2014 (O); McCrae 2019 (P); Rybarczyk 2005 (JCC) (Q); Rybarczyk 2005 (BSM (R); Rybarczyk 2002 (S)

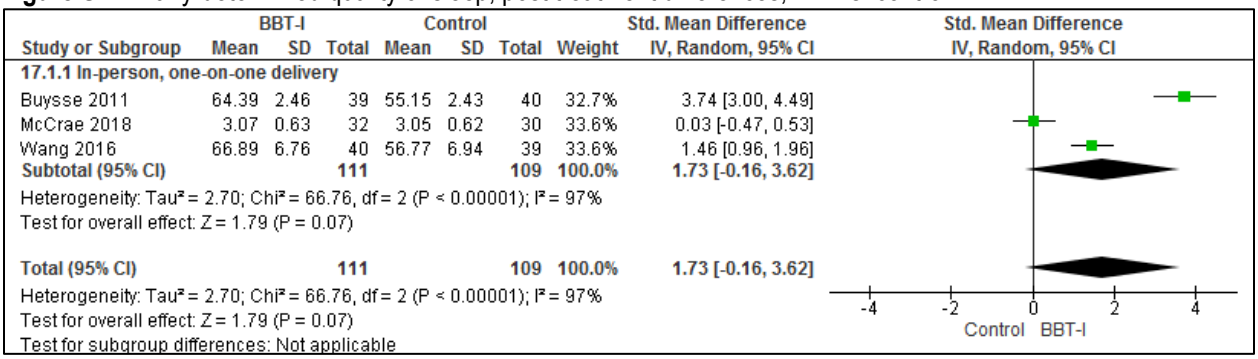
Outcomes [Tool]	**Quality of the evidence (GRADE)**	**Absolute Difference** **CBTI vs Control**	**No of Participants (studies)**
Quality of sleep * [Diary]	⊕⊕◯◯ **LOW** a,b,c	The standardized mean difference in the CBTI group was 0.14 points higher [0.60 points lower to 0.88 points higher] compared to control[2]	178 patients (3 RCT) A,B,P
Quality of sleep [PSQI]	⊕⊕⊕◯ **MODERATE** c	The standardized mean difference in the CBTI group was 0.88 points lower [0.61 points to 1.14 points lower] compared to control[1]	243 patients (4 RCT) G,J,K,L
Sleep latency * [Diary]	⊕⊕⊕◯ **MODERATE** c	The mean difference in the CBTI group was 10.63 minutes lower [5.83 min to 15.44 mins lower] compared to control[2]	220 patients (11 RCTs) A,C,D,E,F,G,H,P,Q,R,S
Sleep latency [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 2.89 minutes lower [20.31 min lower to 14.53 mins higher] compared to control[2]	202 patients (3 RCTs) H,I,P
Wake after sleep onset * [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 19.60 minutes lower [11.90 to 27.31 minutes lower] compared to control[2]	761 patients (11 RCTs) A,C,D,E,F,G,H,I,P,Q,R,S
Wake after sleep onset [Act]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 10.15 minutes lower [0.61 mins to 19.68 min lower] compared to control[2]	261 patients (4 RCT) C,D,I,P
Wake after sleep onset [PSG]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 18.59 minutes lower [48.29mins lower to 11.11 mins higher] compared to control[2]	217 patients (3 RCT) H,I,P
Remission rate* [ISI, Diary]	⊕⊕⊕◯ **MODERATE** c	The percentage of patients achieving "remission" in the CBTI group was 30% higher [23% to 38% higher] compared to control[1]	465 patients (6 RCT) B,E,F,G,H,I
Responder rate* [ISI, Diary]	⊕⊕◯◯ **LOW** a,c	The percentage of patients considered "responders" in the CBTI group was 59% higher [43% to 75% higher] compared to control[1]	66 patients (2 RCT) B,C
Beliefs and attitudes about sleep [DBAS]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 1.20 points lower [0.74 to 1.67 points lower] compared to control[1]	489 patients (5 RCT) D,P,Q,R,S
Daytime fatigue [MFI, FSS]	⊕⊕⊕◯ **MODERATE** c	The std mean difference in the CBTI group was 0.53 points lower [0.22 to 0.84 points lower] compared to control[1]	167 patients (4 RCT) F,J,M,N
Insomnia severity [ISI]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 0.78 points lower [0.43 to 1.12 points lower] compared to control[1]	401 patients (5 RCT) B,E,I,M,N
Insomnia severity [ISQ]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 0.31 points lower [1.74 points lower to 1.11 points higher] compared to control[2]	42 patients (1 RCT) C
Number of awakenings [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the CBTI group was 0.11 points lower [0.7 to 0.92 points lower] compared to control[2]	83 patients (2 RCTs) G,Q
Sleep efficiency [Diary]	⊕⊕⊕◯ **MODERATE** c	The mean difference in the CBTI group was 7.04% higher [5.02 % to 9.05% higher] compared to control[2]	771 patients (12 RCTs) A,C,D,E,F,G,H,L,P,Q,R,S
Sleep efficiency [Actigraphy]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 3.47% higher [1.55% to 5.39% higher] compared to control[2]	259 patients (4 RCTs) A,C,H,P
Sleep efficiency [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 3.25% higher [0.12% lower to 6.38% higher] compared to control[2]	217 patients (3 RCTs) G,H,P
Total wake time [Diary]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the CBTI group was 37.64 minutes lower [19.71 to 55.58 minutes lower] compared to control[1]	351 patients (5 RCTs) B,C,D,G,L
Total wake time [Act]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 16.96 minutes lower [1.22 minutes to 32.71 minutes lower] compared to control[2]	38 patients (1 RCTs) C
Total wake time [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 1.37 minutes lower [23.05 minutes to 20.31 minutes higher] compared to control[2]	57 patients (1 RCT) G
Total sleep time [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 4.05 minutes lower [13.27 minutes lower to 5.17 minutes higher] compared to control[2]	801 patients (13 RCTs) A-H,L,P,Q,R,S
Total sleep time [Actigraphy]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 11.50 minutes lower [34.08 minutes lower to 11.08 minutes higher] compared to control[2]	281 patients (5 RCTs) A,C,H,P,S
Total sleep time [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the CBTI group was 11.01 minutes lower [30.18 minutes lower to 8.17 minutes higher] compared to control[2]	217 patients (3 RCTs) G,H,P

* Critical Outcome
[a.] 95% CI crosses clinical significance threshold and/or <200 participants
[b.] Inconsistent subgroup differences or overall inconsistency
[c.] Risk of bias [no patient blinding, allocation concealment]
[1] Meets the clinical significance threshold
[2] Does not meet the clinical significance threshold

Brief Therapies for Insomnia (BTI)

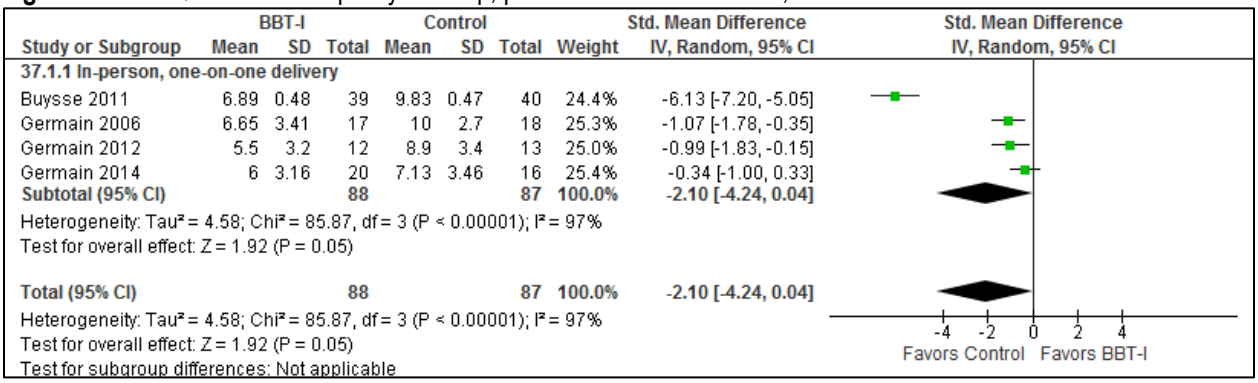
Quality of sleep: Diary

Figure S77. Dairy-determined quality of sleep, post treatment differences, BTI vs. control



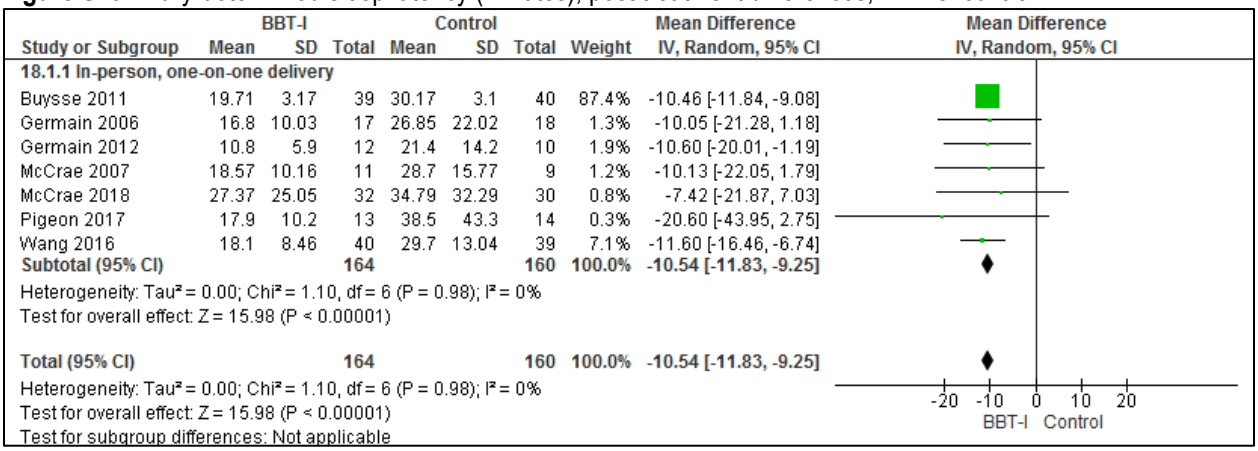
Quality of sleep: PSQI

Figure S78. PSQI-determined quality of sleep, post treatment differences, BTI vs. control



Sleep latency: Diary

Figure S79. Diary-determined sleep latency (minutes), post treatment differences, BTI vs. control



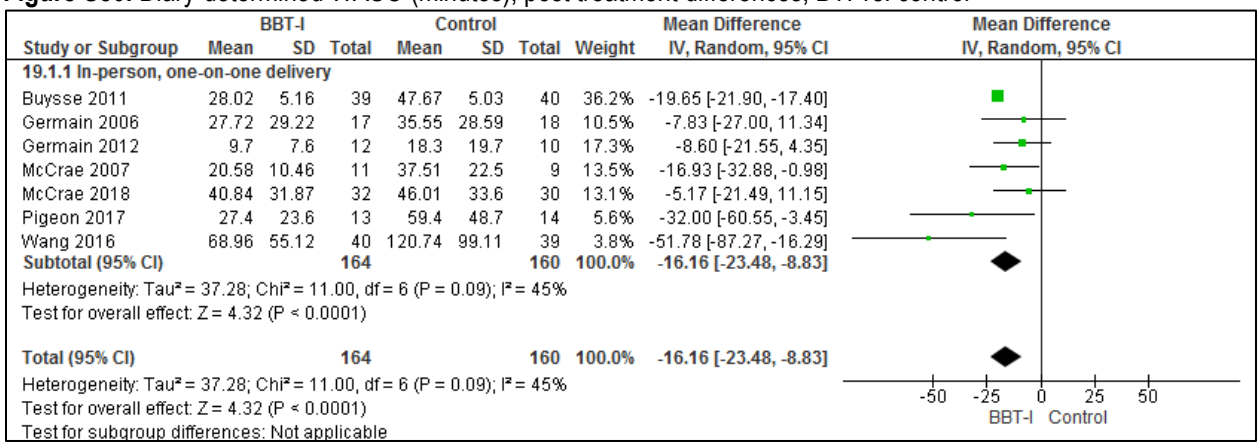
Sleep latency: PSG

Table S33. PSG-determined sleep latency (minutes), post treatment differences, BTI vs. control

Study	Delivery method	BTI			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Buysse 2011	In-person, one-on-one delivery	29.21	4.81	39	25.59	4.74	40	3.62 [1.51, 5.73]
Germain 2012	In-person, one-on-one delivery	18.2	11.9	12	14.7	8.7	12	3.50 [-4.84, 11.84]

Wake after sleep onset: Diary

Figure S80. Diary-determined WASO (minutes), post treatment differences, BTI vs. control



Wake after sleep onset

Table S34. Actigraphy-determined WASO (minutes), post treatment differences, BTI vs. control

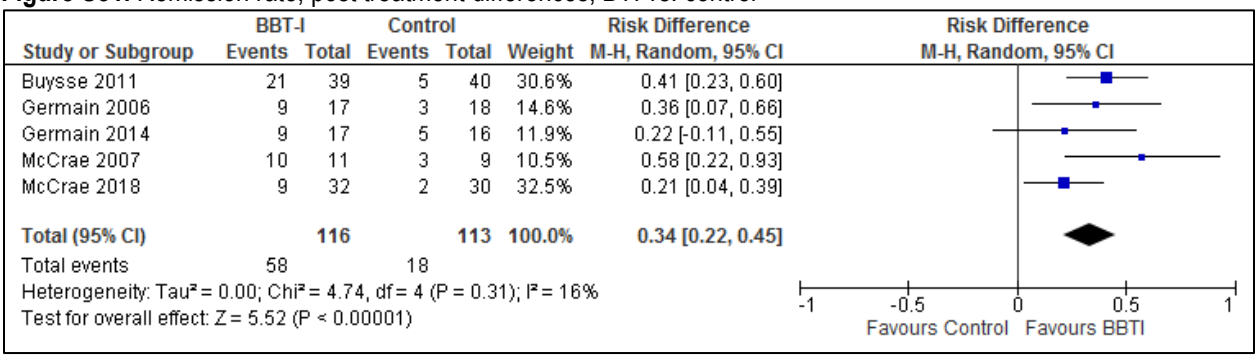
Study	Delivery method	BTI			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Buysse 2011	In-person, one-on-one delivery	46.62	3.99	39	55.38	3.97	40	-8.76 [-10.52, -7.00]
McCrae 2018	In-person, one-on-one delivery	32.05	17.06	32	41	15.1	30	-8.95 [-16.96, -0.94]

Table S35. PSG-determined WASO (minutes), post treatment differences, BTI vs. control

Study	Delivery method	BTI			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Buysse 2011	In-person, one-on-one delivery	85.26	8.49	40	92.46	8.38	40	-7.20 [-10.92, -3.48]
Germain 2012	In-person, one-on-one delivery	45.1	19.7	12	33	24.5	12	12.10 [-5.69, 29.89]

Remission rate

Figure S81. Remission rate, post treatment differences, BTI vs. control



Responder rate

Table S36. Responder rate, post treatment differences, BTI vs. control

Study	Delivery method	BTI		Control		Risk Difference [95% CI]
		Events	Total	Events	Total	
Germain 2014	In-person, one-on-one, delivery	13	17	8	16	0.26[-0.05, 0.58]
Pigeon 2017	In-person, one-on-one, delivery	4	11	2	13	0.21[-0.14, 0.56]

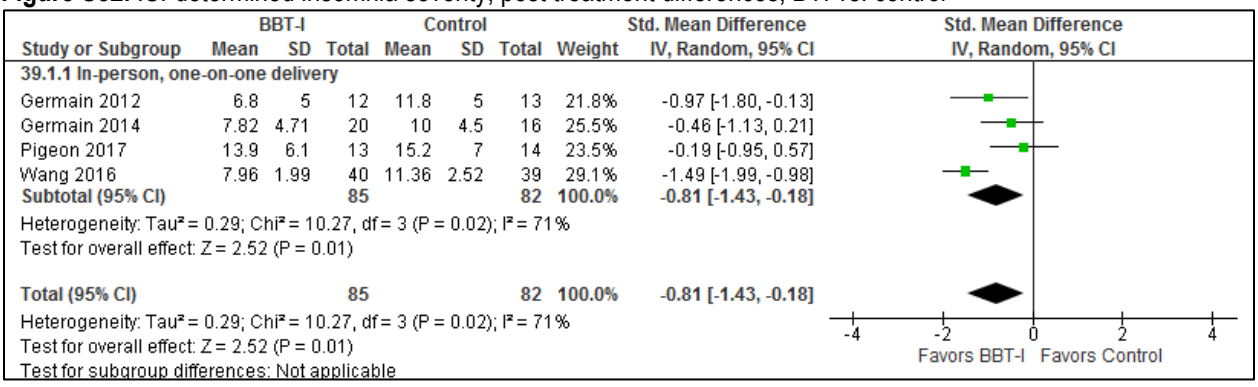
Beliefs and attitudes about sleep

Table S37. Dysfunctional Beliefs and Attitudes about Sleep (DBAS)-determined beliefs and attitudes about sleep, post treatment differences, BTI vs. control

Study	Delivery method	BTI			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Wang 2016	In-person, one-on-one delivery	4.88	0.89	40	5.09	0.99	39	-0.22 [-0.66, 0.22]

Insomnia severity

Figure S82. ISI-determined insomnia severity, post treatment differences, BTI vs. control



Number of awakenings

Table S38. Diary-determined number of awakenings (nights/week), post treatment differences, BTI vs. control

Study	Delivery method	BTI			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
McCrae 2007	In-person, one-on-one delivery	1.64	0.56	11	1.86	0.47	9	-0.22 [-0.67, 0.23]
Pigeon 2017	In-person, one-on-one delivery	1.5	1	13	2	1.2	14	-0.50 [-1.33, 0.33]

Sleep efficiency

Figure S83. Diary-determined sleep efficiency (%), post treatment differences, BTI vs. control

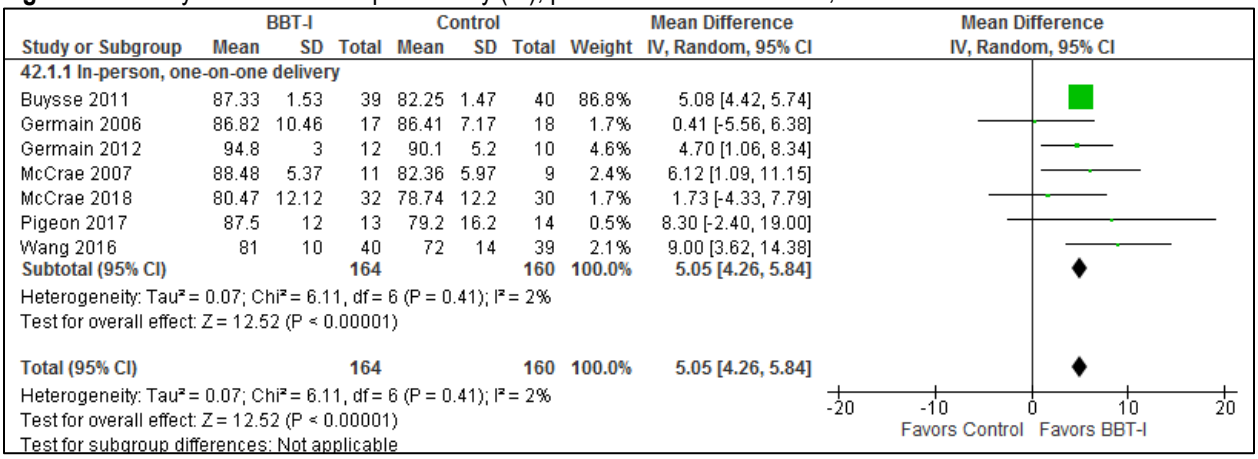


Table S39. Actigraphy-determined sleep efficiency (%), post treatment differences, BTI vs. control

Study	Delivery method	BTI			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Buysse 2011	In-person, one-on-one delivery	82.82	1.16	39	79.99	1.15	40	2.83 [2.32, 3.34]
McCrae 2018	In-person, one-on-one delivery	86.39	7.36	32	82.58	7.05	30	-3.81 [0.22, 7.40]

Table S40. PSG-determined sleep efficiency (%), post treatment differences, BTI vs. control

Study	Delivery method	BTI			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Buysse 2011	In-person, one-on-one delivery	74.86	1.67	39	74.16	1.64	40	0.70 [-0.03, 1.43]
Germain 2012	In-person, one-on-one delivery	84.5	6.5	12	89.1	5	12	-4.60 [-9.24, 0.04]

Total sleep time

Figure S84. Diary-determined total sleep time (minutes), post treatment differences, BTI vs. control

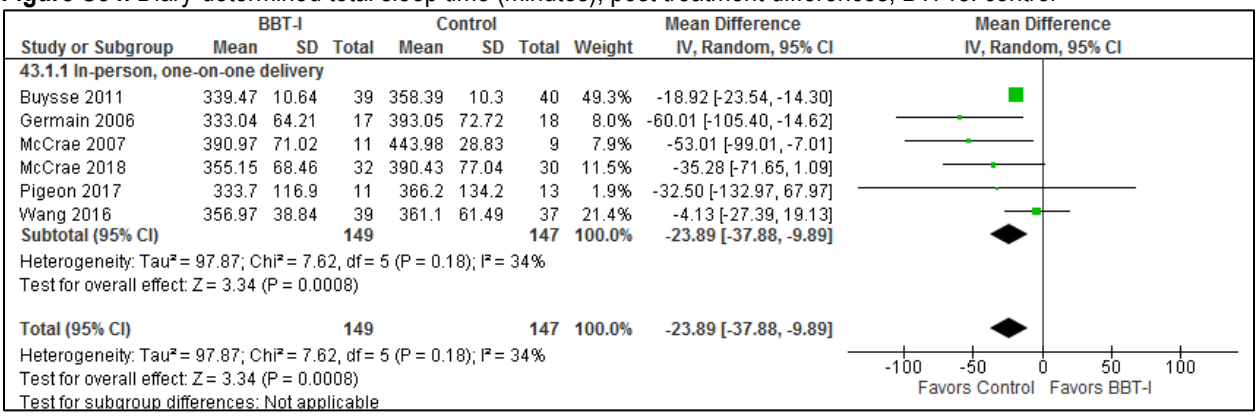


Table S41. Actigraphy-determined total sleep time (minutes), post treatment differences, BTI vs. control

Study	Delivery method	BTI			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Buysse 2011	In-person, one-on-one delivery	338.16	8.14	39	370.44	8.02	40	-32.28 [-35.84, -28.72]
McCrae 2018	In-person, one-on-one delivery	371.79	47.69	32	375.75	63.46	30	-3.96 [-32.04, 24.12]

Table S42. PSG-determined total sleep time (minutes), post treatment differences, BTI vs. control

Study	Delivery method	BTI			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Buysse 2011	In-person, one-on-one delivery	324.82	9.43	39	333.31	9.31	40	-8.49 [-12.62, -4.36]
Germain 2012	In-person, one-on-one delivery	355.6	64.9	12	389.7	40	12	-34.10 [-77.23, 9.03]

Table S43. Summary of findings table for BTIs for the psychological and behavioral treatment of insomnia in adults

References: Buysse 2011 (A); Wang 2016 (B); Germain 2006 (C); Germain 2012 (D); Germain 2014 (E); McCrae 2007 (F); Pigeon 2017 (G); McCrae 2018 (H); Pigeon 2017 (I)

Outcomes [Tool]	Quality of the evidence (GRADE)	Absolute Difference BTIIs vs Control	No of Participants (studies)
Quality of sleep* [Diary]	⊕⊕◯◯ **LOW** a,b,c	The standardized mean difference in the BTII group was 1.73 points higher[1] [0.16 points lower to 3.62 points higher] compared to control	220 patients (3 RCT) A,B,H
Quality of sleep [PSQI]	⊕⊕◯◯ **LOW** a,c	The standardized mean difference in the BTII group was 0.76 points lower[1] [0.28 points to 1.25 points lower] compared to control	96 patients (3 RCT) C,D,E
Sleep latency* [Diary]	⊕⊕⊕◯ **MODERATE**c	The mean difference in the BTII group was 10.54 minutes lower[2] [9.25 mins to 11.83 mins lower] compared to control	324 patients (7 RCT) A,B,C,D,F,G,H
Sleep latency [PSG]	⊕⊕⊕◯ **MODERATE**a	The mean difference in the BTII group ranged from 3.50 to 3.62 minutes higher[2] compared to control	103 patients (2 RCT) A,D
Wake after sleep onset* [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the BTII group was 16.16 minutes lower[2] [8.83 mins to 23.48 mins lower] compared to control	324 patients (7 RCT) A,B,C,D,F,G,H
Wake after sleep onset [Actigraphy]	⊕⊕⊕◯ **MODERATE**a	The mean difference in the BTII group ranged from 8.76 to 8.95 minutes lower[2] compared to control	141 patients (2 RCT) A,H
Wake after sleep onset [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the BTII group ranged from 7.20 minutes lower to 12.10 minutes higher[2] compared to control	103 patients (2 RCT) A,D
Remission rate* [Diary/ISI]	⊕⊕⊕◯ **MODERATE**a	The percentage of patients achieving "remission" in the BTII group was 34% higher[1] [22% lower to 45% higher] compared to control	229 patients (5 RCT) A,C,E,F,H
Responder rate* [Diary/ISI]	⊕⊕⊕◯ **MODERATE**a	The percentage of patients considered "responders" in the BTII group ranged from 21% to 26% higher[1] compared to control	57 patients (2 RCT) E,G
Beliefs and attitudes about sleep [DBAS]	⊕⊕◯◯ **LOW** a,b	The mean difference in the BTII group was 0.22 points lower[2] [0.66 points lower to 0.22 points higher] compared to control	79 patients (1 RCT) B
Insomnia severity [ISI]	⊕⊕◯◯ **LOW** a,b	The mean difference in the BTII group was 0.81 point lower[1] [0.18 to 1.43 points lower] compared to control	167 patients (4 RCT) B,D,E,I
Number of awakenings [Diary]	⊕⊕⊕◯ **MODERATE**a	The mean difference in the BTII group ranged from 0.22 to 0.50 fewer awakenings compared to control	47 patients (2 RCT) F,I
Sleep efficiency [Diary]	⊕⊕⊕◯ **MODERATE** b	The mean difference in the BTII group was 5.05% higher[2] [4.26% to 5.84% higher] compared to control	304 patients (7 RCT) A,B,C,D,F,G,H
Sleep efficiency [Actigraphy]	⊕⊕⊕◯ **MODERATE**a	The mean difference in the BTII group I ranged from 3.81% lower to 2.83% higher[2] compared to control	141 patients (2 RCT) A,H
Sleep efficiency [PSG]	⊕⊕◯◯ **LOW** a,c	The mean difference in the BTII group ranged from 4.60% lower[2] to 0.70% higher compared to control	103 patients (2 RCT) A,D
Total sleep time [Diary]	⊕⊕⊕◯ **MODERATE**a	The mean difference in the BTII group was 23.89 minutes lower[2] [9.89 mins to 37.88 mins lower] compared to control	296 patients (6 RCT) A,B,C,F,H,I
Total sleep time [Actigraphy]	⊕⊕⊕◯ **MODERATE**a	The mean difference in the BTII ranged from 3.96 minutes to 32.28 minutes lower[2] compared to control	141 patients (2 RCT) A,H
Total sleep time [PSG]	⊕⊕⊕◯ **MODERATE**a	The mean difference in the BTII group ranged from 8.49 minutes to 34.10 minutes lower[2] compared to control	103 patients (2 RCT) A,D

* Critical Outcome
a. 95% CI crosses clinical significance threshold and/or <200 participants
b. Risk of bias [no patient blinding, allocation concealment]
c. Inconsistent results
[1] Meets the clinical significance threshold
[2] Does not meet the clinical significance threshold

Stimulus Control

Quality of sleep

Table S44. Diary-determined quality of sleep, post treatment differences, stimulus control vs. control

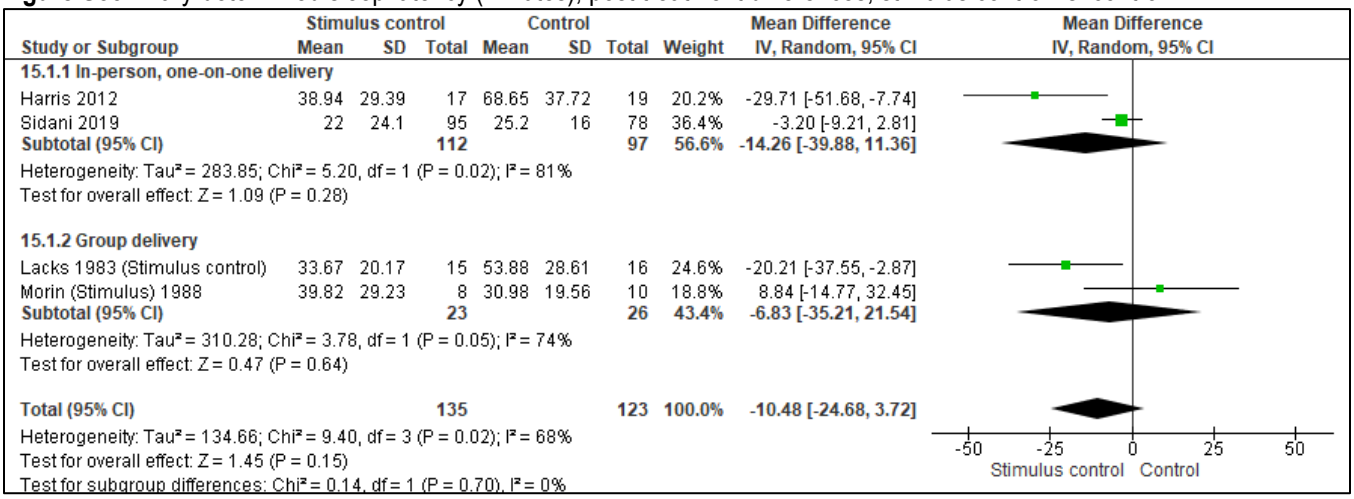
Study	Delivery method	Stimulus Control			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Sidani 2019	In-person, one-on-one delivery	3.02	0.55	95	2.94	0.50	78	-0.15[-0.15, 0.45]

Table S45. PSQI-determined quality of sleep, post treatment differences, stimulus control vs. control

Study	Delivery method	Stimulus Control			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person, one-on-one delivery	8.73	2.71	17	11.11	2.72	19	-0.86 [-1.54, -0.17]

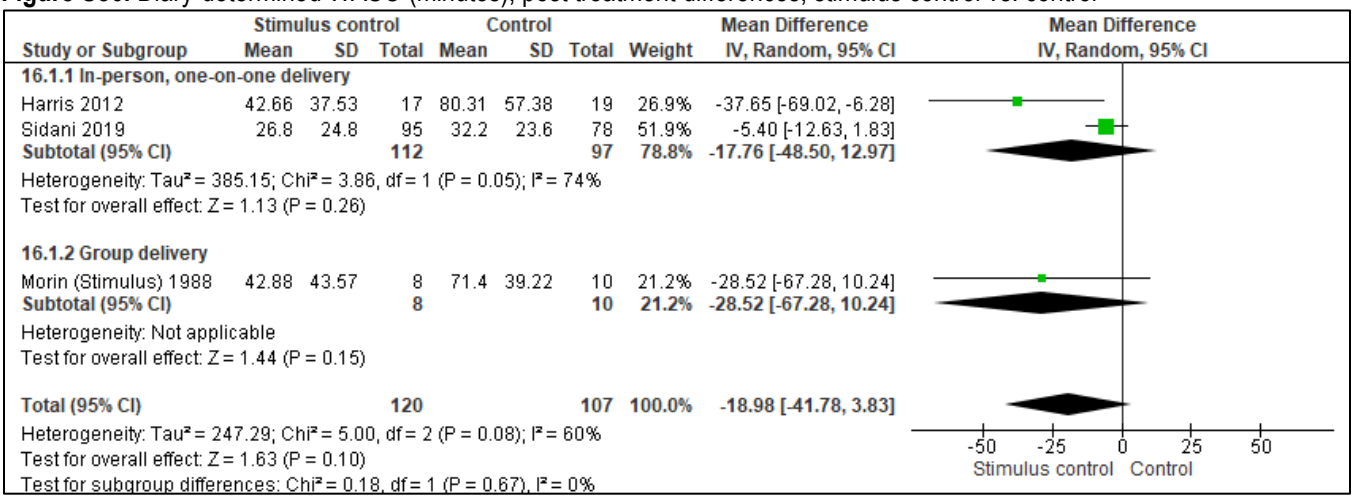
Sleep latency

Figure S85. Diary-determined sleep latency (minutes), post treatment differences, stimulus control vs. control



Wake after sleep onset

Figure S86. Diary-determined WASO (minutes), post treatment differences, stimulus control vs. control



Wake after sleep onset

Table S46. Actigraphy-determined WASO (minutes), post treatment differences, stimulus control vs. control

Study	Delivery method	Stimulus Control			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person, one-on-one delivery	92.47	44	17	100.19	46.49	19	-7.72 [-37.29, 21.85]

Remission rate

Table S47. ISI/Diary determined remission rate, post treatment differences, stimulus control vs. control

Study	Delivery method	Stimulus Control		Control		Risk Difference [95% CI]
		Events	Total	Events	Total	
Sidani 2019	In-person, delivery	31	95	11	78	0.19 [0.06, 0.31]

Insomnia severity

Table S48. ISI-determined insomnia severity, post treatment differences, stimulus control vs. control

Study	Delivery method	Stimulus Control			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Sidani 2019	In-person, one-on-one delivery	10.33	4.71	95	13.04	4.76	78	-0.57[-0.88, -0.26]

Number of nighttime awakenings

Table S49. Diary-determined number of awakenings (no./nights), post treatment differences, stimulus control vs. control

Study	Delivery method	Stimulus Control			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Morin 1988	Group delivery	1.92	1.13	8	2.61	1.07	10	-0.69 [-1.72, 0.34]
Sidani 2019	In-person delivery	1.3	1.0	95	2.0	2.4	78	-0.70 [-1.27, -0.13]

Sleep efficiency

Table S50. Diary-determined total sleep efficiency (%), post treatment differences, stimulus control vs. control

Study	Delivery method	Stimulus Control			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person, one-on-one delivery	81.57	7.34	17	68.24	14.14	19	13.33 [6.08, 20.58]
Sidani 2019	In-person, one-on-one delivery	84.01	12.55	95	80.93	7.69	78	3.08 [0.03, 6.13]

Table S51. Actigraphy-determined total sleep efficiency (%), post treatment differences, stimulus control vs. control

Study	Delivery method	Stimulus Control			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person, one-on-one delivery	75.61	9.82	17	71.92	11.91	19	3.69 [-3.41, 10.79]

Total sleep time

Figure S87. Diary-determined total sleep time (minutes), post treatment differences, stimulus control vs. control

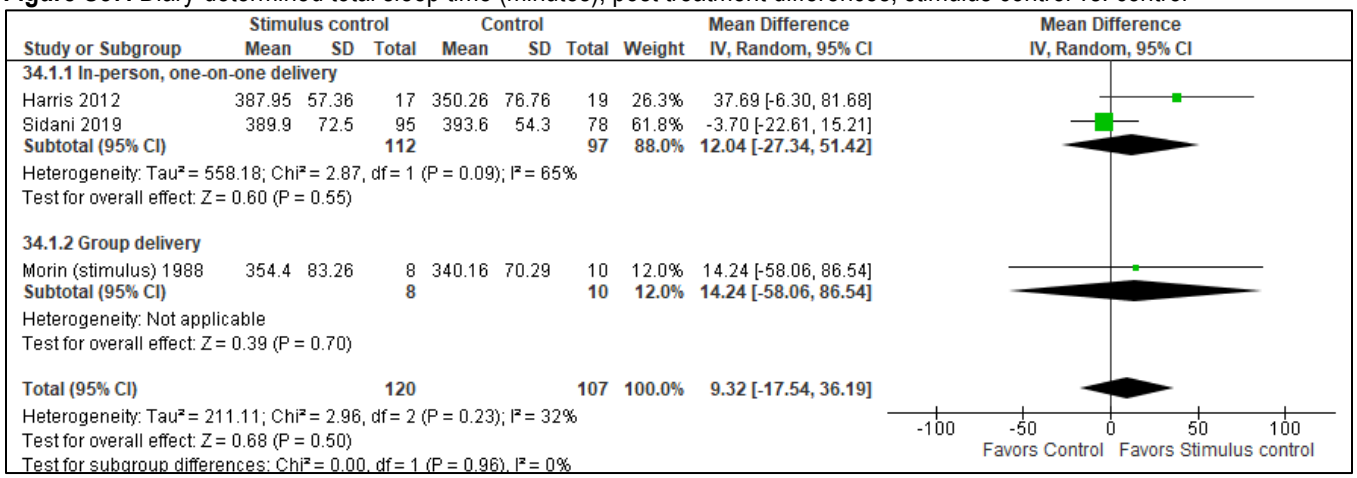


Table S52. Actigraphy-determined total sleep time (minutes), post treatment differences, stimulus control vs. control

Study	Delivery method	Stimulus Control			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person, one-on-one delivery	365.12	65.98	17	368.5	72.74	19	-3.38 [-48.70, 41.94]

Table S53. Summary of findings table for stimulus control for the psychological and behavioral treatment of insomnia in adults

References: Harris 2012 (A); Lacks 1983 (B); Morin 1988 (C); Sidani 2019 (D)

Outcomes [Tool]	Quality of the evidence (GRADE)	Absolute Difference Stimulus control vs Control	No of Participants (studies)
Quality of sleep [Diary]	⊕⊕◯◯ **LOW** [a,b]	The standardized mean difference in the Stimulus control group was 0.15 points lower[2] [0.15 points lower to 0.45 points higher] compared to control	173 patients (1 RCT)[D]
Quality of sleep [PSQI]	⊕⊕◯◯ **LOW** [a,b]	The standardized mean difference in the Stimulus control group was 0.86 points lower[1] [0.17 points lower to 1.54 points lower] compared to control	36 patients (1 RCT) [A]
Sleep latency* [Diary]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Stimulus control group was 14.4 minutes lower[2] [35.22 mins lower to 6.41 mins higher] compared to control	258 patients (4 RCT) [A,B,C,D]
Wake after sleep onset* [Diary]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Stimulus control group ranged was 18.98 minutes lower[2] [41.78mins lower to 3.83 mins higher] compared to control	237 patients (3 RCT) [A,C,D]
Wake after sleep onset [Actigraphy]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Stimulus control group was 7.72 minutes lower[2] [37.29 mins lower to 21.85 mins higher] compared to control	36 patients (1 RCT) [A]
Remission rate* [ISI]	⊕◯◯◯ **MODERATE** [a]	The percentage of patients achieving "remission" in the Stimulus control group was 19% higher[1] [6% to 31% higher] compared to control	173 patients (1 RCT)[D]
Insomnia severity [ISI]	⊕⊕◯◯ **LOW** [a,b]	The standardized mean difference in the Stimulus control group was 0.57 points lower[1] [0.88 to 0.26 points lower] compared to control	173 patients (1 RCT) [D]
Number of awakenings [Diary]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Stimulus control group ranged from 0.69 to o.70 lower[1] number of awakenings compared to control	181 patients (2 RCT) [C,D]
Sleep efficiency [Diary]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Stimulus control group was 7.65% higher[1] [2.33% lower to 17.64% higher] compared to control	209 patients (2 RCT) [A,D]
Sleep efficiency [Actigraphy]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Stimulus control group was 3.69% higher[2] [3.41% lower to 10.79% higher] compared to control	36 patients (1 RCT) [A]
Total sleep time [Dairy]	⊕⊕⊕◯ **VERY LOW** [a,b,c]	The mean difference in the Stimulus control group was 9.32 minutes higher[2] [17.54minutes lower to 36.19 minutes higher] compared to control	227 patients (3 RCT) [A,C,D]
Total sleep time [Actigraphy]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Stimulus control group was 3.38 minutes lower[2] [48.70 mins lower to 41.94 mins higher] compared to control	36 patients (1 RCT) [A]

* Critical Outcome

[a.] 95% CI crosses clinical significance threshold and/or <200 participants

[b.] Risk of bias [no patient blinding, allocation concealment]

[c.] Double imprecision

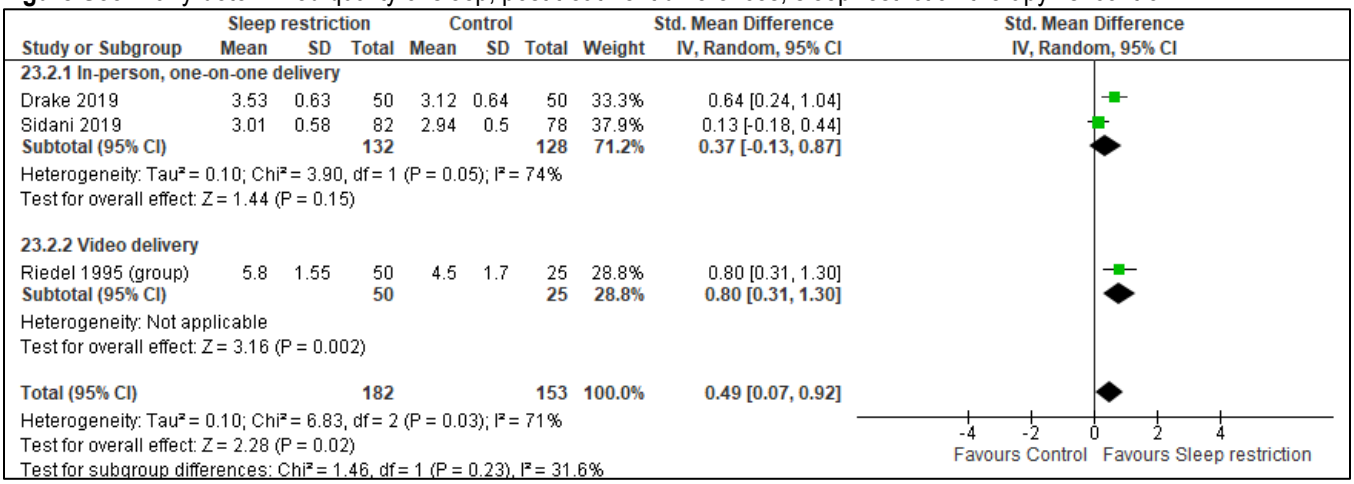
[1] Meets the clinical significance threshold

[2] Does not meet the clinical significance threshold

Sleep Restriction

Quality of sleep

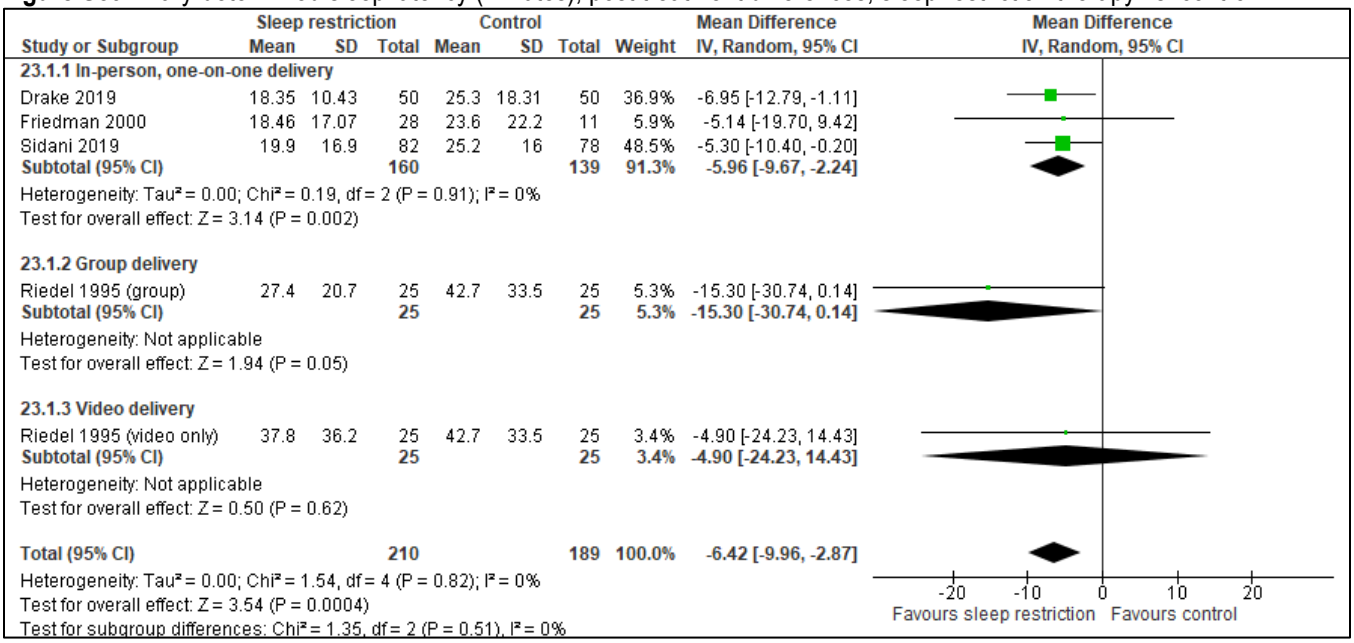
Figure S88. Dairy-determined quality of sleep, post treatment differences, sleep restriction therapy vs. control



*Pooled data video and group for Riedel 1995

Sleep latency: Diary

Figure S89. Diary-determined sleep latency (minutes), post treatment differences, sleep restriction therapy vs. control



*Riedel 1995 (group and video) uses same control data

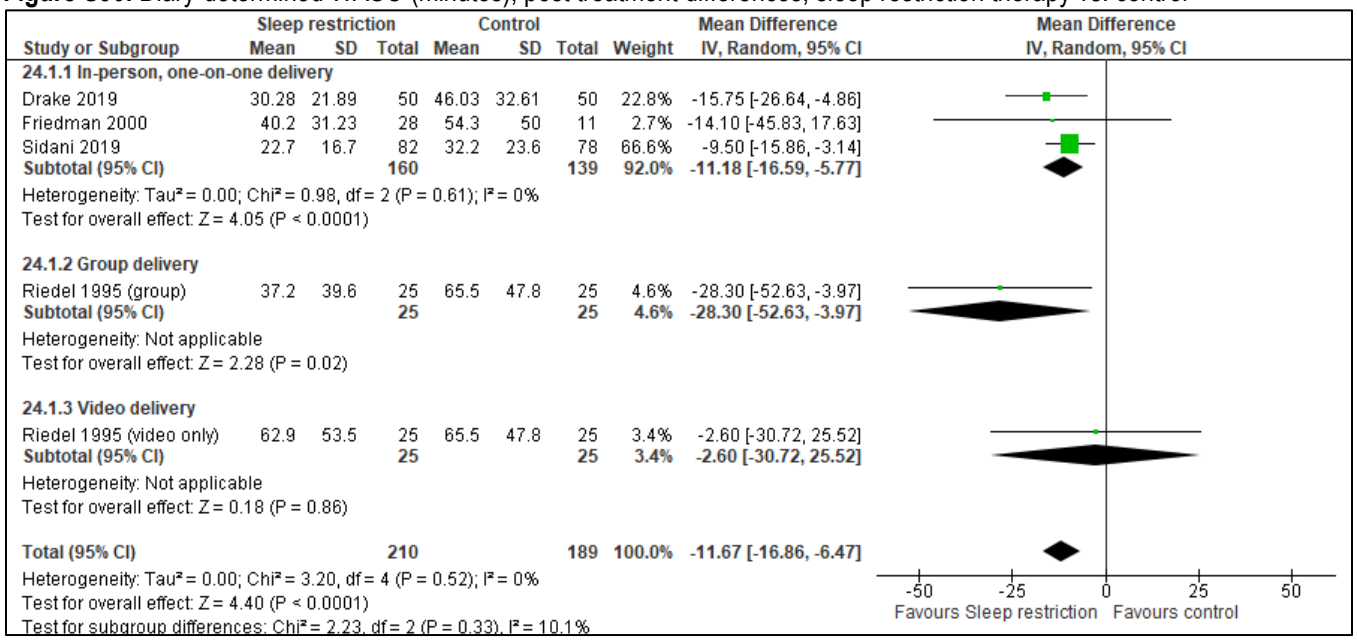
Sleep latency: PSG

Table S54. PSG-determined sleep latency (minutes), post treatment differences, sleep restriction therapy vs. control

Study	Delivery method	Sleep Restriction			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Friedman 2000	In-person, one-on-one delivery	9.69	13.88	15	11.6	10.9	4	-1.91[-14.69, 10.87]

Wake after sleep onset: Diary

Figure S90. Diary-determined WASO (minutes), post treatment differences, sleep restriction therapy vs. control



*Riedel 1995 (group and video) uses same control data

Wake after sleep onset: Actigraphy

Table S55. Actigraphy-determined WASO (minutes), post treatment differences, sleep restriction therapy vs. control

Study	Delivery method	Sleep Restriction			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Friedman 2000	In-person, one-on-one delivery	29.01	23.34	27	27.6	39	10	1.41[-24.32, 27.14]

Table S56. PSG-determined WASO (minutes), post treatment differences, sleep restriction therapy vs. control

Study	Delivery method	Sleep Restriction			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Friedman 2000	In-person, one-on-one delivery	42.6	20.14	15	29	17.7	4	13.60[-6.52, 33.72]

Remission rate

Table S57. ISI/Diary-determined remission rate, post treatment differences, sleep restriction therapy vs. control

Study	Delivery method	Sleep Restriction		Control		Risk Difference [95% CI]
		Events	Total	Events	Total	
Drake 2019	In-person, one-on-one, delivery	28	49	16	48	0.24[0.05, 0.43]
Sidani 2019	In-person, one-on-one, delivery	22	82	11	78	0.13[0.00,0.26]

Insomnia severity

Table S58 ISI-determined insomnia severity, post treatment differences, sleep restriction therapy vs. control

Study	Delivery method	Sleep Restriction			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Drake 2019	In-person, one-on-one delivery	8.64	4.18	50	14.24	4.49	50	-1.28[-1.71, -0.85]
Sidani 2019	In-person, one-on-one delivery	10.05	4.51	82	13.07	4.76	78	-0.65[-0.97, -0.33]

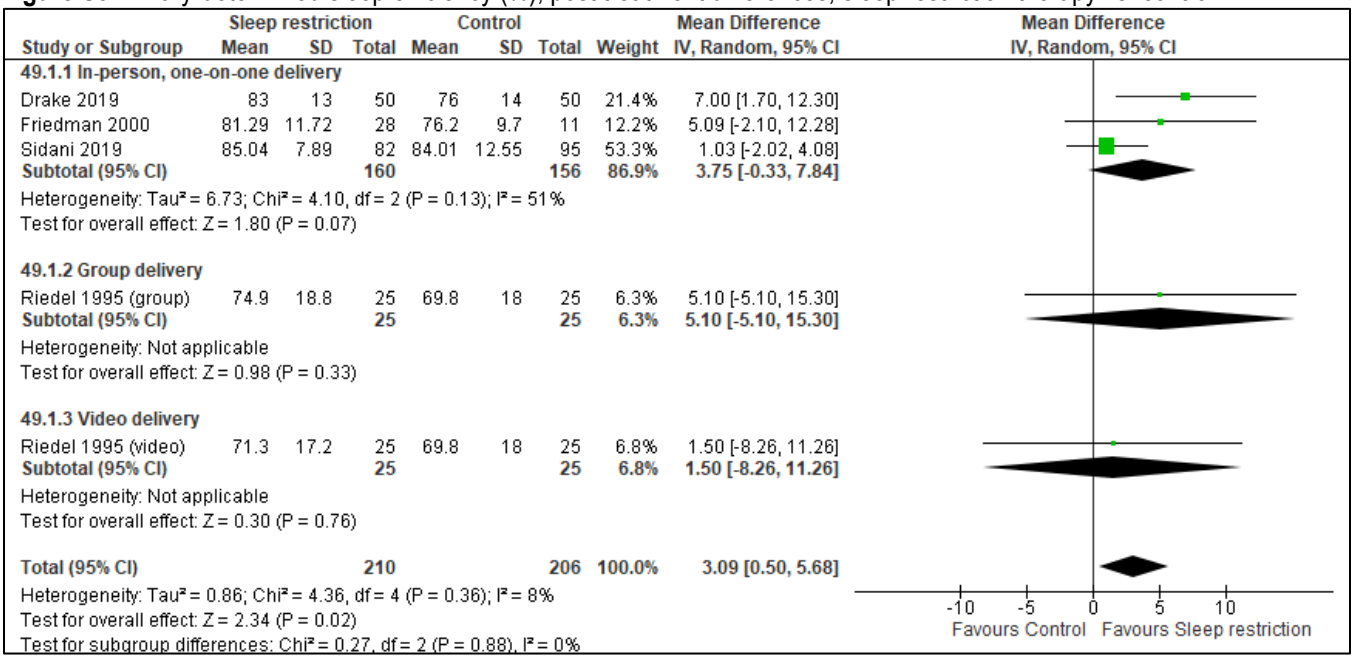
Number of nighttime awakenings

Table S59. Diary-determined number of awakenings, post treatment differences, sleep restriction therapy vs. control

Study	Delivery method	Sleep Restriction			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Sidani 2019	In-person, one-on-one delivery	1.4	1.2	82	2	2.4	78	-0.60[-1.19, -0.01]

Sleep efficiency

Figure S91. Diary-determined sleep efficiency (%), post treatment differences, sleep restriction therapy vs. control



*Riedel 1995 (group and video) uses same control data

Table S60. Actigraphy-determined sleep efficiency (%), post treatment differences, sleep restriction therapy vs. control

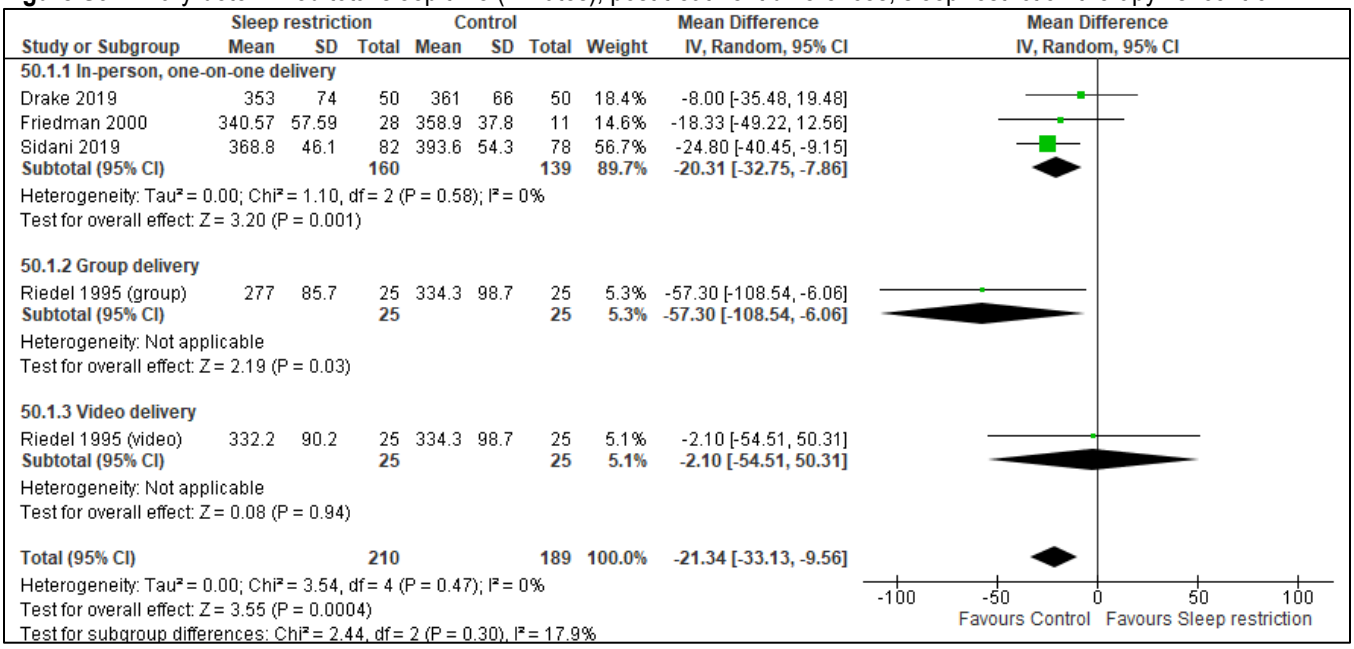
Study	Delivery method	Sleep Restriction			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Friedman 2000	In-person, one-on-one delivery	89.51	5.86	27	89.4	6.6	10	0.11 [-4.24, 4.76]

Table S61. PSG-determined sleep efficiency (%), post treatment differences, sleep restriction therapy vs. control

Study	Delivery method	Sleep Restriction			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Friedman 2000	In-person, one-on-one delivery	84.49	7.59	15	90.1	4	3	-5.61 [-11.55, 0.33]

Total sleep time

Figure S92. Diary-determined total sleep time (minutes), post treatment differences, sleep restriction therapy vs. control



*Riedel 1995 (group and video) uses same control data

Table S62. Actigraphy-determined total sleep time (minutes), post treatment differences, sleep restriction therapy vs. control

Study	Delivery method	Sleep Restriction			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Friedman 2000	In-person, one-on-one delivery	381.94	27.82	27	422.2	55.4	10	-40.26 [-76.16, -4.36]

Table S63. PSG-determined total sleep time (minutes), post treatment differences, sleep restriction therapy vs. control

Study	Delivery method	Sleep Restriction			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Friedman 2000	In-person, one-on-one delivery	339.99	38.95	15	383.9	43,91	4	-43.91[-90.52, 2.70]

Table S64. Summary of findings table for sleep restriction for the psychological and behavioral treatment of insomnia in adults

References: Riedel 1995 (A); Friedman 2000 (B); Epstein 2012 (C); Drake 2019 (D); Sidani 2019 (E)

Outcomes [Tool]	Quality of the evidence (GRADE)	Absolute Difference SR vs Control	No of Participants (studies)
Quality of sleep* [Diary]	⊕⊕◯◯ **LOW** [a,b]	The standardized mean difference in the Sleep restriction group was 0.49 points higher[1] [0.07 to 0.92 points higher] compared to control	335 patients (3 RCT) [A,D,E]
Sleep latency* [Diary]	⊕⊕⊕◯ **MODERATE** [b]	The mean difference in the Sleep restriction group was 6.42 minutes lower[2] [2.87 mins to 9.96 mins lower] compared to control	374 patients (4 RCT) [A,B,D,E]
Sleep latency [PSG]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 1.91 minutes lower[2] [14.69 mins lower to 10.87 mins higher] compared to control	19 patients (1RCT) [B]
Wake after sleep onset* [Diary]	⊕⊕⊕◯ **MODERATE** [b]	The mean difference in the Sleep restriction group was 11.67 minutes lower[1] [6.47 mins to 16.86 mins lower] compared to control	374 patients (4 RCT) [A,B,D,E]
Wake after sleep onset [Actigraphy]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 1.41 minutes higher[2] [24.32 mins lower to 27.14 mins higher] compared to control	37 patients (1 RCT) [B]
Wake after sleep onset [PSG]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 13.6 minutes higher[2] [6.52 mins lower to 33.72 mins higher] compared to control	19 patients (1 RCT) [B]
Remission rate* [ISI]	⊕⊕◯◯ **LOW** [a,b]	The percentage of patients achieving "remission" in the Sleep restriction group ranged from 16% higher[1] [6% to 26% higher] compared to control	257 patients (2 RCT) [D,E]
Responder rate* [ISI]	⊕⊕◯◯ **LOW** [a,b]	The percentage of patients considered "responders" in the Sleep restriction group ranged from 35% higher[1] [14% to 55% higher] compared to control	73 patients (1 RCT) [C]
Insomnia severity [ISI]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 0.95 points lower[1] [0.33 to 1.57 points lower] compared to control	260 patients (2 RCT) [D,E]
Number of awakenings [Diary]	⊕⊕◯◯ **LOW** [a,c]	The mean difference in the Sleep restriction group was 0.60 fewer awakenings[1] [1.19 to 0.01 fewer no.of awakenings] compared to control	160 patients (1 RCT) [E]
Sleep efficiency [Diary]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 3.09% higher[2] [0.50% lower to 5.68% higher] compared to control	416 patients (4 RCT) [A,B,D,E]
Sleep efficiency [Actigraphy]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 0.11% higher[2] 4.54% lower to 4.76% higher] compared to control	37 patients (1 RCT) [B]
Sleep efficiency [PSG]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 5.61% lower[2] [11.55% lower to 0.33% higher] compared to control	19 patients (1 RCT) [B]
Total sleep time [Diary]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 21.34 minutes lower[2] [33.13 mins to 9.56 mins lower] compared to control	374 patients (4 RCT) [A,B,D,E]
Total sleep time [Actigraphy]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 40.26 minutes lower[2] [4.36 mins to 76.16 mins lower] compared to control	37 patients (1 RCT) [B]
Total sleep time [PSG]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Sleep restriction group was 43.91 minutes lower[2] [90.52 mins lower to 2.7 mins higher] compared to control	19 patients (1 RCT) [B]

* Critical Outcome
[a.] 95% CI crosses clinical significance threshold and/or <200 participants
[b.] Risk of bias [no patient blinding, allocation concealment, missing data]
[1] Meets the clinical significance threshold
[2] Does not meet the clinical significance threshold

Relaxation Therapy

Quality of sleep

Table S65. Diary-determined quality of sleep, post treatment differences, relaxation therapy vs. control

Study	Delivery method	Relaxation Therapy			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Means 2000	In-person delivery	3.4	0.4	28	3	0.4	29	0.99 [0.43, 1.54]
Creti 2005	Audio delivery	3.31	0.68	14	3.32	0.65	13	-0.01 [-0.77, 0.74]

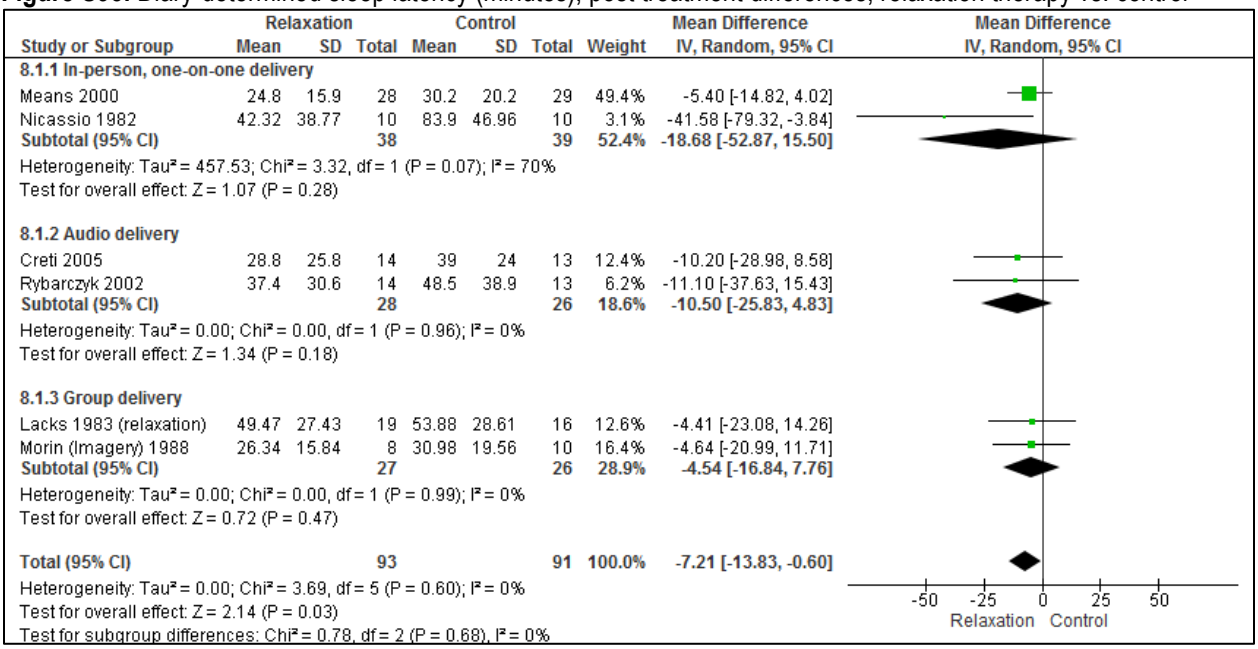
Quality of sleep (PSQI)

Table S66. PSQI-determined quality of sleep, post treatment differences, relaxation therapy vs. control

Study	Delivery method	Relaxation Therapy			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Rybarczyk 2002	Audio delivery	7.5	3.6	14	10.7	2.8	13	-0.96 [-1.76, -0.15

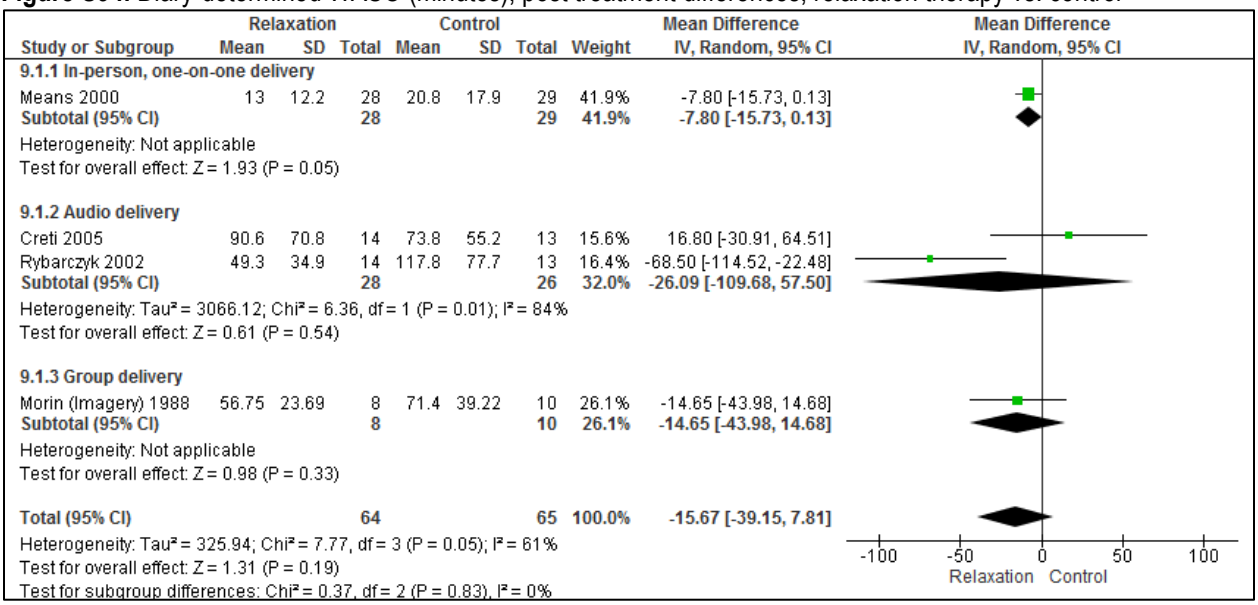
Sleep latency

Figure S93. Diary-determined sleep latency (minutes), post treatment differences, relaxation therapy vs. control



Wake after sleep onset

Figure S94. Diary-determined WASO (minutes), post treatment differences, relaxation therapy vs. control



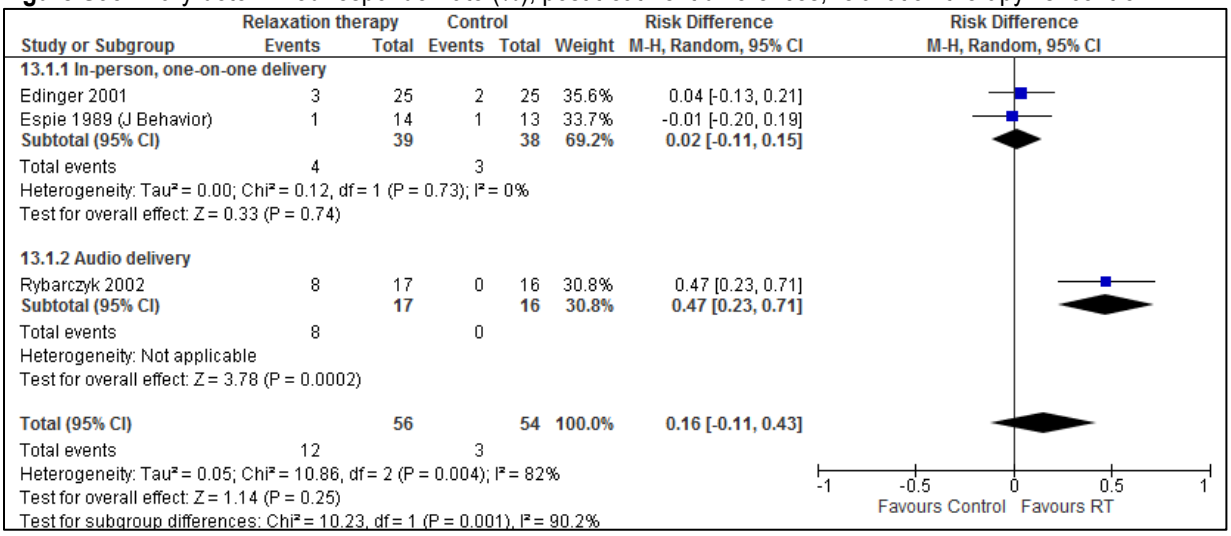
Wake after sleep onset (Act)

Table S67. Actigraphy-determined WASO (minutes), post treatment differences, relaxation therapy vs. control

Study	Delivery method	Relaxation Therapy			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Rybarczyk2002	Audio delivery	77.1	41.5	14	102.1	57.1	13	-25.0 [-62.89, 12.89]

Responder rate

Figure S95. Diary-determined responder rate (%), post treatment differences, relaxation therapy vs. control



Beliefs and attitudes about sleep

Table S68. Dysfunctional Beliefs and Attitudes about Sleep (DBAS)-determined beliefs and attitudes about sleep, post treatment differences, relaxation therapy vs. control

Study	Delivery method	Relaxation Therapy			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Rybarczyk2002	Audio delivery	18.5	7.9	14	27.2	8.8	13	-1.01 [-1.82, -0.20]
Means 2000	In-person, one-on-one	4.4	1	28	4.7	1.1	29	-0.28[-0.80, 0.24]

Nights using hypnotics

Table S69. Diary-determined nights using hypnotics (nights/week), post treatment differences, relaxation therapy vs. control

Study	Delivery method	Relaxation Therapy			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Rybarczyk2002	Audio delivery	0.9	1.9	14	2.3	3.1	12	-1.40 [-3.42, 0.62]

Number of awakenings

Table S70. Diary-determined number of awakenings (no./night), post treatment differences, relaxation therapy vs. control

Study	Delivery method	Relaxation Therapy			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Morin (Imagery) 1988	Group delivery	2.46	1.24	8	2.61	1.07	10	-0.15 [-1.24, 0.94]

Sleep efficiency

Figure S96. Diary-determined sleep efficiency (%), post treatment differences, relaxation therapy vs. control

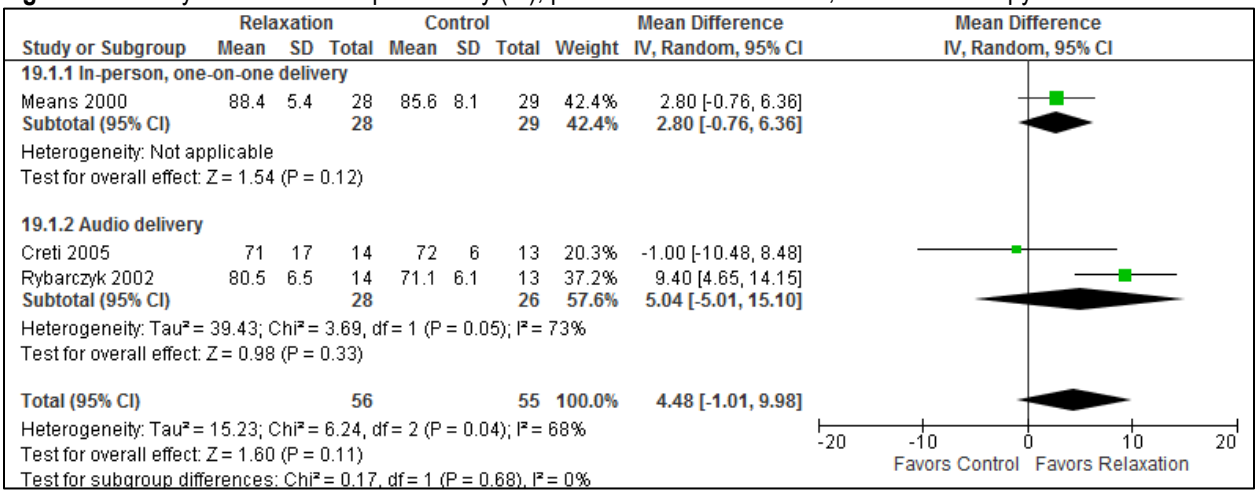


Table S71. Actigraphy-determined sleep efficiency (%), post treatment differences, relaxation therapy vs. control

Study	Delivery method	Relaxation Therapy			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Rybarczyk2002	Audio delivery	77.4	12.8	14	76.8	8.6	13	0.60 [-7.57, 8.77]

Total sleep time

Figure S97. Diary-determined total sleep time (minutes) post treatment differences, relaxation therapy vs. control

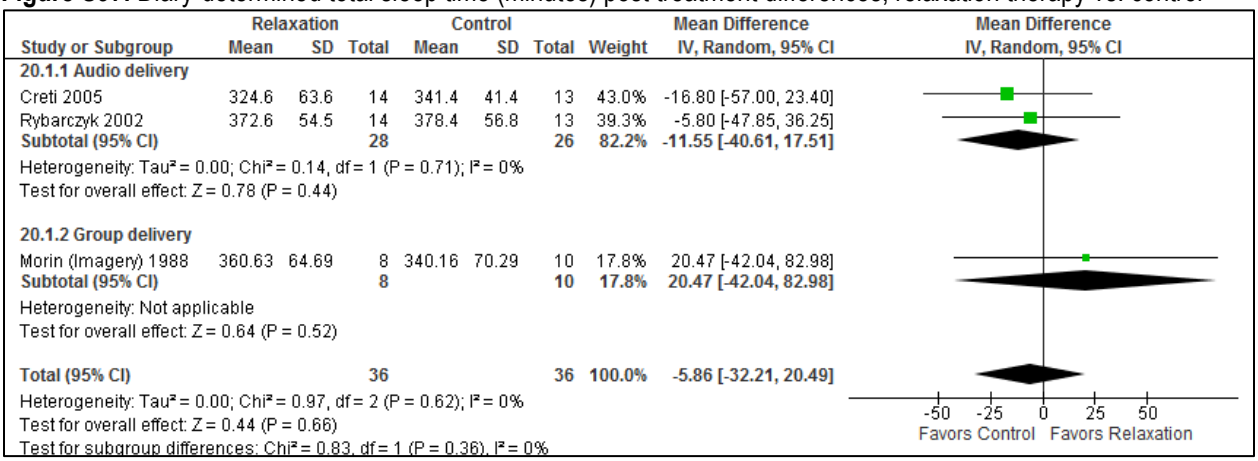


Table S72. Actigraphy-determined total sleep time (minutes), post treatment differences, relaxation therapy vs. control

Study	Delivery method	Relaxation Therapy			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Rybarczyk 2002	Audio delivery	439.8	109.1	14	466.5	67	13	-27.50 [-95.27, 40.27]

Table S73. Summary of findings table for relaxation therapy for the treatment of psychological and behavioral insomnia in adults

References: Means 2000 (A); Creti 2005 (B); Rybarczyk 2002 (C); Nicassio 1982 (D); Lacks 1983 (E); Morin 1988 (F); Edinger 2001 (G); Espie 1989 (H)

Outcomes [Tool]	**Quality of the evidence (GRADE)**	**Absolute Difference** **RT vs Control**	**No of Participants (studies)**
Quality of sleep* [Diary]	⊕◯◯◯ **VERY LOW** a,b,c	The standardized mean difference in the RT group was 0.52 points higher[1] [0.46 points lower to 1.50 points higher] compared to control	84 patients (2 RCT) A, B
Quality of sleep [PSQI]	⊕⊕◯◯ **LOW** a,c	The standardized mean difference in the RT group was 0.96 points lower[1] [0.15 points lower to 1.76 points lower] compared to control	27 patients (1 RCT) C
Sleep latency* [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the RT group was 7.21 mins lower[2] [0.60 mins to 13.83 mins lower] compared to control	184 patients (6 RCT) A,B,C,D,E,F
Wake after sleep onset* [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the RT group was 15.67 mins lower[2] [39.15 mins lower to 7.81 mins higher] compared to control	129 patients (3 RCT) A,B,C,F
Responder rate* [Diary/ISI]	⊕◯◯◯ **VERY LOW** a,b,c	The percentage of patients considered "responders" in the RT group was 16% higher[1] [11% lower to 43% higher] compared to control	109 patients (3 RCT) C,G,H
Beliefs and attitudes about sleep [DBAS]	⊕⊕◯◯ **LOW** a,c	The mean difference in the RT group ranged from 0.28 to 1.01 points lower[1] compared to control	84 patients (2 RCT) C
Nights using hypnotics [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the RT group was 1.4 nights per week lower[2] [3.42 nights per week lower to 0.62 nights per week higher] compared to control	26 patients (1RCT) C
Number of awakenings [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the RT group was 0.15 points lower[2] [1.24 points lower to 0.94 points higher] compared to control	18 patients (1 RCT) F
Sleep efficiency [Diary]	⊕⊕◯◯ **LOW** a,c	The mean difference in the RT group was 4.48% higher[2] [1.01% lower to 9.98% higher] compared to control	111 patients (3 RCT)A,B,C
Sleep efficiency [Actigraphy]	⊕⊕◯◯ **LOW** a,c	The mean difference in the RT group was 0.6% higher[2] [7.57% lower to 8.77% higher] compared to control	27 patients (1 RCT)C
Total sleep time [Dairy]	⊕⊕◯◯ **LOW** a,c	The mean difference in the RT group was 5.86 minutes lower[2] [32.21 mins lower to 20.49 mins higher] compared to control	72 patients (3 RCT)B,C,F
Total sleep time [Actigraphy]	⊕⊕◯◯ **LOW** a,c	The mean difference in the RT group was 27.5 minutes lower[2] [95.27 mins lower to 40.27 mins higher] compared to control	27 patients (1 RCT)C

* Critical Outcome
a. 95% CI crosses clinical significance threshold and/or <200 participants
b. Inconsistent subgroup differences
c. Risk of bias [no patient blinding, allocation concealment]
[1] Meets the clinical significance threshold
[2] Does not meet the clinical significance threshold

Sleep Hygiene

Sleep latency

Table S74. Diary-determined sleep latency (minutes), post treatment differences, sleep hygiene vs. control

Study	Delivery method	Sleep hygiene			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	15.1	11.13	17	15.9	16.8	9	-0.80 [-12.98, 11.38]

Wake after sleep onset

Table S75. Diary-determined WASO (minutes), post treatment differences, sleep hygiene vs. control

Study	Delivery method	Sleep hygiene			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	50.5	28.4	17	65.7	31.2	9	-15.20 [-39.65, 9.25]

Wake after sleep onset

Table S76. Actigraphy-determined WASO (minutes), post treatment differences, sleep hygiene vs. control

Study	Delivery method	Sleep hygiene			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	59.6	24.3	17	72.2	39.6	9	-12.60 [-40.93, 15.73]

Responder rate

Table S77. Diary-determined responder rate, post treatment differences, sleep hygiene vs. control

Study	Delivery method	Sleep hygiene		Control		Risk Difference [95% CI]
		Events	Total	Events	Total	
Edinger 2005	In-person delivery	2	12	0	8	0.17 [-0.09,0.43]

Sleep efficiency

Table S78. Diary-determined sleep efficiency (%), post treatment differences, sleep hygiene vs. control

Study	Delivery method	Sleep hygiene			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	84.7	7.01	17	83.3	7.2	9	1.40 [-4.36, 7.16]

Table S79. Actigraphy-determined sleep efficiency (%), post treatment differences, sleep hygiene vs. control

Study	Delivery method	Sleep hygiene			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	85.4	5.77	17	82.6	9.3	9	2.80 [-3.87, 9.47]

Total wake time

Table S80. Diary-determined total wake time (minutes), post treatment differences, sleep hygiene vs. control

Study	Delivery method	Sleep hygiene			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	76.4	35.57	17	88.7	45	9	-12.30 [-46.22, 21.62]

Table S81. Actigraphy-determined total wake time (minutes), post treatment differences, sleep hygiene vs. control

Study	Delivery method	Sleep hygiene			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	72	30.92	17	90.3	51	9	-18.30 [-54.72, 18.12]

Total sleep time

Table S82. Diary-determined total sleep time (minutes), post treatment differences, sleep hygiene vs. control.

Study	Delivery method	Sleep hygiene			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	424.8	61.85	17	432.5	54.3	9	-7.70 [-53.78, 38.38]

Table S83. Actigraphy-determined total sleep time (minutes), post treatment differences, sleep hygiene vs. control

Study	Delivery method	Sleep hygiene			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Edinger 2005	In-person delivery	421.6	51.13	17	428.7	78.3	9	-7.10 [-63.74, 49.54]

Table S84. Summary of findings table for sleep hygiene for the psychological and behavioral treatment of insomnia in adults

References: Edinger 2005 (A)

Outcomes [Tool]	Quality of the evidence (GRADE)	Absolute Difference SH vs Control	No of Participants (studies)
Sleep latency* [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Sleep hygiene group was 0.8 minutes lower[2] [12.98 mins lower to 11.38 mins higher] compared to control	26 patients (1 RCT) A
Wake after sleep onset* [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Sleep hygiene group was 15.20 minutes lower[2] [39.65 mins lower to 9.25 mins higher] compared to control	26 patients (1 RCT) A
Wake after sleep onset [Actigraphy]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Sleep hygiene group was 12.60 minutes lower[2] [40.93 mins lower to 15.73 mins higher] compared to control	26 patients (1 RCT) A
Sleep efficiency [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Sleep hygiene group was 1.4% higher[2] [4.36% lower to 7.16% higher] compared to control	26 patients (1 RCT) A
Sleep efficiency [Actigraphy]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Sleep hygiene group was 2.8% higher[2] [3.87% lower to 9.47% higher] compared to control	26 patients (1 RCT) A
Total wake time [Dairy]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Sleep hygiene group was 12.3 minutes lower[2] [46.22 mins lower to 21.62 mins higher] compared to control	26 patients (1 RCT) A
Total wake time [Actigraphy]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Sleep hygiene group was 18.3 minutes lower[2] [54.72 mins lower to 18.12 mins higher] compared to control	26 patients (1 RCT) A
Total sleep time [Dairy]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Sleep hygiene group was 7.7 minutes lower[2] [53.78 mins lower to 38.38 mins higher] compared to control	26 patients (1 RCT) A
Total sleep time [Actigraphy]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Sleep hygiene group was 7.1 minutes lower[2] [63.74 mins lower to 49.54 mins higher] compared to control	26 patients (1 RCT) A

* Critical Outcome

a. 95% CI crosses clinical significance threshold and/or <200 participants

b. Risk of bias [no patient blinding, allocation concealment]

1 Meets the clinical significance threshold

2 Does not meet the clinical significance threshold

Biofeedback

Sleep latency

Table S85. Diary-determined sleep latency (minutes), post treatment differences, biofeedback vs. control

Study	Delivery method	Biofeedback			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Nicassio 1982	In-person, one-on-one delivery	31.32	12.73	10	83.9	46.96	10	-52.58 [-82.74, -22.42]

Table S86. Summary of findings table for biofeedback for the psychological and behavioral treatment of insomnia in adults

References: Nicassio 1982 (A)

Outcomes [Tool]	Quality of the evidence (GRADE)	Absolute Difference CBTI vs Control	No of Participants (studies)
Sleep latency * [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the Biofeedback group was 52.58 minutes lower[1] [22.42 min to 82.74 mins lower] compared to control	20 patients (1 RCT)[A]

* Critical Outcome

a. <200 participants

b. Risk of bias [no patient blinding and selective outcome reporting]

[1] Meets the clinical significance threshold[2] Does not meet the clinical significance threshold

Paradoxical Intention

Sleep latency

Table S87. Diary-determined sleep latency (minutes), post treatment differences, paradoxical intention vs. control

Study	Delivery method	Paradoxical Intention			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ascher 1978	In-person, one-on-one delivery	28.63	16.64	8	56.88	34.06	17	-28.25[-48.13, -8.37]
Lacks1983	Group delivery	52.5	21.93	14	53.88	28.61	16	-1.38 [-19.50, 16.74]

*Ascher 1978 (control and waitlist pooled data)

Number of awakenings

Table S88. Diary-determined number of awakenings (no./night), post treatment differences, paradoxical intention vs. control

Study	Delivery method	Paradoxical Intention			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ascher 1978	In-person, one-on-one delivery	0.5	0.54	8	1.25	0.71	9	-0.75[-1.35, -0.15]

Table S89. Summary of findings table for paradoxical intention for the psychological and behavioral treatment of insomnia in adults

References: Ascher 1978 (A); Lacks 1983 (B)

Outcomes [Tool]	Quality of the evidence (GRADE)	Absolute Difference PI vs Control	No of Participants (studies)
Sleep latency* [Diary]	⊕◯◯◯ **VERY LOW** [a,b,c]	The mean difference in the Paradoxical intention group was 18.31 minutes lower[2] [40.36 mins lower to 3.74 mins higher] compared to control	55 patients (2 RCT) [A,B]
Number of awakenings [Diary]	⊕⊕◯◯ **LOW** [a,b]	The mean difference in the Paradoxical intention group was 0.75 points lower[2] [0.15 points to 1.35 points lower] compared to control	17 patients (1 RCT) [A]

* Critical Outcome
[a.] 95% CI crosses clinical significance threshold and/or <200 participants
[b.] Risk of bias [no patient blinding, allocation concealment]
[c] Inconsistency
[1] Meets the clinical significance threshold
[2] Does not meet the clinical significance threshold

Intensive Sleep Retraining (ISR)

Quality of sleep

Table S90. PSQI-determined sleep quality, post treatment differences, ISR vs. control

Study	Delivery method	ISR			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person delivery	8.88	3.05	16	11.11	2.72	19	-0.76 [-1.45, -0.07]

Sleep latency

Table S91. Diary-determined sleep latency (minutes), post treatment differences, ISR vs. control

Study	Delivery method	ISR			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person delivery	38.41	16.24	16	68.65	37.72	19	-30.24 [-48.97, -11.51]

Wake after sleep onset

Table S92. Diary-determined WASO (minutes), post treatment differences, ISR vs. control

Study	Delivery method	ISR			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person delivery	60.71	59.01	16	80.31	57.38	19	-19.60 [-58.35, 19.15]

Sleep efficiency

Table S93. Diary-determined sleep efficiency (%), post treatment differences, ISR vs. control

Study	Delivery method	ISR			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person delivery	79.85	8.84	16	68.24	14.14	18	11.61 [3.77, 19.45]

Table S94. Actigraphy-determined sleep efficiency (%), post treatment differences, ISR vs. control

Study	Delivery method	ISR			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person delivery	76.57	11.91	16	71.92	11.91	18	4.65 [-3.37, 12.67]

Total sleep time

Table S95. Diary-determined total sleep time (minutes), post treatment differences, ISR vs. control

Study	Delivery method	ISR			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person delivery	403.23	55.37	16	350.26	76.76	18	52.97 [8.32, 97.62]

Table S96. Actigraphy-determined total sleep time (minutes), post treatment differences, ISR vs. control

Study	Delivery method	ISR			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Harris 2012	In-person delivery	392.28	62.54	16	368.5	72.74	18	23.78 [-21.70, 69.26]

Table S97. Summary of findings table for ISR for the psychological and behavioral treatment of insomnia in adults

References: Harris 2012 (A)

Outcomes [Tool]	**Quality of the evidence (GRADE)**	**Absolute Difference** **ISR vs Control**	**No of Participants (studies)**
Quality of sleep [PSQI]	⊕⊕◯◯ **LOW** a,b	The standardized mean difference in the ISR group was 0.76 points lower[1] [0.07 points to 1.45 points lower] compared to control	35 patients (1 RCT)[A]
Sleep latency * [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the ISR group was 30.24 minutes lower[1] [11.51 min to 48.97 mins lower] compared to control	35 patients (1 RCT)[A]
Wake after sleep onset * [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the ISR group was 19.60 minutes lower[2] [58.35 mins lower to 19.15 mins higher] compared to control	35 patients (1 RCT)[A]
Sleep efficiency [Diary]	⊕⊕◯◯ **LOW** a,b	The mean difference in the ISR group was 11.61% higher[1] [3.77 to 19.45% higher] compared to control	34 patients (1 RCT)[A]
Sleep efficiency [Actigraphy]	⊕⊕◯◯ **LOW** a,b	The mean difference in the ISR group was 4.65% higher[2] [3.37% lower to 12.67% higher] compared to control	34 patients (1 RCT)[A]
Total sleep time [Dairy]	⊕⊕◯◯ **LOW** a,b	The mean difference in the ISR group was 52.97 minutes higher[1] [8.32 to 97.62 mins higher] compared to control	34 patients (1 RCT)[A]
Total sleep time [Actigraphy]	⊕⊕◯◯ **LOW** a,b	The mean difference in the ISR group was 23.78 minutes higher[1] [21.70 mins lower to 69.26 mins higher] compared to control	34 patients (1 RCT)[A]

***** Critical Outcome

[a.] 95% CI crosses clinical significance threshold and/or <200 participants

[b.] Risk of bias [no patient blinding, allocation concealment]

[1] Meets the clinical significance threshold

[2] Does not meet the clinical significance threshold

Mindfulness

Quality of sleep

Table S98. PSQI-determined quality of sleep, post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Zhang 2015	Group delivery	8.17	2.61	30	11.47	3.58	30	-1.04[-1.58, -0.50]

Sleep latency

Table S99. Diary-determined sleep latency (minutes), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Wong 2017	Group delivery	48.6	30.7	111	52.4	53.5	105	-3.80[-15.52, 7.92]

Wake after sleep onset

Table S100. Diary-determined WASO (minutes), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Wong 2017	Group delivery	57.7	52.6	111	67.7	68.5	105	-10.00[-26.35, 6.35]

Remission rate

Table S101. ISI-determined remission rate (%), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness		Control		Risk Difference [95% CI]
		Events	Total	Events	Total	
Ong 2014	Group delivery	8	19	1	16	0.36[0.11, 0.61]

Insomnia severity

Table S102. ISI-determined insomnia severity, post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Std. Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	10.27	4.7	19	15.5	5.5	16	-1.01[-1.72, -0.30]
Wong 2017	In-person, one-on-one	14.1	4	111	14.9	4.7	105	-0.18[-0.45, 0.08]

Sleep efficiency

Table S103. Diary-determined sleep efficiency (%), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	83.79	8.22	19	80.76	13.6	16	3.03[-4.59, 10.65]
Wong 2017	In-person, one-on-one	68.5	14.1	111	68.4	16.3	105	0.10[-3.97, 4.17]

Table S104. Actigraphy-determined sleep efficiency (%), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	81.78	8.95	19	83.53	4.88	16	-1.75[-6.43, 2.93]

Table S105. PSG-determined sleep efficiency (%), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	83.24	10.71	19	85.19	6.79	16	-1.95[-7.80, 3.90]

Total wake time

Table S106. Diary-determined total wake time (minutes), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	73.47	34.69	19	85.71	72.08	16	-12.24[-50.85, 26.37]

Table S107. Actigraphy-determined total wake time (minutes), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	61.46	25.15	19	61.44	22.48	16	0.02[-15.77, 15.81]

Table S108. PSG-determined total wake time (minutes), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	78.01	53.93	19	69.81	30.94	16	8.20[-20.40, 36.80]

Total sleep time

Table S109. Diary-determined total sleep time (minutes), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	379.31	64.32	19	364.82	83.13	16	14.49[-35.47,64.45]
Wong 2017	In-person, one-on-one	318.4	66.2	111	317.1	76.6	105	1.30[-17.84, 20.44]

Table S110. Actigraphy-determined total sleep time (minutes), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	364.85	47.68	19	376.58	63.03	16	-11.73[-49.33, 25.87]

Table S111. PSG-determined total sleep time (minutes), post treatment differences, mindfulness vs. control

Study	Delivery method	Mindfulness			Control			Mean Difference, [95% CI]
		Mean	SD	Total	Mean	SD	Total	
Ong 2014	Group delivery	380.84	52.25	19	403.66	39.94	16	-22.82[-53.40, 7.76]

Table S112. Summary of findings table for mindfulness for the psychological and behavioral treatment of insomnia in adults

References: Zhang 2015 (A); Ong 2014 (B), Wong 2017 (C)

Outcomes [Tool]	Quality of the evidence (GRADE)	Absolute Difference Mindfulness vs Control	No of Participants (studies)
Quality of sleep [PSQI]	⊕⊕◯◯ **LOW** a,b	The standardized mean difference in the Mindfulness group was 1.04 points lower[1] [0.50 to 1.58 points lower] compared to control	60 patients (1 RCT) A
***Sleep latency** [Diary]	⊕⊕◯◯ **LOW** b,c	The mean difference in the Mindfulness group was 3.80 mins lower[2] [15.52 mins lower to 7.92 mins higher] compared to control	216patients (1 RCT) C
Wake after sleep onset [Diary]	⊕⊕◯◯ **LOW** b,c	The mean difference in the Mindfulness group was 10.00 mins lower[2] [26.35 mins lower to 6.35 mins higher] compared to control	216patients (1 RCT) C
***Remission rate** [ISI]	⊕⊕◯◯ **LOW** a,b	The percentage of patients achieving "remission" in the CBTI group was 36% higher[1] [11% to 61% higher] compared to control	35 patients (1 RCT) B
Insomnia severity [ISI]	⊕⊕◯◯ **LOW** a,b,c	The standardized mean difference in the mindfulness group was 0.53 points lower[1] [1.32 points lower to 0.27 points higher] compared to control	251 patients (2 RCT) B,C
Sleep efficiency [Diary]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the Mindfulness group was 0.75% higher[2] [2.84% lower to 4.34% higher] compared to control	251 patients (2 RCT) B,C
Sleep efficiency [Act]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the Mindfulness group was 1.75% lower[2] [6.43% lower to 2.93% higher] compared to control	35 patients (1 RCT) B
Sleep efficiency [PSG]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the Mindfulness group was 1.95% lower[2] [7.8% lower to 3.9% higher] compared to control	35 patients (1 RCT) B
Total wake time [Diary]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the Mindfulness group was 12.24 minutes lower[2] [50.85 minutes lower to 26.37 minutes higher] compared to control	35 patients (1 RCT) B
Total wake time [Act]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the Mindfulness group was 0.02 minutes lower[2] [15.77 minutes lower to 15.81 minutes higher] compared to control	35 patients (1 RCT) B
Total wake time [PSG]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the Mindfulness group was 8.2 minutes lower[2] [20.40 minutes lower to 36.80 minutes higher] compared to control	35 patients (1 RCT) B
Total sleep time [Diary]	⊕◯◯◯ **VERY LOW** a,b,c,d	The mean difference in the Mindfulness group was 2.99 minutes higher[2] [14.88 minutes lower to 20.86 minutes higher] compared to control	251 patients (2 RCT) B,C
Total sleep time [Act]	⊕◯◯◯ **VERY LOW** a,b,c,d	The mean difference in the Mindfulness group was 11.73 minutes lower[2] [49.33 minutes lower to 25.87 minutes higher] compared to control	35 patients (1 RCT) B
Total sleep time [PSG]	⊕⊕◯◯ **LOW** a,b,c	The mean difference in the Mindfulness group was 22.82 minutes lower[2] [53.40 minutes lower to 7.76 minutes higher] compared to control	35 patients (1 RCT) B

* Critical Outcome
a. <200 participants
b. Risk of bias [no patient blinding, allocation concealment]
c. Imprecision
d Crosses CI on both sides
[1] Meets the clinical significance threshold
[2] Does not meet the clinical significance threshold

Study Name	Gender	Age	Intervention	Control	Delivery method	Type of Insomnia	Specific group (Older adults, veterans)	Treatment delivered by clinician, nurse etc.	Component of sleep hygiene included in multicomponent intervention (Y/N)	Duration of session/intervention (no. of sessions)	Included in the meta-analysis Y/N	Reason for not including in meta-analyses
Arnedt 2013	3 M, 27F	39.1	CBT-I	information pamphlet	Telephone	Mixed	-	experienced therapists	Y	8 sessions	Y	-
Ascher 1978	10M, 15F	39	Paradoxical intention	placebo no treatment	in-person	Mixed	-	-	-	4 weekly sessions	Y	-
Bastein 2004	16M, 29F	41.8	CBT-I	in-person	Group Telephone	Mixed	-	The therapists (4 female and 1 male) were certified clinical psychologists or doctoral students in psychology with prior clinical experience.	Y	8 weekly sessions	Y	-
Batterham 2017	299M, 850F	43	CBT-I	internet control	internet	Insomnia with comorbidities	sublcinical depression symptoms	SHUTi, no live interaction	Y	6 weekly sessions	N	adjusted data
Bjorvatn 2011	65M, 90F	49.9	CBT-I	sleep hygiene	self-help	Mixed	-	Self-help book	Y	3 months	Y	-
Bjorvatn 2018	116M, 48F	56	CBT-I	sleep hygiene	self-help	Insomnia with comorbidities	diagnosed with OSA	Self-help book	Y	3 months	Y	-
Blom 2016	32M, 116F	48	CBT-I	internet control	internet	Insomnia with comorbidities	-	final year of a 5-y Master of Science university program for clinical psychologists participated in the study.	Y	8 weeks treatment period	Y	-
Bothelius 2013	9M, 55F	50.7	CBT-I	waitlist	Group	Mixed	-	Treatment was delivered by four primary health-care nurses and one social worker, with 2 days of training in how to use the manual. The personnel volunteering had no formal training in sleep medicine, but all of them had relatively solid training in CBT.	Y	5 sessions	Y	-
Buysse 2011	22M, 54F	71.7	BBT-I	information control	in-person	Mixed	Older adults	Nurse clinician	Y	2 sessions + 2 telephone calls	Y	-
Cape 2016	143 F, 96 M	59.8	CBT-I	Usual care	Group	Insomnia with comorbidities	-	Each group was facilitated by two IAPT psychological wellbeing practitioners, recent graduates, most but not all with psychology undergraduate degrees, who had undertaken a 1-year 1 day per week certificate course in low-intensity psychological interventions.	Y	5 sessions	N	adjusted data
Chen 2008	15M,11F	50.3	CBT-I	sleep hygiene	group	Insomnia with comorbidities	Patients undergoing peritoneal dialysis	Psychiatrist	Y	4 weeks	N	Data presented as median and interquartile range
Creti 2005	13M, 28F	67	Relaxation therapy (progressive muscle relaxation, only the relaxation aspect included)	waitlist	audio	Insomnia and no comorbidities	Older adults (55 and older)	audio tapes	-	2 weeks	Y	-
Currie 2000	27M, 33F	45	CBT-I	waitlist	Group	Insomnia with comorbidities	Chronic pain	Each therapy group was led by a primary therapist and a cotherapist. The therapists were six doctoral students or interns in clinical psychology, all of whom had some previous training in CBT interventions	Y	7 sessions	Y	-
Currie 2004	42 M 18 F	43.3	CBT-I	waitlist	in-person (one-on-one) self-help	Insomnia with comorbidities	Alcoholics	Three mental health professionals (a PhD psychologist, a master's level social worker and an addiction counsellor) served as therapists for the IT and SHTS conditions	Y	5 sessions	Y	-
Dirksen 2007	72F	58.2	CBT-I	sleep hygiene	group	Insomnia with comorbidities	Breast cancer survivors	Master's level Registered Nurse therapist	Y	4 weekly sessions + 2 telephone calls	Y	-
Drake 2019	150 F	56.44	CBT-I	sleep hygiene	in-person (one-on-one)	Mixed	Postmenopausal women	registered nurse who specializes in behavioral sleep medicine.	Y	6 sessions	Y	-
Drake 2019	150 F	56.44	Sleep restriction	sleep hygiene	in-person	Mixed	Postmenopausal women	registered nurse who specializes in behavioral sleep medicine.	-	2 weeks	Y	-
Edinger 2001	40 M, 35 F	55.3	CBT-I, Relaxation therapy	placebo therapy (quasidesensitization)	in-person (one-on-one)	Insomnia and no comorbidities	-	One male and one female therapist, beginning- level clinical psychologist, naïve to behavioral insomnia therapy.	Y	6 sessions	N	adjusted data
Edinger 2003	18 M, 2 F	51	BBT-I	sleep hygiene	in-person	Mixed	Veterans	beginning-level clinical psychologist	Y	2 sessions	N	Adjusted data
Edinger 2005	2 M, 45 F	48.6	CBT-I	sleep hygiene, usual care	in-person (one-on-one)	Insomnia with comorbidities	Fibromyalgia	2 licensed male clinical psychologists	N	6 sessions	Y	-
Edinger 2005	2M, 45 F	48.3	Sleep hygiene	Usual care	in-person	Insomnia with comorbidities	Fibromyalgia	Two licensed male clinical psychologists	Y	6 weekly individual session	Y	-
Edinger 2007	43M, 43F	55.4	CBT-I	waitlist	in-person (one-on-one)	Insomnia and no comorbidities	-	Two licensed male clinical psychologists	Y	ranged 1-8 sessions	Y	-
Edinger 2009	70M, 11 F	54.2	CBT-I	sleep hygiene	in-person (one-on-one)	Insomnia and no comorbidities	-	2 licensed clinical psychologists	N	4 sessions	Y	-
Ellis 2015	18M, 22F	32.9	CBT-I	waitlist	in-person (one-on-one)	Mixed	-	a practicing health psychologist and somnologist with 5 years' experience delivering CBT-I	Y	1 session	Y	-
Engle-Friedman 1992	18M, 35F	61.4 57.56 60.26	Sleep hygiene Stimulus control Relaxation therapy (progressive relaxation)	measurement control group	in-person	Mixed	Older adults	Graduate students	Y	5 weeks	N	Mean and SD not provided
Epstein 2007	All Females	57.1, 59.1	CBT-I	sleep hygiene	Group/telehealth	Insomnia with comorbidities	Breast cancer survivors	The therapist was a master's-level clinical nurse specialist in psychiatric-mental health nursing. She was trained in the delivery of the intervention as part of another study and had four years of experience in delivering the intervention in another study	Y	4 session (in-person group) +2 (individual telephone) sessions	Y	-

Epstein 2012	64M, 115F	68.9	CBT-I Sleep restriction Stimulus control	waitlist	Group	Insomnia and no comorbidities	Older adult (55 or older), veterans	Treatment was implemented by a masters' level psychiatric-mental health clinical nurse specialist, with some substitution for vacations and illness by a PhD level nurse (DRE) with the same clinical background. The master's level nurse was an experienced mental health therapist	Y in CBT-I	4 sessions (individual sessions)+ 2 sessions (phone)	N	Adjusted data
Epstein 2012	64M, 115F	68.9	Sleep restriction	waitlist	group/telehealth	Insomnia and no comorbidities	Older adults (55 and older)	masters' level psychiatric-mental health clinical nurse specialist, with some substitution for vacations and illness by a PhD level nurse (DRE) with the same clinical background	Y	6 weeks (4 week group and 2 weeks over the phone)	N	adjusted data reported
Epstein 2012	13M, 31F	70.23	Stimulus control	waitlist	group/telehealth	Insomnia and no comorbidities	Older adult (55 or older)	masters' level psychiatric-mental health clinical nurse specialist, with some substitution for vacations and illness by a PhD level nurse (DRE) with the same clinical background	-	4 week group sessions + 2 week phone sessions	N	Adjusted data
Espie 1989 (Behaviour Research and Therapy)	23M, 47F	44.9	Relaxation therapy, Stimulus control, Paradoxical Intention	Placebo, Imagery relief, no treatment,	in-person	Mixed	-	The senior author conducted all therapy sessions across treatments.	-	8 weeks treatment period	N	The SD values in the study represent the night to night variability measure, and not the SD for the mean values.
Espie 2001	44M, 95F	51	CBT-I	waitlist	Group	Mixed	-	Six Health Visitors conducted the treatment sessions after extensive training from a Clinical Psychologist, a senior Health Promotion Officer and a Pharmacist	Y	6 sessions	N	Adjusted data
Espie 2007	64M, 137F	54.3	CBT-I	Usual care	Group	Mixed	General practice	Trained community nurses to deliver CBT-I, with post-qualification and certification	Y	5 sessions	Y	-
Espie 2008	103 F only	61	CBT-I	Usual care	Group	Insomnia with comorbidities	Cancer	trained four experienced cancer nurses, who were released on a part-time basis from oncology nursing duties, to deliver CBT	N	5 sessions	Y	-
Espie 2012	44M, 120 F	49	CBT-I	Usual care	internet	Mixed	-	an animated "virtual therapist" (The Prof).	Y	6 sessions	Y	-
Espie 2019	382M, 1329F	48	CBT-I	sleep hygiene	internet	Insomnia and no comorbidities	-	Fully automated digital program	Y	6 sessions	Y	-
Fernando 2013	17M, 28F	55.5	Sleep restriction	sleep hygiene	in-person	Insomnia and no comorbidities	-	Primary care clinicians	Y	6 weeks	N	no mean or SD provided, scale was better or much better and same,worse or much worse
Feuerstein 2017	15M, 19F	49	CBT-I	sleep hygiene	internet	Insomnia with psychiatric comorbidities	engaged in mental healthcare treatment	computer-based	not mentioned	6 sessions	N	data not presented as mean and standard deviation
Fleming 2014	35 M, 78F	60.5	CBT-I	Usual care	Group	Insomnia and no comorbidities	Cancer	trained four experienced cancer nurses, who were released on a part-time basis from oncology nursing duties, to deliver CBT	N	5 sessions	N	Secondary analysis paper data already included in Espie 2008
Freeman 2015	34 M, 16F	40.9 (18-65)	CBT-I	Usual care	in-person (one-on-one)	Insomnia with comorbidities	pts with persistent delusions and hallucinations	Graduate psychologist	Y	8 sessions	N	adjusted data
Freeman 2017	1043M, 2676F, 36 other	24.7	CBT-I	Usual care	internet	Mixed	university student	animated therapist, online	Y	6 sessions	N	Post treatment data not presented, only follow up for 10 weeks provided
Friedman 2000	13M, 26F	64.2	Sleep restriction	sleep hygiene	in-person	Insomnia and no comorbidities	Older adults (55 and older)	Therapist	Y	4 weeks	Y	-
Germain 2006	10M, 25F	70.2	BBT-I	information control	in-person	Mixed	Older adults (65 and above)	masters-level adult psychiatric and primary care nurse practitioner	Y	1 session + booster session 2 weeks later	Y	-
Germain 2012	45M, 12F	40.9	BBT-I	pharmacologic placebo	group	Insomnia and no comorbidities	Veterans	A masters' level licensed therapist	Y	5 sessions + 3 telephone calls	Y	-
Germain 2014	65M, 11F	38.4	BBT-I	information control	in-person	Mixed	Veterans	masters' level clinical social worker	Y	2 sessions	Y	-
Greeff 1998	22M	45.5	Relaxation therapy	no treatment control	in-person	Mixed	Chronic alcoholics	relaxation training offered by a psychologist	-	10 sessions	N	Number of participants not reported
Hagatun 2019	59M, 122F	44.9	CBT-I	patient education	internet	Insomnia and no comorbidities	-	computer-based	Y	9 weeks	Y	-
Harris 2012	15M, 24F	41.2	Intensive sleep retraining	sleep hygiene	in-person	Insomnia and no comorbidities	-	In-laboratory ISR was successfully applied	-	5 weekly sessions	Y	-
Harris 2012	23M, 56F	40.9	Stimulus control	sleep hygiene	in-person	Insomnia and no comorbidities	-	The SCT and sleep hygiene treatment components were provided by experienced clinical psychologists	Y	5 sessions	Y	-
Harvey 2015	22 M, 36 F	36.6	CBT-I	pseudoeducation	in-person (one-on-one)	Insomnia with comorbidities	Bipolar disorder	administered by doctoral- or master's-level therapists. Weekly supervision was conducted by a licensed clinical psychologist	Y	8 sessions	Y	-
Hauri 1981	18 M, 30 F	41.3	EMG biofeedback	control	in-person	Insomnia and no comorbidities	Middle aged	Technician	N/A	15 sessions	N	SD not provied
Hauri 1997	7M, 19F	47.7	Sleep hygiene and relaxation therapy	waitlist	in-person	Insomnia and no comorbidities	-	Therapist	Y	6 sessions	N	sleep hygiene and relaxation therapy were combined in the intervention and no sd provided
Ho 2014	90M, 222F	38.5	CBT-I	waitlist	self-help + telephone support	Mixed	-	weekly telephone support from the author (YYH), a psychology graduate, using a semi-structured script,	Y	treatments materials delivered weekly for 6 weeks	Y	-
Holmqvist 2014	18M, 55F	-	CBT-I	in-person	internet telehealth	Mixed	-	3 care providers with 1-5 years of behavioral sleep medicine experience-	Y	6 weeks	Y	-
Horsch 2017	57M, 94F	39.66	CBT-I	waitlist	internet (mobile app)	Mixed	-	-	Y	6-7 weeks	Y	-
Hou 2014	42M, 56F	53.45	CBT-I	usual care	group	Insomnia with comorbidities	hemodialysis	Physicians	N	2 weeks	Y	-

Hughes 1978	12 M, 24 F	34.2	Relaxation therapy, Stimulus control, Biofeedback training	pseudo-biofeedback	in-person	Insomnia and no comorbidities	-	Three therapists	-	8 sessions of Biofeedback or pseudobiofeedback 4 sessions of RT 2 sessiosn of SC	N	The n's for each group were not reported in the study; unable to calculate mean difference.
Irwin 2014	18M, 57F	65.4	CBT-I	Sleep education	Group	Mixed	older adults, 55 and older	Each intervention was taught by one therapist who had at least one year experience in delivery of the treatment modality but no prior experience in sleep medicine, and supervised by another therapist who had extensive (> 10 years) experience in the treatment modality to maintain therapist fidelity in delivery of the treatments as manualized.	Y	16 sessions (Each participated in 120 minutes of group class time weekly for 4 months)	Y	-
Jacobs 2004	15 M, 33 F	47.6	CBT-I	Placebo tablet	in-person (one-on-one)	Insomnia and no comorbidities	Young and middle aged adults	All treatments were administered based on a structured manual by a predoctoral and postdoctoral psychologist.	Y	4 sessions (individual sessions)+ 1 (telephone session)	Y	-
Jansson 2005	29 M, 105F	49.5	CBT-I	Usual care	Group	Mixed	-	therapists were certified cognitive behavior therapists that had received training and guidance in administering this group treatment	Y	6 sessions	N	Post treatment data not available, only follow up
Jansson-Frojmark 2012 (J Clin Psychol Med Settings)	12M, 20F	55.7	CBT-I	waitlist	in-person (one-on-one)	Insomnia with comorbidities	Hearing impairment, Tinnitus	The three therapists were trained psychologists and had previous experience in working with insomnia patients	Y	7 sessions	Y	-
Jernelov 2012	13M,76F	46.4	CBT-I	waitlist	self-help (book)	Mixed	-	Therapists (for self-help with telephone support group)in the present study were in their final year of training as clinical psychologists	Y	6 telephone sessions	Y	-
Jungquist 2010	21 F, 8 M	48.7	CBT-I	Contact/measurement control	in-person (one-on-one)	Insomnia with comorbidities	Chronic pain	Masters prepared nurse therapist	Y	8 sessions	Y	-
Kaku 2011	130M, 21F	36.2	CBT-I	waitlist	in-person	Mixed	-	2 physicians and 2 nurses	Y	30 mins for 20 days	Y	-
Lacks 1983	16M, 48F	40.6	Progressive Relaxation therapy	placebo	group	Insomnia and no comorbidities	-	Therapists were a male and female graduate student in clinical psychology. They were trained and supervised by an experienced clinician and used detailed treatment manuals to standardize therapy procedures.	-	4 weekly group sessions	Y	-
Lacks 1983	16M, 48F	40.6	Paradoxical intention	placebo	group	Insomnia and no comorbidities	-	Therapists were a male and female graduate student in clinical psychology. They were trained and supervised by an experienced clinician and used detailed treatment manuals to standardize therapy procedures.	Y	4 weekly group sessions	Y	-
Lacks 1983	16M, 48F	40.6	Stimulus control	placebo	group	Insomnia and no comorbidities		Therapists were a male and female graduate student in clinical psychology. They were trained and supervised by an experienced clinician and used detailed treatment manuals to standardize therapy procedures.	-	4 weekly sessions	Y	-
Ladouceur 1986	9M, 18F	41.8	Paradoxical intention Stimulus control	control sleep information	group	Mixed	-	-	-	4 weeks	N	No means and standard deviations provided
Lancee 2012	247M, 434F	51.8	CBT-I	waitlist	self-help, internet	Mixed	-	-	Y	6 weeks intervention	Y	-
Lancee 2015	13M, 50F	48.73	CBT-I	waitlist	internet	Mixed	-	-	Y	6 weekly sessions	Y	-
Lancee 2016	21M,73F	41.6	CBT-I	waitlist	in-person (one-on-one) online	Mixed	-	the face-to-face condition, all six individual treatment sessions were administered by a psychologist specialized in insomnia treatment.	Y	6 sessions	Y	-
Lancee 2016	9M,51F	43.15	CBT-I	in-person	internet	Mixed	-	-		6 sessions		-
Lovato 2014	55M, 127F	63.76	CBT-I	waitlist	Group	Insomnia and no comorbidities	Older adults	The group sessions were administered by five trainee psychologists (four female, one male) with experience in CBT-I	Y	4 sessions	Y	-
Mao 2017	30M, 74F	85.8	CBT-I	sleep hygiene	self-help	Mixed	-	psychiatrist and a national secondary psychological consultant	Y	8 weeks	Y	-
Martinez 2014	64F	47.58	CBT-I	sleep hygiene	group	Insomnia with comorbidities	Fibromylagia	three female therapists	Y	6 weekly sessions	Y	-
Matthews 2014	56 F	52.51	CBT-I	behavioral placebo/desensitization	in-person (one-on-one)	Insomnia with comorbidities	Breast cancer survivors	An advanced practice nurse with specialized training in CBTI conducted the individual weekly sessions in an office setting	Y	4 session (in-person group) +2 sessions (phone)	N	No SD provided
McCrae 2007	7M 13F	77.2	BBT-I	sleep hygiene	in-person	Insomnia and no comorbidities	Elderly (65 year and older)	mental health counselor, social worker, or provisionally licensed counselor	N	2 sessions + 2 telephone calls	Y	-
McCrae 2018	20M, 42F	69.5	BBT-I	self-monitoring control	in-person	Insomnia and no comorbidities	Older adults (65 and above)	The therapists were three predoctoral students in UF's APAaccredited counseling psychology program	Y	4 sessions	Y	-
McCrae 2019	76F	53	CBT-I	waitlist	in-person	CBT-I	Pain due to fibromyalgia	predoctoral students in clinical psychology	Y	8 sessions	Y	-
McCurry 2014	55M, 190F	73.1	CBT-I	education control	group	Insomnia with comorbidities	Pain	mental health professionals (Masters-level family counselor and PhD psychologist)	Y	6 weekly sessions	N	post treatment data not provided only follow up data available
Means 2000	17M, 39F	21.2	Progressive Relaxation therapy	waitlist	in-person	Insomnia and no comorbidities	College students	Therapists were three graduate students trained by advanced graduate students proficient in the PR procedure.	-	3 sessions	Y	-
Miro 2011	44F	46.45	CBT-I	sleep hygiene	group	Insomnia with comorbidities	Fibromyalgia	CBT therapists	Y	6 weekly sessions	Y	
Morgan 2012	65M, 128F	66.6	CBT-I	usual care	self-help	Mixed	Older adults (55 and above)	telephone support offered by trained advisers	Y	7 weeks	N	Data presented as a mean change
Morin 1988	2M, 6F	67	Relaxation therapy (imagery training)	waitlist	in-person	Mixed	Geriatrics (55 and older)	Two advanced graduate students in clinical psychology served as therapists	-	6 sessions	Y	-

Morin 1988	8M, 11F	67.4	Stimulus control	waitlist	group	Mixed	Older adult (55 or older)	Two advanced graduate students in clinical psychology served as therapists	-	6 sessions	Y	-
Morin 1993	7M, 17F	67.1	CBT-I	waitlist	Group	Insomnia and no comorbidities	Older adults (60 years or older)	A clinical psychologist conducted all therapy sessions.	Y	8 sessions	Y	-
Morin 1999	28M, 50F	65	CBT-I	placebo drug	Group	Insomnia and no comorbidities	Older adults (defined as 55 yrs or older)	CBT sessions led by a licensed clinical psychologist or a post doctoral fellow in clinical psychology.	Y	8 sessions	Y	-
Morin 2005	65M, 125F	46	CBT-I	waitlist	self-help (manual)	Mixed	-	-	Y	6 booklets mailed weekly	Y	-
Nicassio 1974	9M, 21F	45.1	Relaxation therapy	no treatment control	in-person	Mixed	-	All treatment sessions were conducted by the first author	-	4 weeks	N	Number of participants not reported
Nicassio 1982	9 M, 31 F	43.5	EMG biofeedback, Progressive Relaxation therapy,	Biofeedback placebo, no-treatment control	in-person	Mixed	-	authors acted as therapists	N/A	10 sesions	Y	-
Nicassio 1982	9M, 31F	43.5	Relaxation therapy	EMG biofeedback placebo	in-person	Mixed	-	authors of this investigation acted as therapists	-	6 weeks	Y	-
Ong 2014	9M, 26F	43.5	Mindfulness	self-monitoring	in-person	Insomnia and no comorbidities	-	MBTI was delivered by the first author, who has specialized training in mindfulness meditation and behavioral treatments for insomnia	-	8 week intervention	Y	-
Ott 1983	22M, 34F	18-55 yrs of age	Paradoxical intention	no treatment	Group	Insomnia and no comorbidities	-	Not mentioned	-	2 week treatment	N	Number of participants not reported
Pigeon 2012	7M, 14F	50.7	CBT-I	waitlist	in-person (one-on-one)	Insomnia with comorbidities	Chronic pain	one of two experienced CBT psychologists familiar with both CBT-I and CBP-P	Y	10 sessions	Y	-
Pigeon 2017	24M, 3F	58.4	BBT-I	sleep hygiene	in-person	Insomnia with comorbidities	Depressed veterans	Study therapists in both conditions were graduate level psychology students	Y	2 sessions + 2 telephone calls	Y	-
Riedel 1995	43M, 82F	67.4	Sleep restriction	waitlist	group+video, video	Insomnia and no comorbidities	Older adults (60 years or older)	One male and three female psychology graduate students served as therapists.	Y	4 sessions	Y	-
Ritterband 2009	10M, 34F	44.86	CBT-I	waitlist	internet	Insomnia and no comorbidities	-	-	Y	9 -week intervention	Y	-
Ritterband 2012	4M, 24F	56.7	CBT-I	waitlist	internet	Insomnia with comorbidities	Cancer survivors (predominantly highly-educated Caucasian women of non-Hispanic ethnicity)	-	Y	6-9 week intervention	Y	-
Rybarczyk 2002	4M, 10F	65.6	Relaxation therapy (home - based audio relaxation treatment)	waitlist	audio	Insomnia with comorbidities	Comorbid geriatric insomnia (55 yr of age)		-	6 weeks	Y	-
Rybarczyk 2002	12M, 12F	67.8	CBT-I	waitlist	Group	Insomnia with comorbidities	comorbid geriatric insomnia (55 yr of age)	co-led by two clinical geropsychologists	Y	8 sessions	Y	-
Rybarczyk 2005 (Behavioral Sleep Medicine) **only used video and control data**	11M, 14F	69.5	CBT-I	waitlist	Video	Insomnia with comorbidities	Older adults (55 and older)	*co-led by two clinical geropsychologists *(Same data as Rybarczyk 2002 for in-person and group)	Y	8 sessions	Y	-
Rybarczyk 2005 (Journal of Consulting and Clinical Psychology)	30M, 62F	69	CBT-I	stress management, wellness training	Group	Insomnia with comorbidities	Older adults with osteoarthritis, coronary artery disease, or pulmonary disease)	The CBT sessions were led by two clinical psychologists experienced in CBT treatment of insomnia.	Y	8 sessions	Y	-
Sanavio 1990	16 M, 24 F	39.6	EMG biofeedback	waitlist	in-person	Insomnia and no comorbidities	-	3 trainees in behavior therapy served as therapists	N/A	6 sessions	N	no. of participants not provided
Sandlund 2017	45M, 120F	54.5	CBT-I	waitlist	Group	Mixed	Primary care setting	led by nurses	Y	7 sessions	Y	-
Savard 2005 (J Clin Oncol)	57F	54.09	CBT-I	waitlist	Group	Insomnia with comorbidities	Breast cancer survivors	administered by a master-level psychologist with experience in the administration of this particular treatment protocol.	Y	8 sessions	Y	-
Savard 2014	242 F	54.4	CBT-I	waitlist	in-person (one-on-one) video	Insomnia with comorbidities	Breast cancer	CBT-I sessions were administered by certified psychologists and PhD students in clinical psychology with significant experience	Y	6 sessions	Y	-
Sidani 2019	91M, 164F	54.3	Sleep restriction, stimulus control	Sleep education	in-person	Mixed	-	therapist	-	6 sessions	Y	-
Sivertsen 2006	14 M, 16F	60.8	CBT-I	Placebo tablet	in-person (one-on-one)	Mixed	Older adults	The therapy sessions were facilitated by 2 clinical psychologists (B.S. and S.O.) and administered at the outpatient university clinic	Y	6 sessions	Y	-
Smith 2015	21 M, 79F	59.4	CBT-I	behavioral desensitization	in-person (one-on-one)	Insomnia with comorbidities	Knee Osteoarthritis	With the exception of 2 advanced psychology doctoral candidates (1 man and 1 woman), all of the interventionists were postdoctoral clinical psychology fellows (n=5 [3 women]) or faculty (n=2) with experience in behavioral medicine. All but 2 of the interventionists delivered both treatments.	Y	8 sessions	Y	-
Soeffing 2008	17M, 30F	64.16	CBT-I	placebo (sham biofeedback)	in-person (one-on-one)	Insomnia and no comorbidities	Older adults (defined as 50 yrs or older)	Advanced doctoral students in clinical psychology served as therapists	Y	8 sessions	N	adjusted data
Strom 2004	38M, 71F	44.1	CBT-I	waitlist	internet	Insomnia and no comorbidities	-	Two clinical psychologists served as therapists for e-mail interaction and monitoring of homework assignments	Y	5-week intervention	Y	-
Talbot 2014	14M, 31F	37	CBT-I	waitlist	in-person (one-on-one)	Insomnia with comorbidities	Post traumatic stress disorder	CBT-I delivered by a licensed clinical psychologist or a board-certified psychiatrist	Y	8 sessions	Y	-
Taylor 2014	20M, 14F	19.71	CBT-I	waitlist	in-person (one-on-one)	Insomnia and no comorbidities	College students	Therapy was conducted by three doctoral-level graduate students who were thoroughly trained in CBT-I and supervised by a licensed psychologist with expertise in CBT-I and certified in behavioral sleep medicine	Y	6 sessions	Y	-
Taylor 2015	2 M, 13 F	50.5	CBT-I	Usual care	in-person (one-on-one)	Insomnia with comorbidities	Psychiatric comorbidity	an advanced doctoral student with previous training and experience conducting CBT-I–led all the sessions	Y	5 sessions	Y	-

Taylor 2017	83 M, 27 F	32.73	CBT-I	Minimal contact	in-person (one-on-one), internet	Mixed	Military personnel	CBTi was administered by civilian licensed clinical psychologists, clinical psychology postdoctoral fellows, and a licensed clinical social worker	Y	6 sessions	Y	-
Thiart 2015	33M, 95F	48	CBT-I	waitlist	internet	Mixed	teachers	Trained coaches	Y	6 sessions	Y	-
Thorndike 2013	10M, 34F	44.9	CBT-I	waitlist	internet	Insomnia with comorbidities	-	online format, no clinical support or supervision proided	Y	9 weeks	Y	-
Troxel 2013	13M, 26F	72.5	BBT-I	information control	in-person	Mixed	Older adults (60 years or older)	master's level mental health nurse.	N	2 sessions + 2 telephone calls	N	data not presented as mean and standard deviation
Tyagi 2014	29M,50F	72.6	BBT-I	information control	in-person	Insomnia with comorbidities	Older adults	Therapist	N	2 sessions + 2 telephone calls	N	Secondary analysis paper data already included in Buysse 2011
Van Straten 2009	84M, 163F	52	CBT-I	waitlist	self-help (book+video)	Mixed	-	-	Y	6 week self- help intervention	Y	-
van Straten 2014	35M, 83F	49.4	CBT-I	waitlist	internet	Mixed	-	The coaching was performed by A.v.S., four master's students in psychology, and one experienced CBT therapist (J.E.) who also trained and supervised the others.	Y	6-week guided Internet intervention	Y	-
Verbeek 2006	24M, 34F	44.4	CBT-I	in-person	group	Mixed	-	-	Y	6 weekly sessions	Y	-
Vincent 2009	39M, 79F	Not provided	CBT-I	waitlist	internet	Mixed	-	The main teaching component was present in an audiovisual mode with occasional text material appearing in the background to highlight particular points	Y	5-week intervention	Y	-
Vincent 2013	80M, 148F	49	CBT-I	waitlist	internet	Mixed		The main teaching component was present in an audiovisual mode with occasional text material appearing in the background to highlight particular points	Y	5-week intervention secondary analysis paper of Vincent 2009	N	Only moderating analyses present
Vitiello 2013	55M, 190F	73.1	CBT-I	education control	group	Mixed	Osteoarthritis	Master's-level family counselor and PhD psychologist	Y	6 weekly sessions	N	adjusted data
Wagley 2013	9M, 21F	45.9	CBT-I	waitlist	in-person (one-on-one)	Insomnia with comorbidities	Psychiatric outpatients	The intervention was administered by the same master's level therapist with minimal experience with CBT for insomnia. The therapist was trained by a doctoral-level psychologist with extensive experience in delivering CBT-I.	Y	2 sessions	Y	-
Wang 2016	36M, 46F	41.6	BBT-I	sleep hygiene	in-person	Mixed		Two clinical psychologists served as therapists	Y	2 sessions + 2 telephone calls	Y	-
Wilckens 2016	25M, 54F	71.7	BBT-I	information control	in-person	Insomnia with comorbidities	Older adults	mental health nurse practitioner	Y	2 sessions + 2 telephone calls	N	same data as Buysse 2011
Wong 2017	47M, 169F	56.1	Mindfulness	sleep psycho-education with exercise control	group	Insomnia and no comorbidities	-	the MBCT-I programme was delivered by qualified instructors with more than 2 years of teaching experience of MBCT	-	9 week intervention	Y	-
Woolfolk 1976	6M, 18F	44.3	Progressive Relaxation therapy	waitlist	in-person	Mixed	-	2 clinically experienced graduate students served as therapists	-	4 weeks	N	SD not provided
Wu 2006	36 M, 41F	38 ± 12	CBT-I	Placebo tablet	in-person (one-on-one)	Insomnia and no comorbidities	-	The CBT group was treated by a licensed clinical psychologist, a manual was used during each session	Y	16 sessions (All treatments lasted 8 weeks. Each patient received CBT two times a week)	Y	-
Yamadera 2013	20M, 25F	59.3	CBT-I	in-person	group	Insomnia and no comorbidities	-	Psychiatric sleep physician	Y	3 sessions	Y	-
Zhang 2015	35M, 25F	78.1	Mindfulness	waitlist	group	Insomnia and no comorbidities	Older adults than 75 years	Trained MBSR teacher	-	8 weeks	Y	-