

Additional file 1: Tables S1–S4, S8, and S9

Global perspectives on the Sleep Condition Indicator for DSM-5 insomnia disorder: a COSMIN and STARD systematic review of psychometric and diagnostic performance

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Supplementary Content

Table S1 Electronic search strategies with COSMIN search filters for finding studies	3
Table S2 Construct Validity: Detailed measurement properties of 19 included studies on the SCI	10
Table S3 Criterion Validity & Responsiveness: Detailed measurement properties of 19 included studies on the SCI	19
Table S4 Reliability: Detailed measurement properties of 19 included studies on the SCI	22
Table S5 COSMIN box 1 Standards for evaluating the quality of PROM development (See Additional file 2)	
Table S6 COSMIN box 2 Standards for evaluating the quality of content validity studies of PROMs (See Additional file2)	
Table S7 COSMIN boxes 3-10 Risk of Bias checklist (See Additional file 2)	
Table S8A STARD checklist for quality assessment of STARD group studies	27
Table S8B STARD checklist for the reporting of studies of diagnostic accuracy	30
Table S9 PRISMA 2020 checklist	32
Table S10 General information on Application group (See Additional file 2)	
Table S11 General information on COSMIN & STARD groups (See Additional file 2)	
Table S12 Exclusion list (See Additional file 2)	

Table S1 Electronic search strategies with COSMIN search filters for finding studies

Databases	Filter	Search terms
PubMed	Construct	("Sleep Initiation and Maintenance Disorders"[Mesh] OR "Sleep Initiation and Maintenance Disorders"[Majr] OR "Disorders of Initiating and Maintaining Sleep"[tiab] OR "DIMS (Disorders of Initiating and Maintaining Sleep)"[tiab:~0] OR "Early Awakening"[tiab] OR "Awakening, Early"[tiab] OR "Nonorganic Insomnia"[tiab] OR "Insomnia, Nonorganic"[tiab:~0] OR "Primary Insomnia"[tiab] OR "Insomnia, Primary"[tiab] OR "Transient Insomnia"[tiab] OR "Insomnia, Transient"[tiab] OR "Rebound Insomnia"[tiab] OR "Insomnia, Rebound"[tiab] OR "Secondary Insomnia"[tiab] OR "Insomnia, Secondary"[tiab] OR "Sleep Initiation Dysfunction"[tiab:~0] OR "Dysfunction, Sleep Initiation"[tiab:~0] OR "Dysfunctions, Sleep Initiation"[tiab:~0] OR "Sleep Initiation Dysfunctions"[tiab:~0] OR "Sleeplessness"[tiab] OR "Insomnia Disorder"[tiab] OR "Insomnia Disorders"[tiab] OR "Insomnia"[tiab] OR "Insomnias"[tiab] OR "Chronic Insomnia"[tiab] OR "Insomnia, Chronic"[tiab] OR "Psychophysiological Insomnia"[tiab] OR "Insomnia, Psychophysiological"[tiab] OR "Sleep"[tiab] OR "Sleep Condition"[tiab])
	Instrument	("Sleep Condition Indicator"[tiab] OR "the SCI"[tiab:~0] OR "Insomnia Screening"[tiab] OR "Sleep Assessment"[tiab])
	Measurement properties	(instrumentation[sh] OR methods[sh] OR "Validation Studies"[pt] OR "Comparative Study"[pt] OR "psychometrics"[MeSH] OR psychometr*[tiab] OR clinimetr*[tw] OR clinometr*[tw] OR "outcome assessment (health care)"[MeSH] OR "outcome assessment"[tiab] OR "outcome measure*" [tw] OR "observer variation"[MeSH] OR "observer variation"[tiab] OR "Health Status Indicators"[Mesh] OR "reproducibility of results"[MeSH] OR reproducib*[tiab] OR "discriminant analysis"[MeSH] OR reliab*[tiab] OR unreliab*[tiab] OR valid*[tiab] OR "coefficient of variation"[tiab] OR coefficient[tiab] OR homogeneity[tiab] OR homogeneous[tiab] OR "internal consistency"[tiab] OR (cronbach*[tiab] AND (alpha[tiab] OR alphas[tiab])) OR (item[tiab] AND (correlation*[tiab] OR selection*[tiab] OR reduction*[tiab])) OR agreement[tw] OR precision[tw] OR imprecision[tw] OR "precise values"[tw] OR test-retest[tiab] OR (test[tiab] AND retest[tiab]) OR (reliab*[tiab] AND (test[tiab] OR retest[tiab])) OR stability[tiab] OR interrater[tiab] OR inter-rater[tiab] OR intrarater[tiab] OR intra-rater[tiab] OR intertester[tiab] OR inter-tester[tiab] OR intratester[tiab] OR intra-tester[tiab] OR interobserver[tiab] OR inter-observer[tiab] OR intraobserver[tiab] OR intra-observer[tiab] OR intertechnician[tiab] OR inter-technician[tiab] OR intratechnician[tiab] OR intra-technician[tiab] OR interexaminer[tiab] OR inter-examiner[tiab] OR intraexaminer[tiab])

Databases	Filter	Search terms
		<p>OR intra-examiner[tiab] OR interassay[tiab] OR inter-assay[tiab] OR intraassay[tiab] OR intra-assay[tiab] OR interindividual[tiab] OR inter-individual[tiab] OR intraindividual[tiab] OR intra-individual[tiab] OR interparticipant[tiab] OR inter-participant[tiab] OR intraparticipant[tiab] OR intra-participant[tiab] OR kappa[tiab] OR kappa's[tiab] OR kappas[tiab] OR repeatab*[tw] OR ((replicab*[tw] OR repeated[tw]) AND (measure[tw] OR measures[tw] OR findings[tw] OR result[tw] OR results[tw] OR test[tw] OR tests[tw])) OR generaliza*[tiab] OR generalisa*[tiab] OR concordance[tiab] OR (intraclass[tiab] AND correlation*[tiab]) OR discriminative[tiab] OR "known group"[tiab] OR "factor analysis"[tiab] OR "factor analyses"[tiab] OR "factor structure"[tiab] OR "factor structures"[tiab] OR dimension*[tiab] OR subscale*[tiab] OR (multitrait[tiab] AND scaling[tiab] AND (analysis[tiab] OR analyses[tiab])) OR "item discriminant"[tiab] OR "interscale correlation*" [tiab] OR error[tiab] OR errors[tiab] OR "individual variability"[tiab] OR "interval variability"[tiab] OR "rate variability"[tiab] OR (variability[tiab] AND (analysis[tiab] OR values[tiab])) OR (uncertainty[tiab] AND (measurement[tiab] OR measuring[tiab])) OR "standard error of measurement"[tiab] OR sensitiv*[tiab] OR responsive*[tiab] OR (limit[tiab] AND detection[tiab]) OR "minimal detectable concentration"[tiab] OR interpretab*[tiab] OR ((minimal[tiab] OR minimally[tiab] OR clinical[tiab] OR clinically[tiab]) AND (important[tiab] OR significant[tiab] OR detectable[tiab]) AND (change[tiab] OR difference[tiab])) OR (small*[tiab] AND (real[tiab] OR detectable[tiab]) AND (change[tiab] OR difference[tiab])) OR "meaningful change"[tiab] OR "ceiling effect"[tiab] OR "floor effect"[tiab] OR "Item response model"[tiab] OR IRT[tiab] OR Rasch[tiab] OR "Differential item functioning"[tiab] OR DIF[tiab] OR "computer adaptive testing"[tiab] OR "item bank"[tiab] OR "cross-cultural equivalence"[tiab])</p>
	Exclusion	<p>NOT ('delphi-technique'[ti] OR cross-sectional[ti] OR "addresses"[Publication Type] OR "biography"[Publication Type] OR "case reports"[Publication Type] OR "comment"[Publication Type] OR "directory"[Publication Type] OR "editorial"[Publication Type] OR "festschrift"[Publication Type] OR "interview"[Publication Type] OR "lectures"[Publication Type] OR "legal cases"[Publication Type] OR "legislation"[Publication Type] OR "letter"[Publication Type] OR "news"[Publication Type] OR "newspaper article"[Publication Type] OR "patient education handout"[Publication Type] OR "popular works"[Publication Type] OR "congresses"[Publication Type] OR "consensus development conference"[Publication Type] OR "consensus</p>

Databases	Filter	Search terms
		development conference, nih"[Publication Type] OR "practice guideline"[Publication Type]) NOT ("animals"[MeSH Terms] NOT "humans"[MeSH Terms])
Embase	Construct	('insomnia'/exp OR 'insomnia')
	Instrument	('sleep condition indicator'/exp OR 'sleep condition indicator')
	Measurement properties	'intermethod comparison'/exp OR 'intermethod comparison' OR 'data collection method'/exp OR 'data collection method' OR 'validation study'/exp OR 'validation study' OR 'feasibility study'/exp OR 'feasibility study' OR 'pilot study'/exp OR 'pilot study' OR 'psychometry'/exp OR 'psychometry' OR 'reproducibility'/exp OR 'reproducibility' OR reproducib*:ab,ti OR 'audit':ab,ti OR psychometr*:ab,ti OR clinimetr*:ab,ti OR clinometr*:ab,ti OR 'observer variation'/exp OR 'observer variation' OR 'observer variation':ab,ti OR 'discriminant analysis'/exp OR 'discriminant analysis' OR 'validity'/exp OR 'validity' OR reliab*:ab,ti OR valid*:ab,ti OR 'coefficient':ab,ti OR 'internal consistency':ab,ti OR (cronbach*:ab,ti AND ('alpha':ab,ti OR 'alphas':ab,ti)) OR 'item correlation':ab,ti OR 'item correlations':ab,ti OR 'item selection':ab,ti OR 'item selections':ab,ti OR 'item reduction':ab,ti OR 'item reductions':ab,ti OR 'agreement':ab,ti OR 'precision':ab,ti OR 'imprecision':ab,ti OR 'precise values':ab,ti OR 'test-retest':ab,ti OR ('test':ab,ti AND 'retest':ab,ti) OR (reliab*:ab,ti AND ('test':ab,ti OR 'retest':ab,ti)) OR 'stability':ab,ti OR 'interrater':ab,ti OR 'inter-rater':ab,ti OR 'intrarater':ab,ti OR 'intra-rater':ab,ti OR 'intertester':ab,ti OR 'inter-tester':ab,ti OR 'intratester':ab,ti OR 'interobserver':ab,ti OR 'inter-observer':ab,ti OR 'intraobserver':ab,ti OR 'intertechnician':ab,ti OR 'inter-technician':ab,ti OR 'intratechnician':ab,ti OR 'interexaminer':ab,ti OR 'inter-examiner':ab,ti OR 'intraexaminer':ab,ti OR 'interassay':ab,ti OR 'inter-assay':ab,ti OR 'intraassay':ab,ti OR 'intra-assay':ab,ti OR 'interindividual':ab,ti OR 'inter-individual':ab,ti OR 'intraindividual':ab,ti OR 'intra-individual':ab,ti OR 'interparticipant':ab,ti OR 'inter-participant':ab,ti OR 'intraparticipant':ab,ti OR 'kappa':ab,ti OR 'kappas':ab,ti OR 'coefficient of variation':ab,ti OR repeatab*:ab,ti OR ((replicab*:ab,ti OR 'repeated':ab,ti) AND ('measure':ab,ti OR 'measures':ab,ti OR 'findings':ab,ti OR 'result':ab,ti OR 'results':ab,ti OR 'test':ab,ti OR 'tests':ab,ti)) OR generaliza*:ab,ti OR generalisa*:ab,ti OR 'concordance':ab,ti OR ('intraclass':ab,ti AND correlation*:ab,ti) OR 'discriminative':ab,ti OR 'known group':ab,ti OR 'factor analysis':ab,ti

Databases	Filter	Search terms
		OR 'factor analyses':ab,ti OR 'factor structure':ab,ti OR 'factor structures':ab,ti OR 'dimensionality':ab,ti OR 'subscale*':ab,ti OR 'multitrait scaling analysis':ab,ti OR 'multitrait scaling analyses':ab,ti OR 'item discriminant':ab,ti OR 'interscale correlation':ab,ti OR 'interscale correlations':ab,ti OR (('error':ab,ti OR 'errors':ab,ti) AND (measure*':ab,ti OR correlat*':ab,ti OR evaluat*':ab,ti OR 'accuracy':ab,ti OR 'accurate':ab,ti OR 'precision':ab,ti OR 'mean':ab,ti)) OR 'individual variability':ab,ti OR 'interval variability':ab,ti OR 'rate variability':ab,ti OR 'variability analysis':ab,ti OR ('uncertainty':ab,ti AND ('measurement':ab,ti OR 'measuring':ab,ti)) OR 'standard error of measurement':ab,ti OR sensitiv*':ab,ti OR responsive*':ab,ti OR ('limit':ab,ti AND 'detection':ab,ti) OR 'minimal detectable concentration':ab,ti OR interpretab*':ab,ti OR (small*':ab,ti AND ('real':ab,ti OR 'detectable':ab,ti) AND ('change':ab,ti OR 'difference':ab,ti)) OR 'meaningful change':ab,ti OR 'minimal important change':ab,ti OR 'minimal important difference':ab,ti OR 'minimally important change':ab,ti OR 'minimally important difference':ab,ti OR 'minimal detectable change':ab,ti OR 'minimal detectable difference':ab,ti OR 'minimally detectable change':ab,ti OR 'minimally detectable difference':ab,ti OR 'minimal real change':ab,ti OR 'minimal real difference':ab,ti OR 'minimally real change':ab,ti OR 'minimally real difference':ab,ti OR 'ceiling effect':ab,ti OR 'floor effect':ab,ti OR 'item response model':ab,ti OR 'irt':ab,ti OR 'rasch':ab,ti OR 'differential item functioning':ab,ti OR 'dif':ab,ti OR 'computer adaptive testing':ab,ti OR 'item bank':ab,ti OR 'cross-cultural equivalence':ab,ti
CINAHL	Construct	(MH "insomnia") or (XB insomnia) or (TX insomnia*) or (MH "insomnia disorder") or (XB insomnia disorder) or (TX insomnia disorder*) or (TX sleep condition) or (MH "sleep condition") or (MH "sleep disorder*") or (XB CBT-I)
	Instrument	(TX sleep condition indicator*) or (MH "sleep condition indicator") or (MH "the SCI") or (XB the SCI)
	Measurement properties	(MH "Psychometrics") or (XB assessment*) or (MH "measurement properties") or (XB measurement*) or (XB evaluate*) or (TI psychometr*) or (AB psychometr*) or (TI clinimetr* or AB clinimetr*) or (TI clinometr* OR AB clinometr*) or (MH "Outcome Assessment") or (TI outcome assessment or AB outcome assessment) or (TI outcome measure* or AB outcome measure*) or (MH "Health Status Indicators") or (MH "Reproducibility of Results") or (MH

Databases	Filter	Search terms
		<p>“Discriminant Analysis”) or ((TI reproducib* or AB reproducib*) or (TI reliab* or AB reliab*) or (TI unreliab* or AB unreliab*)) or ((TI valid* or AB valid*) or (TI coefficient or AB coefficient) or (TI homogeneity or AB homogeneity)) or (TI homogeneous or AB homogeneous) or (TI “coefficient of variation” or AB “coefficient of variation”) or (TI “internal consistency” or AB “internal consistency”) or (MH “Internal Consistency+”) or (MH “Reliability+”) or (MH “Measurement Error+”) or (MH “Content Validity+”) or “hypothesis testing” or “structural validity” or “cross-cultural validity” or (MH “Criterion-Related Validity+”) or “responsiveness” or “interpretability” or (TI reliab* or AB reliab*) and ((TI test or AB test) OR (TI retest or AB retest)) or (TI stability or AB stability) or (TI interrater or AB interrater) or (TI inter-rater or AB inter-rater) or (TI intrarater or AB intrarater) or (TI intra-rater or AB intrarater) or (TI intertester or AB intertester) or (TI inter-tester or AB inter-tester) or (TI intratester or AB intratester) or (TI intra-tester or AB intra-tester) or (TI interobserver or AB interobserver) or (TI inter-observer or AB inter-observer) or (TI intraobserver or AB intraobserver) or (TI intra-observer or AB intra-observer) or (TI intertechnician or AB intertechnician) or (TI inter-technician or AB inter-technician) or (TI intratechnician or AB intratechnician) or (TI intra-technician or AB intra-technician) or (TI interexaminer or AB interexaminer) or (TI inter-examiner or AB inter-examiner) or (TI intraexaminer or AB intraexaminer) OR (TI intra-examiner or AB intra-examiner) or (TI intra-examiner or AB intraexaminer) or (TI interassay or AB interassay) or (TI inter-assay or AB inter-assay) or (TI intraassay or AB intraassay) or (TI intra-assay or AB intra-assay) or (TI interindividual or AB interindividual) or (TI inter-individual or AB inter-individual) OR (TI intraindividual or AB intraindividual) or (TI intra-individual or AB intra-individual) or (TI interparticipant or AB interparticipant) or (TI inter-participant or AB inter-participant) or (TI intraparticipant or AB intraparticipant) or (TI intra-participant or AB intra-participant) or (TI kappa or AB kappa) or (TI kappa’s or AB kappa’s) or (TI kappas or AB kappas) or (TI repeatab* or AB repeatab*) or (TI responsive* or AB responsive*) or (TI interpretab* or AB interpretab*)</p>
MEDLINE	Construct	(exp Sleep Condition Indicator/ or the SCI.sh.) or (Sleep Condition.tw.) or (Sleep Condition Indicator.tw.) or (insomnia assessment.tw.) or (insomnia screening.tw.)
	Instrument	(exp Psychometrics/) or (psychometr*.tw.) or (clinimetr*.mp.) or (clinometr*.mp.) or (exp Outcome Assessment, Health Care/) or

Databases	Filter	Search terms
Measurement properties		<p>(outcome assessment.tw.) or (outcome measure*.mp.) or (validation*.mp.) or (assess*.mp.)</p> <p>(exp Reproducibility of Results/) or (reproducib*.tw.) or (exp Discriminant Analysis/) or (reliab*.tw.) or (unreliab*.tw.) or (valid*.tw.) or (coefficient of variation.tw.) or (coefficient.tw.) or (homogeneity.tw.) or (homogeneous.tw.) or (internal consistency.tw.) or (cronbach*.tw.) and (alpha.tw.) or (alphas.tw.) or (item.tw.) and (correlation*.tw.) or (selection*.tw.) or (reduction*.tw.) or (agreement.mp.) or (precision.mp.) or (imprecision.mp.) or (precise values.mp.) or (test-retest.tw.) or (test.tw.) and (retest.tw.) or (reliab*.tw.) and (test.tw.) or (retest.tw.) or (stability.tw.) or (interrater.tw.) or (inter-rater.tw.) or (intrarater.tw.) or (intra-rater.tw.) or (intertester.tw.) or (inter-tester.tw.) or (intratester.tw.) or (intra-tester.tw.) or (interobserver.tw.) or (inter-observer.tw.) or (intraobserver.tw.) or (intra-observer.tw.) or (intertechician.tw.) or (inter-technician.tw.) or (intratechnician.tw.) or (intra-technician.tw.) or (interexaminer.tw.) or (inter-examiner.tw.) or (intraexaminer.tw.) or (intra-examiner.tw.) or (interassay.tw.) or (inter-assay.tw.) or (intraassay.tw.) or (intra-assay.tw.) or (interindividual.tw.) or (inter-individual.tw.) or (intraindividual.tw.) or (intra-individual.tw.) or (interparticipant.tw.) or (inter-participant.tw.) or (intraparticipant.tw.) or (intra-participant.tw.) or (kappa.tw.) or (kappas.tw.) or (repeatab*.mp.) or (((replicab* or repeated) and measure) or measures or findings or result or results or test or tests).mp. or (generaliza*.tw.) or (generalisa*.tw.) or (concordance.tw.) or (intraclass.tw.) and (correlation*.tw.) or (discriminative.tw.) or (known group.tw.) or (factor analysis.tw.) or (factor analyses.tw.) or (factor structure.tw.) or (factor structures.tw.) or (dimension*.tw.) or (subscale*.tw.) or (multitrait.mp.) and (scaling.mp.) and (analysis.mp.) or (analyses.mp.) or (item discriminant.tw.) or (interscale correlation*.tw.) or (error.tw.) or (errors.tw.) or (individual variability.tw.) or (interval variability.tw.) or (rate variability.tw.) or (variability.tw.) and (analysis.tw.) or (values.tw.) or (uncertainty.tw.) and (measurement.tw.) or (measuring.tw.) or (standard error of measurement.tw.) or (sensitiv*.tw.) or (responsive*.tw.) or (limit.tw.) and (detection.tw.) or (minimal detectable concentration.tw.) or (interpretab*.tw.) or (((((minimal or minimally or clinical or clinically) and important) or significant or detectable) and change) or difference).tw. or (small*.tw.) and (real.tw.) or (detectable.tw.) and (change.tw.) or (difference.tw.) or (meaningful change.tw.) or (ceiling effect.tw.) or (floor effect.tw.) or (item response model.tw.) or (IRT.tw.) or (rasch.tw.) or (differential item functioning.tw.) or (DIF.tw.) or (computer adaptive testing.tw.) or (item bank.tw.) or (cross-cultural equivalence.tw.)</p>

Databases	Filter	Search terms
	Exclusion	not (address or biography or case reports or comment or directory or editorial or festschrift or interview or lecture or legal case or legislation or letter or news or newspaper article or patient education handout or popular work or congress or consensus development conference or consensus development conference, NIH or practice guideline).pt.

Note: The databases were searched from **2012-01-01** to **2024-12-31**

Table S2 Construct Validity: Detailed measurement properties of 19 included studies on the SCI

Reference, Year	Structural validity			Cross-cultural validity			Hypotheses-testing		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
1. Voinescu, et al., 2013 [1]	NA	NA	NA	NA	NA	NA	588	A	<i>Convergent validity</i> SDQ as a diagnostic tool for identifying insomnia disorder (?)
2. Espie, et al., 2014 [2]	29650	A	CTT (EFA): principal components analysis (PCA, varimax rotation), a two-factor model accounted for 75.8% of total variance (?)	NA	NA	NA	256	D	<i>Convergent validity</i> PSQI: $r = -0.734 (+)$ ISI: $r = -0.793 (+)$ The SCI-2 correlated strongly with the SCI score total: $r = 0.904 (+)$ <i>Discriminant validity</i> Self-rated physical health: $r = 0.222 (-)$ Mental health: $r = 0.335 (+)$ HADS: anxiety, $r = -0.400 (+)$; depression, $r = -0.426 (+)$ DASS: depression, $r = -0.267 (-)$; anxiety, $r = -0.236 (-)$; stress, $r = -0.263 (-)$
3. Palagini, et al., 2015 [3]	NA	NA	NA	NA	NA	NA	171	V	<i>Convergent validity</i> PSQI: $r = -0.68 (+)$ ISI: $r = -0.52 (+)$

Reference, Year	Structural validity			Cross-cultural validity			Hypotheses-testing		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
4. Wong, et al., 2017 [4]	158	A	CTT (EFA): principal components analysis (PCA, varimax rotation), a two-factor model accounted for 69.8% of total variance (?)	NA	NA	NA	158	D	<p><i>Discriminant validity</i></p> <p>The SCI scores in insomnia subjects were significantly higher than OSAS subjects and Healthy controls (+)</p> <p><i>Convergent validity</i></p> <p>ISI: $r_{SCI} = -0.777$ (+), $r_{SCI-2} = -0.745$ (+)</p> <p>Sleep characteristics: $r_{SCI} = -0.49$–0.37 (-), $r_{SCI-2} = -0.48$–0.36 (-)</p> <p>Sleep-related impact on daytime functions: $r_{SCI} = -0.40$–0.53 (-), $r_{SCI-2} = -0.36$–0.51 (-)</p> <p>The SCI-2 was strongly correlated with the SCI total score: $r = 0.891$ (+)</p> <p><i>Discriminant validity</i></p> <p>DSM-5: The ID group differed significantly from the control group on most SCI items (?)</p> <p>ICSD-3: The chronic ID group had significantly lower scores on</p>

Reference, Year	Structural validity			Cross-cultural validity			Hypotheses-testing		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
5. Bayard, et al., 2017 [5]	366	A	CTT (EFA): principal components analysis (PCA, maximum likelihood), a two-factor model accounted for 64% of total variance (?)	NA	NA	NA	366	V	<p>all SCI items than the control groups (?)</p> <p><i>Convergent validity</i></p> <p>ISI: $r_{SCI} = -0.79 (+)$, $r_{SPS} = -0.73 (+)$, $r_{SIS} = -0.64 (+)$</p> <p>The SCI-2 was strongly associated with the SCI total score, $r = 0.901 (+)$</p> <p><i>Discriminant validity</i></p> <p>Participants with a diagnosis of insomnia disorder reported lower scores on the SCI than those without insomnia, respectively (+)</p> <p>Participants with insomnia symptoms scored lower on the SCI than those without insomnia symptoms, respectively (+)</p> <p>Women did report higher scores on the SCI than men (+)</p> <p>BDI: $r = -0.39 (+)$</p>
6. Espie, et al., 2018 [6]	NA	NA	NA	NA	NA	NA	200000	D	<p><i>Discriminant validity</i></p> <p>Women's sleep was poorer than men's sleep consistently among</p>

Reference, Year	Structural validity			Cross-cultural validity			Hypotheses-testing		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
7. Luik, et al., 2019 [7]	NA	NA	NA	NA	NA	NA	4612	D	the six age groups (+) <i>Convergent validity</i> SCI-8: $r_{SCI-2} = 0.80$ (+)
8. Hellström, et al., 2019 [8]	634	A	CTT (EFA): parallel analysis (a polychoric correlation matrix with unweighted least square extraction), a one-factor model accounted for 69.7% of total variance, CFI = 1.0, RMSEA = 0.022 (?)	NA	NA	NA	634	D	<i>Convergent validity</i> ISI: $r = -0.88$ (+) PSQI: $r = -0.85$ (+) No statistically significant differences in sleep problems between students in the different educational programs (+) <i>Discriminant validity</i> PSS: $r = -0.50$ (+)
9. Ranjkesh, et al., 2019 [9]	300	V	CTT (EFA): parallel analysis (maximum likelihood, equamax rotation), a two-factor model accounted for 53.94% of total variance (?) CTT (CFA): two-factor model, CFI = 0.977, RMSEA = 0.063, $\chi^2(24) = 61.53$, $P < 0.001$ (+)	NA	NA	NA	300	D	<i>Convergent validity</i> AVE = 0.501–0.554 (+) <i>Discriminant validity</i> MSV = 0.280 (+)
10. Lin, et al., 2020 [10]	859	V	CTT (CFA): two-factor model, CFI = 0.991, RMSEA = 0.049,	859	A	Sex: DIF = -0.09 – 0.19 (+)	859	A	<i>Convergent validity</i> PSQI: $r = -0.713$ (+)

Reference, Year	Structural validity			Cross-cultural validity			Hypotheses-testing		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
			TLI = 0.987, SRMR = 0.019 (+) IRT/Rasch: partial credit model: Infit MnSq = 0.63–1.31, Outfit MnSq = 0.61–1.23 (+)			Insomnia condition: DIF = -0.33–0.26 (+)			ISI: $r = -0.749$ (+) ESS: $r = -0.641$ (+) AVE = 0.80 (+) <i>Discriminant validity</i> HADS: $r_{\text{Anxiety}} = -0.458$, $r_{\text{Depression}} = -0.495$ (+) GHQ: $r = -0.601$ (-) KPS: $r = 0.360$ (+) Actigraph data (total sleep time, sleep efficiency, bedtime, wake time, sleep onset latency, and wake after sleep onset) were significantly different between insomniacs and non-insomniacs using the optimal cutoff determined in the ROC findings with DSM-5 diagnosis (+)
11. Khaled, et al., 2021 [11]	NA	NA	NA	NA	NA	NA	1611	V	<i>Discriminant validity</i> DSM-5: a cut-off score of < 16 (as opposed to > 16 on the SCI) was significantly associated with endorsement on DSM-5 criteria for insomnia (+)

Reference, Year	Structural validity			Cross-cultural validity			Hypotheses-testing		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
12. Bayard, et al., 2021 [12]	65	A	CTT (EFA): parallel analysis (maximum likelihood, oblique rotation), a two-factor model accounted for 66% of total variance (?)	NA	NA	NA	65	D	<p><i>Convergent validity</i></p> <p>ISI: $r = -0.85$ (+)</p> <p><i>Discriminant validity</i></p> <p>Age: $r = -0.17^a$ (-)</p> <p>Education level: $r = 0.02^a$ (-)</p> <p>Gender: women did report lower scores on the SCI than men (+)</p> <p>BDI: $r = 0.48$ (+)</p> <p>PAS: $r = 0.42$ (+)</p> <p>LEDD: $r = -0.27$ (-)</p> <p>MoCA: $r = -0.04^a$ (-)</p> <p>RBD: $t63 = -0.68^a$ (-)</p>
13. Meng, et al., 2022 [13]	751	V	<p>CTT (EFA, N=375): parallel analysis (minimum residual, promax rotation): a two-factor model accounted for 52.7% of total variance (?)</p> <p>CTT (CFA, N=376): two-factor model, CFI = 0.959, TLI = 0.939, RMSEA = 0.069 (0.050, 0.088), SRMR = 0.053, $\chi^2(19) = 52.678$, $P < 0.001$ (+)</p>	751	D	Supporting strict invariance across <i>gender</i> , <i>BMI</i> , <i>napping habits</i> , <i>generic exercise</i> , <i>hobby</i> , and <i>administered survey</i> ; metric and scalar invariances across <i>age</i> and <i>marital status</i> with a good/acceptable model fit (+)	751	D	<p><i>Convergent validity</i></p> <p>SQQ:</p> <p>$r_{SCI} = -0.558$ (+)</p> <p>$r_{SCI-2} = -0.506$ (+)</p>

Reference, Year	Structural validity			Cross-cultural validity			Hypotheses-testing		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
14. Hasan, et al., 2023 [14]	160	V	CTT (CFA): two-factor model, CFI = 0.97, TLI = 0.95, RMSEA = 0.02, SRMR = 0.05, χ^2 (19) = 47.39 (+)	NA	NA	NA	160	V	Convergent validity ISI: $r = -0.81$ (+) Discriminant validity GAD-7: $r = -0.32$ (+) PHQ-9: $r = -0.52$ (-)
15. Uygur, et al., 2024 [15]	834	V	CTT (CFA): two-factor model, CFI = 1.000, RMSEA = 0.000, SRMR = 0.017, χ^2 (13) = 4.933, $P = 0.977$ (+)	834	D	Supporting scalar invariance across <i>gender, clinical insomnia, and poor sleep quality</i> with a good/acceptable model fit (+)	834	V	Convergent validity ISI: $r = -0.804$ (+) PSQI: $r = -0.799$ (+)
16. Chang, et al., 2024 [16]	200	V	CTT (CFA): two-factor model, CFI = 0.97, TLI = 0.96, RMSEA = 0.09, SRMR = 0.03, χ^2 (19) = 52.16 (+)	NA	NA	NA	200	V	Convergent validity ISI: $r = -0.94$ (+) AVE = 0.66 (+) Discriminant validity EQ-5D: $r = -0.27$ (-)
17. Meng, et al., 2024 [17]	343	V	CTT (CFA): two-factor model, T1: CFI = 0.989, TLI = 0.984, RMSEA = 0.040 (0.000, 0.071), SRMR = 0.039, χ^2 (19) = 34.282, $P = 0.017$ (+) T2: CFI = 0.953, TLI = 0.931, RMSEA = 0.092 (0.066,	343	A	Supporting strict invariance across <i>gender, age, home location, physical exercise, stress coping strategy, and time</i> with a good/acceptable model fit (+)	343	V	Convergent validity RU_SATED scale: $r_{T1} = 0.590$, $r_{T2} = 0.627$ (+) Discriminant validity PHQ-4: $r_{T1} = -0.510$ (-), $r_{T2} = -0.566$ (-) anxiety

Reference, Year	Structural validity			Cross-cultural validity			Hypotheses-testing		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
			0.118), SRMR = 0.054, χ^2 (19) = 79.337, $P < 0.001$ (+)						$r_{T1} = -0.469$ (+), $r_{T2} = -0.556$ (-) depression $r_{T1} = -0.463$, $r_{T2} = -0.488$ (+)
18. Marques, et al., 2024 [18]	537	A	CTT (EFA): parallel analysis (a polychoric correlation matrix with RDWLS and with a random permutation of the observed data—optimal implementation), a one-factor model accounted for 64% of total variance parallel analysis (a polychoric correlation matrix with PAF, direct oblimin rotation): a two-factor model accounted for 65% of total variance (?)	NA	NA	NA	537	V	<i>Convergent validity</i> ISI: $r = -0.84$ (+) <i>Discriminant validity</i> FIRST: $r = -0.45$ (+) ESS: $r = -0.15$ (-) DSPS-4: $r = -0.51$ (-)

Reference, Year	Structural validity			Cross-cultural validity			Hypotheses-testing		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
19. Declan, et al., 2024 [19]	NA	NA	NA	NA	NA	NA	180	V	<i>Convergent validity</i> ISI: $r = -0.86$ (+) <i>Discriminant validity</i> GAD-7: $r = -0.47$ (+) PHQ-9: $r = -0.63$ (-) SIS-SF: $r = 0.47$ (+) Age: $r = -0.07^a$

Abbreviations: A, adequate; AVE, average variance extracted; BDI, Beck Depression Inventory; CFA, confirmatory factor analysis; CFI, comparative fit index; CI, confidence interval; CR, composite reliability; CTT, classical test theory; D, doubtful; DASS, Depression Anxiety Stress Scale; DIF, differential item functioning; DSM-5, Diagnostic and Statistical Manual of Mental Disorder, Fifth Edition; DSPTS, Daytime Sleepiness Perception Scale; EFA, exploratory factor analysis; ESAS, Edmonton Symptom Assessment System/Scale; ESS, Epworth Sleepiness Scale; FIRST, Ford Insomnia Response to Stress Test; GAD, Generalized Anxiety Disorder; GHQ, General Health Questionnaire; HADS, Hospital Anxiety and Depression Scale; I, inadequate; ICSD-3, International Classification of Sleep Disorder, Third Edition; IRT, item response theory; ISI, Insomnia Severity Index; KPS, Karnofsky Performance Scale; LEDD, levodopa equivalent daily dose; Meth qual, methodological quality; MnSq, mean square; MoCA, montreal cognitive assessment; MSV, maximum shared squared variance; NA, not applicable; NR, not reported; OSAS, Obstructive Sleep Apnea Syndrome; PAF, Principal Axis Factoring; PAS, Parkinson's Anxiety Scale; PCA, principal components analysis; PHQ, Patient Health Questionnaire; PSQI, Pittsburgh Sleep Quality Index; PSS, Perceived Stress Scale; RBD, rapid eye movements sleep behavior disorder; RDWLS, Robust Diagonally Weighted Least-Squares; RMSEA, root mean square error of approximation; RU_SATED, Regularity, Satisfaction, Alertness, Timing, Efficiency, Duration; SCI, Sleep Condition Indicator; SDQ, Sleep Disorder Questionnaire; SIS, Sleep-related Impact Subscale; SPS, Sleep Pattern Subscale; SQQ, Sleep Quality Questionnaire; SRMR, standardized root mean square residual; SIS-SF, Stroke Impact Scale Short Form; T1, first assessment; T2, second assessment; TLI, Tucker-Lewis index; V, very good

Note: ^a, no significant correlation

Table S3 Criterion Validity & Responsiveness: Detailed measurement properties of 19 included studies on the SCI

Reference (Year)	Criterion Validity			Responsiveness					
	<i>N</i>	Meth qual	Result (rating) Gold standard	AUC/ <i>r</i>	Sen	Spe	<i>N</i>	Meth qual	Result (rating)
1. Voinescu, et al., 2013 [1]	588	V	SDQ, cut-off ≤ 16 (+)	0.83	0.82	0.79	NA	NA	NA
2. Espie, et al., 2014 [2]	256	V	ISI, cut-off ≤ 16 (+)	<i>r</i> = -0.793	0.89	0.82	NA	NA	NA
3. Palagini, et al., 2015 [3]	171	V	ID: ISI, cut-off < 17 (-)	/	1.000	0.976	65	D	No significant differences were found among each item when comparing values at T1 and T2 (?)
			Healthy: ISI, cut-off > 18 (-)	/	0.990	1.000			
			OSAS: ISI, cut-off > 17 (-)	/	1.000	0.950			
4. Wong, et al., 2017 [4]	158	V	SCI: DSM-5, cut-off ≤ 21 (+)	0.887	0.83	0.80	NA	NA	NA
			SCI: ICSD-3, cut-off ≤ 21 (+)	0.884	0.86	0.77			
			SCI-2: DSM-5, cut-off ≤ 5 (+)	0.877	0.80	0.81			
			SCI-2: ICSD-3, cut-off ≤ 5 (+)	0.856	0.83	0.77			
			ISI: DSM-5, cut-off ≥ 8 (+)	0.855	0.73	0.89			
			ISI: ICSD-3, cut-off ≥ 8 (+)	0.852	0.73	0.86			
5. Bayard, et al., 2017 [5]	366	V	ISI: DSM-5, cut-off ≤ 16 (+)	0.93	0.95	0.75	366	I	Descriptive results for its first and second administrations were similar (?) A paired t-test revealed that the total score of the SCI did not differ significantly from the first to the second administration (?)
6. Espie, et al.,	NA	NA	NA	NA	NA	NA	NA	NA	NA

Reference (Year)	Criterion Validity			Responsiveness					
	<i>N</i>	Meth qual	Result (rating) Gold standard	AUC/r	Sen	Spe	<i>N</i>	Meth qual	Result (rating)
2018 [6]									
7. Luik, et al., 2019 [7]	4612	V	SCI-2, cut-off ≤ 2 (+)	r = 0.80	0.80	0.81	NA	NA	NA
8. Hellström, et al., 2019 [8]	634	V	ISI, cut-off ≤ 16 (+)	0.94	0.86	0.90	NA	NA	NA
9. Ranjkesh, et al., 2019 [9]	NA	NA	NA	NA	NA	NA	NA	NA	NA
10. Lin, et al., 2020 [10]	859	V	DSM-5, cut-off ≤ 20 (+)	0.92 (0.90, 0.94)	0.83	0.87	NA	NA	NA
			ISI, cut-off ≤ 17 (+)	0.98 (0.97, 0.99)	0.97	0.98			
11. Khaled, et al., 2021 [11]	NA	NA	NA	NA	NA	NA	NA	NA	NA
12. Bayard, et al., 2021 [12]	65	V	ISI: DSM-5, cut-off ≤ 16 (+)	0.86	0.86	0.87	NA	NA	NA
13. Meng, et al., 2022 [13]	NA	NA	NA	NA	NA	NA	NA	NA	NA
14. Hasan, et al., 2023 [14]	160	V	DSM-5, cut-off ≤ 23 (+)	0.98 (0.94, 1.00)	0.94	0.97	NA	NA	NA
15. Uygur, et al., 2024 [15]	834	V	ISI, cut-off ≤ 15 (+)	0.963 (0.948, 0.979)	0.903	0.918	NA	NA	NA
16. Chang, et al., 2024 [16]	200	V	DSM-5, cut-off ≤ 16 (+)	0.91 (0.87, 0.95)	0.882	0.847	NA	NA	NA

Reference (Year)	Criterion Validity			Responsiveness					
	<i>N</i>	Meth qual	Result (rating) Gold standard	AUC/r	Sen	Spe	<i>N</i>	Meth qual	Result (rating)
17. Meng, et al., 2024 [17]	NA	NA	NA	NA	NA	NA	NA	NA	NA
18. Marques, et al., 2024 [18]	537	V	ISI, cut-off ≤ 16 (+)	/	0.863	0.801	NA	NA	NA
			ISI, cut-off ≤ 18 (+)	0.91	0.766	0.912			
19. Declan, et al., 2024 [19]	180	V	SCI: DSM-5 ID, cut-off ≤ 13 (+)	0.859 (0.806, 0.912)	0.88	0.71	NA	NA	NA
			SCI: DSM-5 IS, cut-off ≤ 14 (+)	0.854 (0.797, 0.911)	0.81	0.76			
			SCI-2: DSM-5 ID, cut-off ≤ 2 (+)	0.790 (0.727, 0.853)	0.76	0.68			
			SCI-2: DSM-5 IS, cut-off ≤ 3 (+)	0.818 (0.753, 0.883)	0.81	0.68			

Abbreviations: A, adequate; AUC, Area Under the Curve; D, doubtful; DSM-5, Diagnostic and Statistical Manual of Mental Disorder, Fifth Edition; I, inadequate; ICSD-3, International Classification of Sleep Disorder, Third Edition; ID, insomnia disorder; IS, insomnia symptom; ISI, Insomnia Severity Index; Meth qual, methodological quality; NA, not applicable; /, not reported; OSAS, obstructive sleep apnea syndrome; SCI, Sleep Condition Indicator; SDQ, Sleep Disorder Questionnaire; Sen, sensitivity; Spe, specificity; T1, first assessment; T2, second assessment; V, very good

Table S4 Reliability: Detailed measurement properties of 19 included studies on the SCI

Reference (Year)	Reliability			Internal consistency			Measurement error		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
1. Voinescu, et al., 2013 [1]	NA	NA	NA	588	V	Cronbach's $\alpha = 0.870$ (+) α -if-item-deleted = 0.843–0.862 (+)	NA	NA	NA
2. Espie, et al., 2014 [2]	NA	NA	NA	23645	V	GBSS: Cronbach's $\alpha = 0.857$ (+) α -if-item-deleted = 0.822–0.860 (+) GBSS+: Cronbach's $\alpha = 0.865$ (+)	NA	NA	NA
3. Palagini, et al., 2015 [3]	65	A	ICC, two-way mixed model, 0.44–0.93 of each item within 2 months (–)	171	V	T1 ID Cronbach's $\alpha = 0.71$ (+) ID α -if-item-deleted = 0.62–0.79 (–) Healthy Cronbach's $\alpha = 0.76$ (+) Healthy α -if-item-deleted = 0.72–0.87 (+) OSAS Cronbach's $\alpha = 0.81$ (+) OSAS α -if-item-deleted = 0.78–0.90 (+) T2 ID Cronbach's $\alpha = 0.78$ (+) ID α -if-item-deleted = 0.72–0.87 (+)	NA	NA	NA
4. Wong, et al., 2017 [4]	158	A	ICC, two-way mixed model, 0.882 of SCI, 0.804 of SCI-2 and 0.572–0.812 of each item within 7–14	158	V	Cronbach's $\alpha = 0.759$ –0.801 (+)	NA	NA	NA

Reference (Year)	Reliability			Internal consistency			Measurement error		
	N	Meth qual	Result (rating)	N	Meth qual	Result (rating)	N	Meth qual	Result (rating)
5. Bayard, et al., 2017 [5]	329	A	days (+) ICC, 0.86 (0.82–0.88) within 1 month (+)	366	V	SCI: Cronbach's $\alpha = 0.87$ (+) SPS: Cronbach's $\alpha = 0.83$ (+) SIS: Cronbach's $\alpha = 0.91$ (+) Item-total correlations = 0.60–0.85 (+)	NA	NA	NA
6. Espie, et al., 2018 [6]	180	A	ICC, 0.84 within no less than 12 hours and no greater than 7 days (+)	200000	V	Total sample: Cronbach's $\alpha = 0.733$ (+) α -if-item-deleted = 0.671–0.744 (–) Sex and age group: Cronbach's $\alpha = 0.704$ –0.775 (+)	2000 00	I	Mean RCI = 6.54 (range: 6.07–6.82) Female RCI = 6.07–6.64 Male RCI = 6.24–6.82
7. Luik, et al., 2019 [7]	190 000	A	ICC, 0.68 within no less than 12 hours and no greater than 7 days (–)	190000	V	Cronbach's $\alpha = 0.74$ (+) Spearman–Brown correlation = 0.74 (+)	NA	NA	NA
8. Hellström, et al., 2019 [8]	NA	NA	NA	634	V	Ordinal Cronbach's $\alpha = 0.94$ (+) Cronbach's $\alpha = 0.91$ (+)	NA	NA	NA
9. Ranjkesh, et al., 2019 [9]	NA	NA	NA	300	V	Cronbach's $\alpha = 0.797$ –0.820 (+) McDonald's $\omega = 0.823$ –0.834 (+) CR = 0.814–0.870 (+)	NA	NA	NA
10. Lin, et al., 2020 [10]	859	A	ICC, 0.88 (0.80–0.93) within 2 weeks (+)	859	V	McDonald's $\omega = 0.91$ (+) CR = 0.97 (+)	NA	NA	NA
11. Khaled, et	NA	NA	NA	NA	NA	NA	NA	NA	NA

Reference (Year)	Reliability			Internal consistency			Measurement error		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
al., 2021 [11]									
12. Bayard, et al., 2021 [12]	NA	NA	NA	65	V	SCI: Cronbach's $\alpha = 0.89$ (+) SPS: Cronbach's $\alpha = 0.83$ (+) SIS: Cronbach's $\alpha = 0.93$ (+)	NA	NA	NA
13. Meng, et al., 2022 [13]	NA	NA	NA	751	V	SCI: Cronbach's $\alpha = 0.817$ (+) McDonald's $\omega = 0.799$ (+) SPS: Cronbach's $\alpha = 0.734$ (+) McDonald's $\omega = 0.746$ (+) SIS: Cronbach's $\alpha = 0.874$ (+) McDonald's $\omega = 0.874$ (+) SCI-2: Cronbach's $\alpha = 0.587$ (-)	NA	NA	NA
14. Hasan, et al., 2023 [14]	50	A	ICC, two-way mixed model, 0.78 (0.65–0.87) within 7 days (+)	160	V	SCI: Cronbach's $\alpha = 0.89$ (+) Each item: Cronbach's $\alpha = 0.86$ – 0.89 (+)	NA	NA	NA
15. Uygur, et al., 2024 [15]	834	A	ICC, 0.80 (0.78–0.87) within 1 month (+)	834	V	SCI: Cronbach's $\alpha = 0.845$ (+) McDonald's $\omega = 0.821$ (+) SPS: Cronbach's $\alpha = 0.750$ (+)	NA	NA	NA

Reference (Year)	Reliability			Internal consistency			Measurement error		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
16. Chang, et al., 2024 [16]	NA	NA	NA	200	V	McDonald's $\omega = 0.788 (+)$ SIS: Cronbach's $\alpha = 0.932 (+)$ McDonald's $\omega = 0.933 (+)$ SCI: Cronbach's $\alpha = 0.92 (+)$ SPS: Cronbach's $\alpha = 0.87 (+)$ SIS: Cronbach's $\alpha = 0.88 (+)$ CR = 0.94 (+)	NA	NA	NA
17. Meng, et al., 2024 [17]	343	A	ICC, SCI: 0.829 (0.792, 0.859) SPS: 0.831 (0.794, 0.861) SIS: 0.714 (0.657, 0.762) within 7 days + 2 hours (+)	343	V	T1: SCI: Cronbach's $\alpha = 0.811 (+)$ McDonald's $\omega = 0.805 (+)$ SPS: Cronbach's $\alpha = 0.715 (+)$ McDonald's $\omega = 0.749 (+)$ SIS: Cronbach's $\alpha = 0.864 (+)$ McDonald's $\omega = 0.864 (+)$ T2: SCI: Cronbach's $\alpha = 0.835 (+)$ McDonald's $\omega = 0.832 (+)$ SPS:	343	I	T1: SCI: SEM = 2.656 SPS: SEM = 1.337 SIS: SEM = 1.178 T2: SCI: SEM = 2.651 SPS: SEM = 1.291 SIS: SEM = 1.218

Reference (Year)	Reliability			Internal consistency			Measurement error		
	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)	<i>N</i>	Meth qual	Result (rating)
						Cronbach's $\alpha = 0.749 (+)$ McDonald's $\omega = 0.782 (+)$ SIS: Cronbach's $\alpha = 0.887 (+)$ McDonald's $\omega = 0.888 (+)$			
18. Marques, et al., 2024 [18]	NA	NA	NA	537	V	SCI: Cronbach's $\alpha = 0.85 (+)$ SPS: Cronbach's $\alpha = 0.79 (+)$ SIS: Cronbach's $\alpha = 0.88 (+)$	NA	NA	NA
19. Declan, et al., 2024 [19]	NA	NA	NA	180	V	SCI: Cronbach's $\alpha = 0.84 (+)$ SCI-2: Cronbach's $\alpha = 0.76 (+)$	NA	NA	NA

Abbreviations: A, adequate; CR, construct reliability; D, doubtful; GBSS, Great British Sleep Survey; GBSS+, a revision of the GBSS; I, inadequate; ICC, intraclass correlation coefficient; ID, insomnia disorder; Meth qual, methodological quality; NA, not applicable; OSAS, obstructive sleep apnea syndrome; RCI, reliable change index; SCI, Sleep Condition Indicator; SIS, Sleep-related Impact Subscale; SPS, Sleep Pattern Subscale; T1, first assessment; T2, second assessment; V, very good

Table S8A STARD checklist for quality assessment of STARD group studies

Section & Topic	No	Voinescu, et al., 2013 [1]	Espie, et al., 2014 Declan, et al., 2024 [2, 19]	Palagi ni, et al., 2015 [3]	Wong, et al., 2017 Chang, et al., 2024 [4, 16]	Bayard, et al., 2017 and 2022 [5, 12]	Hellström, et al., 2019 [8]	Lin, et al., 2020 [10]	Hasan, et al., 2023 [14]	Uygun, et al., 2024 [15]	Marques, et al., 2024 [18]	Luik, et al., 2019 [7]	SCI
Version		Romanian	English	Italian	Chinese-T	French	Swedish	Persian	Indonesian	Turkish	Portuguese-E	SCI-2	SCI-8
Title or Abstract	1	O	O	O	O	O		O	O	O	O		O
Abstract Introduction	2	O	O	O	O	O	O	O	O	O	O		O
	3	O	O	O	O	O	O	O	O	O	O	O	O
	4	O	O	O	O	O	O	O	O	O	O	O	O
Methods													
Study design	5	O	O	O	O	O	O	O	O	O	O	O	O
Participants	6		O	O	O	O	O	O	O		O		O
	7		O	O	O	O		O	O		O		O
	8		O	O	O	O	O	O	O	O	O		O
	9	O	O	O	O	O	O	O	O	O	O	O	O
Test methods	10a		O	O	O	O	O	O	O	O	O		O
	10b	O	O	O	O	O	O	O	O	O	O	O	O
	11	O	O	O	O	O	O	O	O	O	O	O	O
	12a	O	O		O	O		O	O	O	O	O	O

Section & Topic	No	Voinescu, et al., 2013 [1]	Espie, et al., 2014 Declan, et al., 2024 [2, 19]	Palagi ni, et al., 2015 [3]	Wong, et al., 2017 Chang, et al., 2024 [4, 16]	Bayard, et al., 2017 and 2022 [5, 12]	Hellström, et al., 2019 [8]	Lin, et al., 2020 [10]	Hasan, et al., 2023 [14]	Uygun, et al., 2024 [15]	Marques, et al., 2024 [18]	Luik, et al., 2019 [7]	SCI
	12b	0	0	0	0	0	0	0	0	0	0	0	0
	13a	0	0	0	0	0	0	0	0	0	0	0	0
	13b	0	0	0	0	0	0	0	0	0	0	0	0
Analysis	14	0	0	0	0	0	0	0	0	0	0	0	0
	15												
	16		0	0	0		0						0
	17	0	0		0	0	0	0	0	0	0	0	0
	18				0	0			0	0			0
Results													
Participants	19		0						0		0		0
	20	0	0	0	0	0	0	0	0	0	0	0	0
	21a	0	0		0	0			0		0		0
	21b			0	0								0
	22		0	0	0					0			0
Test results	23	0		0		0			0				0
	24	0	0	0	0	0	0	0	0	0	0	0	0
	25												
Discussion													

Section & Topic	No	Voinescu, et al., 2013 [1]	Espie, et al., 2014 Declan, et al., 2024 [2, 19]	Palagi ni, et al., 2015 [3]	Wong, et al., 2017 Chang, et al., 2024 [4, 16]	Bayard, et al., 2017 and 2022 [5, 12]	Hellström, et al., 2019 [8]	Lin, et al., 2020 [10]	Hasan, et al., 2023 [14]	Uygun, et al., 2024 [15]	Marques, et al., 2024 [18]	Luik, et al., 2019 [7]	SCI
	26	○	○	○	○	○	○	○	○	○	○	○	○
	27	○	○	○	○	○	○	○	○	○	○	○	○
Other information													
	28	○	○	○	○	○	○	○	○	○	○		○
	29		○										○
	30	○	○	○	○	○	○	○	○	○	○	○	○
Total score		20	26	24	25	24	20	21	25	21	23	14	28

Abbreviations: Chinese-T, traditional Chinese; Portuguese-E, European Portuguese; SCI, Sleep Condition Indicator

Note: ○, satisfy the required standards of the STARD checklist

Table S8B The STARD checklist for the reporting of studies of diagnostic accuracy

Section & Topic	No	Item
Title or Abstract	1	Identification as a study of diagnostic accuracy using at least one measure of accuracy (such as sensitivity, specificity, predictive values, or AUC)
Abstract	2	Structured summary of study design, methods, results, and conclusions (for specific guidance, see STARD for Abstracts)
Introduction	3	Scientific and clinical background, including the intended use and clinical role of the index test
	4	Study objectives and hypotheses
Methods		
Study design	5	Whether data collection was planned before the index test and reference standard were performed (prospective study) or after (retrospective study)
Participants	6	Eligibility criteria
	7	On what basis potentially eligible participants were identified (such as symptoms, results from previous tests, inclusion in registry)
	8	Where and when potentially eligible participants were identified (setting, location and dates)
	9	Whether participants formed a consecutive, random or convenience series
Test Methods	10a	Index test, in sufficient detail to allow replication
	10b	Reference standard, in sufficient detail to allow replication
	11	Rationale for choosing the reference standard (if alternatives exist)
	12a	Definition of and rationale for test positivity cut-offs or result categories of the index test, distinguishing pre-specified from exploratory
	12b	Definition of and rationale for test positivity cut-offs or result categories of the reference standard, distinguishing pre-specified from exploratory
	13a	Whether clinical information and reference standard results were available to the performers/readers of the index test
	13b	Whether clinical information and index test results were available to the assessors of the reference standard
Analysis	14	Methods for estimating or comparing measures of diagnostic accuracy

Section & Topic	No	Item
	15	How indeterminate index test or reference standard results were handled
	16	How missing data on the index test and reference standard were handled
	17	Any analyses of variability in diagnostic accuracy, distinguishing pre-specified from exploratory
	18	Intended sample size and how it was determined
Results		
Participants	19	Flow of participants, using a diagram
	20	Baseline demographic and clinical characteristics of participants
	21a	Distribution of severity of disease in those with the target condition
	21b	Distribution of alternative diagnoses in those without the target condition
	22	Time interval and any clinical interventions between index test and reference standard
Test results	23	Cross tabulation of the index test results (or their distribution) by the results of the reference standard
	24	Estimates of diagnostic accuracy and their precision (such as 95% confidence intervals)
	25	Any adverse events from performing the index test or the reference standard
Discussion		
	26	Study limitations, including sources of potential bias, statistical uncertainty, and generalisability
	27	Implications for practice, including the intended use and clinical role of the index test
Other information		
	28	Registration number and name of registry
	29	Where the full study protocol can be accessed
	30	Sources of funding and other support; role of funders

Table S9 PRISMA 2020 checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Pages 1–2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page 2
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Pages 2–3
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Pages 3–5
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Pages 3–5
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Page 3, Table S1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Pages 3–5
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Pages 3–5
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to	Pages 3–5

Section and Topic	Item #	Checklist item	Location where item is reported
		decide which results to collect.	
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Pages 3–5
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Pages 3–5
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	NA
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Pages 3–5
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Pages 3–5
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Pages 3–5
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Pages 3–5
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	NA
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	NA
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Pages 3–5
Certainty	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	NA

Section and Topic	Item #	Checklist item	Location where item is reported
assessment			
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page 5, Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Page 5, Table S12
Study characteristics	17	Cite each included study and present its characteristics.	Pages 5–12, Table 1, Tables S2–S4, S10–S11
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Pages 5–12, Figure 3, Tables S5–S7
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Pages 5–12, Tables S2–S11
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Pages 5–12, Figures 2–4
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	NA
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	NA
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Pages 5–12, Figures 2–4
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Pages 5–12, Figures 2–4, Tables S5–S7
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	NA

Section and Topic	Item #	Checklist item	Location where item is reported
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pages 12–14
	23b	Discuss any limitations of the evidence included in the review.	Page 14
	23c	Discuss any limitations of the review processes used.	Page 14
	23d	Discuss implications of the results for practice, policy, and future research.	Pages 13–14
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 3
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 3
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	NA
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 15
Competing interests	26	Declare any competing interests of review authors.	Page 14
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Page 15

Abbreviation: NA, not applicable