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When self-reports and objective measures diverge across sleep and cognition: a protocol for a systematic review and dependence-aware meta-analysis

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Author Affiliation:The Second Xiangya Hospital of
Central South University.**ADMINISTRATIVE INFORMATION****Support** - This review received no specific external funding.**Review Stage at time of this submission** - Preliminary searches.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202680003**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 1 August 2026 and was last updated on 1 August 2026.**INTRODUCTION**

Review question / Objective Among human samples in mental-health, psychiatric, functional or treatment contexts, how strongly do subjective reports and objective measures of sleep or cognition converge, and when does their divergence carry clinical information? The primary objectives were to estimate subjective-objective coupling separately for cognition and sleep; test whether construct and time-window alignment was associated with coupling and with the apparent domain contrast; and compare subjective-objective coupling with subjective-clinical and objective-clinical associations in same-sample clinical triangles. Additional objectives were to synthesize explicit discrepancy, incremental-validity, longitudinal, treatment and mechanism evidence while keeping these distinct estimands analytically separate.

Rationale Self-reports are often judged against tests, sensors or physiological recordings, and disagreement is commonly interpreted as

subjective error. That inference is not necessarily valid because the two measures may sample different constructs, settings and time windows. Coupling, within-person discrepancy and clinical utility are also different statistical questions. Sleep and cognition provide a useful contrast: sleep measures often target the same parameter over the same night, whereas cognitive complaints are commonly compared with brief laboratory tasks. A cross-domain synthesis can therefore test whether apparent disagreement partly reflects measurement architecture and whether either channel, or their divergence, contributes information about symptoms, functioning, quality of life or treatment.

Condition being studied The review concerns subjective-objective measurement divergence in sleep and cognition across mental-health and clinically relevant contexts. It is transdiagnostic rather than restricted to one disease. Eligible contexts included depression, anxiety, post-traumatic stress disorder, psychosis-spectrum disorders, schizophrenia, bipolar disorder,

insomnia, neurological or medical conditions with an explicit mental-health or functional relation, and community samples with relevant symptoms, functioning, quality of life, risk or treatment outcomes.

METHODS

Search strategy Web of Science Core Collection, Scopus, Embase, PubMed/MEDLINE, APA PsycArticles and Psychology and Behavioral Sciences Collection were searched, supplemented by citation searching. Terms covered subjective reports, objective tests or recordings, sleep or cognition, and mental-health or functional relevance:

(subjective OR perceived OR self-report* OR complaint* OR diary OR awareness OR insight OR confidence)

AND

(objective OR performance-based OR neuropsychological OR task* OR test* OR actigraph* OR polysomnograph* OR acceleromet* OR EEG)

AND

(sleep OR insomnia OR cognition OR cognitive OR neurocognitive OR memory OR attention OR executive)

AND

(depress* OR anx* OR PTSD OR posttraumatic OR psychosis OR schizophrenia OR bipolar OR psychiatric OR psychopatholog* OR mental health OR functioning OR quality of life OR treatment).

Additional terms included discrepancy, mismatch, concordance, agreement, calibration and misperception. Database-specific fields and proximity operators were used where supported. No language restriction was applied; animal-only studies were excluded.

Participant or population Quantitative human studies across the lifespan were eligible. Samples could include diagnosed psychiatric disorders, clinically significant mental-health symptoms, trauma exposure, treatment-seeking populations, neurological or medical populations with an explicit mental-health or functional relation, and relevant community samples. Mixed samples were eligible when the relevant data could be separated. Animal studies and reports without human empirical data were excluded.

Intervention Not applicable as a primary eligibility element. Intervention studies were eligible when they measured subjective and objective sleep or cognition and reported baseline coupling, explicit discrepancy, differential change or treatment-related calibration.

Comparator The principal comparison was between a subjective measure and an objective, sensor-derived, physiological or performance-based measure of the same broad domain in the same sample. Clinical analyses additionally compared subjective-clinical, objective-clinical and, where reported, discrepancy-clinical relations.

Study designs to be included Eligible designs included cross-sectional, longitudinal, ecological, experimental, randomized and non-randomized intervention studies. Reports were eligible when they established a same-sample subjective-objective relation or contributed to a prespecified evidence layer.

Eligibility criteria Reports were included when they described quantitative human research; measured subjective and objective sleep or cognition in the same sample; reported coupling, discrepancy, calibration or a joint clinical model; had mental-health or functional relevance; and provided sufficient information for assessment or synthesis.

Reviews, protocols, commentaries, qualitative studies, case reports, animal studies, ineligible measure comparisons and reports without sufficient same-sample evidence were excluded. Overlapping reports were linked and treated as one study.

Information sources Sources were Web of Science Core Collection, Scopus, Embase, PubMed/MEDLINE, APA PsycArticles and Psychology and Behavioral Sciences Collection, supplemented by backward and forward citation searching. Exact strategies and deduplication procedures are retained in the review files.

Main outcome(s) The primary outcome was the direction-harmonized subjective-objective correlation, estimated separately for cognition and sleep. Correlations were analysed as Fisher's z and reported as r with 95% confidence intervals, heterogeneity and study-clustered robust inference.

Additional outcome(s) Additional outcomes included measurement alignment, sleep-cognition contrasts, subjective-objective-clinical triangles, explicit discrepancy, incremental validity, longitudinal prediction, treatment-related change and mechanism evidence.

Data management Records were standardized, deduplicated and assigned stable record, study and effect identifiers. Two reviewers independently verified eligibility decisions. One reviewer extracted

the data, and a second reviewer independently checked effect sizes, sample sizes, overlapping reports and exclusions. Disagreements were resolved by consensus.

Quality assessment / Risk of bias analysis Risk of bias was assessed using design-appropriate NHLBI, RoB 2 or JBI tools. Judgements were checked twice by the other reviewer. Sensitivity analyses excluded poor-quality or high-risk studies.

Strategy of data synthesis Correlations were harmonized, Fisher-z transformed and pooled separately for cognition and sleep using three-level random-effects models with study-clustered CR2 inference. Incomparable outcomes were synthesized separately.

Subgroup analysis Analyses compared cognition and sleep and examined measurement alignment by meta-regression. A psychiatric-enriched sleep subset was also explored.

Sensitivity analysis Robustness was tested by varying within-study correlation assumptions, collapsing dependent effects, excluding incomplete or low-quality sources, and performing leave-one-study-out analyses.

Language restriction No language restrictions were applied during database searching.

Country(ies) involved China.

Keywords subjective-objective discrepancy; self-report; cognition; sleep; mental health; meta-analysis.

Dissemination plans Findings will be submitted to a peer-reviewed journal.

Contributions of each author

Author 1 - Lirong Wang - Conceptualization; methodology; investigation; data curation; formal analysis; visualization; writing - original draft.

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