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What Observes Insomnia? A Non-equivalent Cross-analysis of Donguibogam and Modern Sleep Measurement

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Abstract

Donguibogam passages on sleeplessness do not collapse experienced wakefulness, restless or unstable sleep, contexts of post-illness debility and age, and explanations such as phlegm and the spirit failing to return to its abode into one layer. Modern insomnia research likewise shows that self-report, sleep diaries, actigraphy, and polysomnography observe sleep through different rules and may disagree. We cross-analysed a normalized and facsimile-checked classical section with one full-text systematic review and two full-text observational studies across four axes: experience, time, recording instrument, and classificatory purpose. The traditions can be compared in their shared act of stratifying sleep problems, but their categories, mechanisms, and measures are not translatable. Classical 不寐 cannot be retrospectively diagnosed as sleep-state misperception, nor can modern device measurement validate 神不歸舍. Integrative research should keep observations apart from the explanations attached to them and clearly mark where the two traditions overlap, differ, or do not correspond.

Keywords: insomnia · Donguibogam · sleep diary · actigraphy · polysomnography · non-equivalence

Does the same word mean the same observation?

A patient may say, “I did not sleep at all last night,” while a wrist-worn device records five hours of sleep. Declaring the memory wrong erases the distress of the night; ignoring the device discards a record made from bodily movement. The two accounts may not be answering the same question. A person reports the night as experienced, while the device divides movement into sleep and wake

according to a predefined rule. This study begins with that difference. It does not translate classical sleeplessness into a modern diagnosis, but separates what each source observes from the explanation it gives. The Donguibogam passage was checked against both a transcription and facsimile pages 17–18, and the modern findings were verified in the original full-text studies.

Prior comparisons and this study's difference

Classical insomnia scholarship has already demonstrated internal textual differences. Cho and Cho compared seventeen insomnia prescriptions in the external-contraction section of Uihagimmun with fourteen in Donguibogam's dream section, reporting a broader range of causes and categories in Donguibogam beyond deficiency vexation ^[5]. Where that work compares distributions of formulas and etiological categories, the present study first separates what is observed from what is interpreted.

This distinction is also historical and psychometric. Kroker notes that sleeplessness is an old experience whereas “insomnia” as an expert pathology and public-health object is much more recent, and describes it as a boundary object where forms of knowledge and practice converge ^[6]. Cross-cultural measurement scholarship requires separate tests of construct, method, and item bias and of the level of equivalence, even when scores appear similar ^[7]. In insomnia epidemiology itself, prevalence changes with DSM, ICD, ICSD, and quantitative criteria ^[8]. Placing historically different vocabularies on one scale merely because they sound adjacent therefore conceals a measurement assumption rather than accomplishing comparison.

Four observational layers in the classical passage

The inspected Donguibogam paragraph has at least four layers. `清清不寐` and accompanying sensations record experienced wakefulness; `起臥不安，睡不穩` records unstable sleep experience. `大病後虛弱` and `年高人陽衰` group cases by post-illness and age-related contexts, while `痰在膽經，神不歸舍` supplies a medical explanation distinct from the observed symptom ^[1].

Source passage

Donguibogam, Internal Bodily Elements vol. 2, “Deficiency vexation and sleeplessness”

Normalized text bytes 660,143–660,571; public facsimile PDF pp. 17–18. The facsimile corroborates location and wording but is not a full critical-edition adjudication.

身不覺熱頭目昏疼口乾咽燥而不渴清清不寐皆虛煩也。大病後虛煩不睡溫膽湯主之。起臥不安睡不穩謂之煩。不寐有二種大病後虛弱及年高人陽衰不寐者，如痰在膽經神不歸舍而不寐者。

Translation. The passage describes sleepless wakefulness with head and eye discomfort and dryness without thirst as deficiency vexation; it separately notes post-illness sleeplessness and restless, unstable sleep. It then groups sleeplessness by post-illness debility or age-related decline and by an attributed explanation in which phlegm in the gallbladder channel prevents the spirit from returning to its abode.

What this passage supports. The paragraph distinguishes experienced state, sleep instability, context, and traditional medical explanation rather than treating them as one observation. Those distinctions do not directly map to a modern diagnosis or device measure.

Modern research does not use one ruler

In a multi-night study, diary-derived subjective total sleep time was calculated by subtracting reported sleep-onset latency and wake after sleep onset from the interval between lights out and final wake time. Actigraphy in the same study classified epochs as sleep or wake using an activity threshold and summed objective total sleep time ^[2]. Both are called total sleep time, but their production rules differ.

Subjective–objective discrepancy was distributed along a continuum, and within-person differences across nights were important distinguishing subtype features ^[2]. A single report and device recording therefore do not readily define a stable type.

Source passage

Multi-night diary–actigraphy study

Results, bytes 36,750–37,244; PMC7003481

Misperception was observed across a continuum.

Translation. Subjective–objective sleep discrepancy was observed across a continuum rather than as a simple binary.

What this passage supports. This weakens attempts to assign a fixed type from one discrepancy score; it is not generalized beyond the study sample and operational rules.

Discordance among experience, recording, and phenotype

In one Korean retrospective PSG cohort, study-defined groups differed substantially in objective total sleep time, sleep-onset latency, and sleep efficiency, while K-ISI and K-PSQI did not differ significantly ^[3]. The finding is bounded to a single-centre sample and its historical research classification; it is not prevalence or a universal type.

A recent systematic review states that current insomnia diagnosis is based on self-reported nighttime and daytime-functioning symptoms. Onset, maintenance, and early-awakening symptom types cluster and are not stable over time, limiting them as stable clinical phenotypes ^[4]. Objective sleep duration and cognitive-emotional variables are separate phenotype candidates, not simple replacements for self-reported diagnosis.

Source passage

Korean single-centre retrospective PSG cohort

Results, bytes 16,402–17,089; PMC4596102

including K-ISI, K-PSQI, and K-ESS scores, there were no significant differences

Translation. The study found no significant between-group differences in the subjective measures including K-ISI, K-PSQI, and K-ESS.

What this passage supports. It shows that large objective differences and similar subjective scale scores can coexist in this cohort, not that the groups are universal insomnia types or prevalence categories.

Source passage

Systematic review of insomnia phenotyping

Introduction, bytes 9,395–11,396; PMC11948287

an insomnia disorder diagnosis is made based on the individual's self-reported night-time sleep and daytime functioning symptoms

Translation. An insomnia disorder diagnosis is based on self-reported nighttime sleep and daytime-functioning symptoms.

What this passage supports. The self-report basis of diagnosis must be separated from device-based phenotype candidates; objective measurement does not simply replace diagnosis by self-report.

Overlapping observations and prohibited equivalence

「起臥不安」 and 「睡不穩」 partly overlap with modern temporal decomposition in recognizing that sleep is not a simple presence or absence. Yet the classical wording contains no minute threshold, diary equation, actigraphic rule, or PSG stage. Retrospectively diagnosing 不寐 as sleep-state misperception would require paired subjective and objective records from the same night and is impossible from this text.

Post-illness debility, age, and traditional pathology all stratify cases, as do modern symptom types, objective duration, and daytime function, but their variables, purposes, validation criteria, and causal assumptions differ. Modern devices do not validate 「神不歸舍」.

Table 1. Cross-axes and non-equivalence in observing insomnia

Axis	Classical	Modern	Boundary
Instability	起臥不安 · 睡不穩	SOL, WASO, TST, efficiency	No retrospective time threshold
Experience/record	Sleeplessness and sensations	Diary, scale, actigraphy, PSG	No equivalence to misperception
Subgroups	Post-illness, age, patterns	Symptoms, duration, daytime function	Different purpose and validation
Explanation	Pathology such as 神不歸舍	Operational variables and associations	No mechanistic translation

Rival interpretations and discriminating consequences

Three rivals must be distinguished. Retrospectively classifying classical 不寐 as modern sleep-state misperception is rejected because there are no diary and device records from the same nights. Treating PSG or actigraphy as validation of 「神不歸舍」 is also rejected because the systems share neither a mechanism variable nor a validation rule. The opposite claim—that different vocabularies make all comparison impossible—is too strong. Sleep instability, differences between experience and record, and acts of stratifying cases can be compared as partial observational overlap or methodological contrast.

The dual-ledger proposal must be capable of being wrong. First, independent coders should agree relatively well on observational labels across classical and modern sources but show lower, unstable agreement on direct mechanism or diagnosis mappings. Second, direct crosswalks from classical wording to diary, actigraphy, and PSG variables should yield more many-to-many edges and category shifts across datasets or adjudicators. Conversely, if a preregistered direct crosswalk reproduces across

corpora and raters and improves prediction or retrieval over a separated observation/interpretation model, the non-equivalence claim and dual-ledger design are weakened. These are discriminating conditions for subsequent evaluation, not findings of the present dataset.

Integrative research needs a dual ledger

Bringing classical and modern research together requires observations and interpretations to be recorded on separate levels. The observation level contains what a source directly reports: difficulty falling asleep, awakenings, unstable sleep, daytime effects, illness, and age. The interpretation level contains the explanations that give those observations meaning, whether classical pathology and treatment logic or modern diagnostic criteria and phenotype hypotheses. A connection between the two should not automatically be labelled “the same.” It should distinguish partial observational overlap, contrast between methods, and cases where no correspondence can be established. Nothing examined here was fully equivalent across the classical text and modern measurement. This separation allows the traditions to be studied together without reducing either one to the language of the other.

Declarations

Author contributions (CRediT)	Yeonseung Choe: Conceptualization, Clinical and classical framing, Writing – review & editing · Baekrokdam Research Commons (BRC): Investigation, Data curation, Validation, Writing – original draft
Data availability	Third-party full text is not redistributed; artifact hashes, passage locators, and internal evaluation decisions are released.
Funding	No external funding.
Competing interests	The author organisation is connected to Korean-medicine clinical and research infrastructure. This article is not diagnostic or treatment guidance.
AI use disclosure	Automated tools supported classical-source routing and question decomposition; generated answers were not evidence. Four classical-transcription and eight modern-literature claims were bound to source text and hashes and passed 12/12 structural, entailment, and boundary evaluations separated from drafting.
Ethics	Only public literature was used; no patient-level data or clinical intervention was involved.

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