

The Impact of Paradoxical Insomnia on Insomnia Severity, Subjective Attention, Cognitive Reappraisal, and Depressive Mood

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Background

Paradoxical insomnia involves a mismatch between subjective and objective sleep assessments, complicating diagnosis and treatment. It can be classified into underestimation (perceived poor sleep despite good objective sleep) and overestimation (perceived good sleep despite poor objective sleep). Most research focuses on underestimation, with limited attention to overestimation.

This study examines insomnia severity, subjective attention, cognitive reappraisal, and depressive mood among four groups: (1) Healthy Sleep (HS), (2) Psychophysiological Insomnia (PI), (3) Paradoxical Insomnia - Underestimated (PU), and (4) Paradoxical Insomnia - Overestimated (PO).

Methods

Adults aged 18 to 64 were recruited, excluding those with brain diseases, substance addiction, pregnancy, or shift work. Participants were categorized into four groups based on sleep duration and Insomnia Severity Index (ISI) scores.

Assessment tools included the Beck Depression Inventory, Pittsburgh Sleep Quality Index, ISI, Attention Control Scale - Chinese Version (ACS-C), Emotion Regulation Questionnaire (ERQ), and Fitbit wristbands.

Results

A total of 131 participants were included. The HS group (n = 39), PI (n = 30), PU (n = 36), and PO (n = 26).

The PO group had significantly lower insomnia severity than the PU and PI groups but higher than the HS group.

Regarding subjective attention, PO performed better than PU and PI, with no significant difference from HS. They also had significantly higher subjective focused attention than PU and PI, similar to HS.

PO had significantly lower depressive levels than PU and PI, with no difference from HS. They used cognitive reappraisal less than HS and PU but showed no difference from PI.

Table 1.
Analysis of subjective attention, cognitive reappraisal and depression in four groups
Mean (SD)

	HS (n = 39)	PI (n = 30)	PU (n = 36)	PO (n = 26)	F
ISI	3.59 (2.27)	14 (3.90)	15.22(4.57)	7.04 (5.24)	67.84***
BDI	6.33(6.19)	19.70(14.12)	19.06(11.48)	9.54 (9.82)	13.87***
subjective attention	49.69(7.28)	45.03(8.75)	44.86(7.08)	50.46(7.86)	4.77**
Focus	29.97(5.14)	26.47(6.48)	26.83(5.69)	31.08(6.42)	4.65**
Shift	22.46(3.98)	21.33(4.47)	20.83(2.89)	22.15(4.49)	1.26
ERQ	44.13(7.39)	39.50(7.15)	40.72(8.35)	38.23(6.46)	3.91*
cognitive reappraisal	27.72(5.40)	24.50(4.57)	24.06(5.48)	23.42(4.59)	5.02**

* $p < .05$, ** $p < .01$, *** $p < .001$

HS = Healthy Sleep; PI = Psychophysiological Insomnia; PU = Paradoxical Insomnia - Underestimated; PO = Paradoxical Insomnia - Overestimated

Discussion

Despite better-perceived sleep, PO still showed insomnia-related issues. Their severity was lower than PU and PI but higher than HS. They had better attention control than PU and PI, similar to HS, indicating no cognitive impairment. PO had lower depression than PU and PI but used cognitive reappraisal less than HS and PU, resembling PI, suggesting a preference for non-cognitive coping. Despite positive sleep assessments, their emotion regulation may be affected. This study highlights the link between insomnia, cognition, and emotion regulation, urging future research on stress adaptation to refine insomnia interventions.

Reference

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with regard to the presentation.

