




Letter to the Editor Regarding “Effect of Propofol on Postoperative Sleep Quality in Patients Undergoing Elective Cesarean Section with Spinal Anesthesia: A Retrospective Cohort Study Using Propensity Score Matching at a Single Center” [Letter]

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Dear editor

We read with great interest the retrospective study by Zhou et al, which explored the effect of intraoperative propofol on sleep quality after cesarean section.¹ The authors provided valuable preliminary insights using propensity score matching. However, in addition to sample size limitations, we believe that the study has limitations in several key areas that are worth discussing.

First, the lack of clear intervention indications is a fundamental limitation. Propofol use was based on “maternal demands, severe anxiety, or fatigue”, which are subjective and unquantifiable. Such subjective exposure introduces confounding that matching cannot fully eliminate: patients receiving propofol likely experienced greater intraoperative anxiety—a strong risk factor for postoperative sleep disturbance and depression. Thus, intergroup differences may partly reflect baseline psychological stress rather than pharmacologic effects of propofol.

Second, the outcome assessment carries a high risk of bias. PSQI and EPDS were evaluated via phone 30 days post-surgery, requiring recall over an entire month and making results vulnerable to current emotional states. Moreover, the study did not mention blinding of evaluators; awareness of group allocation could lead to measurement bias.

Third, multiple comparisons were uncorrected. Nine key outcomes were tested (total PSQI, EPDS, and seven PSQI dimensions), increasing the chance of false positives. No correction (eg, Bonferroni) was applied, possibly inflating significance. Reported large effect sizes (PSQI: -2.04 ; EPDS: -1.33) are unusual for observational studies, suggesting residual confounding or overestimation from small samples.

Finally, the proposed mechanism lacks direct evidence. The authors attributed benefits to GABA_A receptor regulation by propofol, but no objective sleep or neuroendocrine data support this. An alternative explanation—propofol providing restorative intraoperative sleep that mitigates preoperative deprivation—was overlooked.

In summary, while Zhou et al proposed an interesting hypothesis, unclear intervention criteria, potential biases, and speculative mechanisms limit its credibility. Future prospective studies with standardized indications, blinded evaluation, and objective sleep monitoring are warranted.

Data Sharing Statement

Data sharing is not applicable to this communication as no data were created or analysed in this communication.

Author Contributions

Keyi Gou: Conceptualization, Writing-original draft; Jingfeng Zhou: Conceptualization, Writing-original draft; Zhongsong Zhang: Conceptualization, Writing-original draft.

All authors approved the final version accepted for publication; agreed on the journal to which this communication was submitted; and agreed to take responsibility and be accountable for the contents of this communication.

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Reference

1. Zhou J, Hu B, Zhang Y, Wang Q, Wu Y, Wang H. Effect of propofol on postoperative sleep quality in patients undergoing elective cesarean section with spinal anesthesia: a retrospective cohort study using propensity score matching at a single center. *Nat Sci Sleep*. 2025;17:2853–2862. doi:10.2147/NSS.S559802

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