

Does “TIB” Differentiate Between Good Sleepers and Subjects That Develop Acute or Chronic Insomnia?

Michael Perlis PhD^{1,2}
Knashawn Morales ScD³,
Michael Grandner PhD⁴
Jason Ellis PhD⁵
Donn Posner, PhD^{6,7}
Ivan Vargas PhD^{1,2}
Jackie Kloss PhD¹
Mark Seewald¹
Breanna D’Antonio¹

¹ Behavioral Sleep Medicine Program, Department of Psychiatry, University of Pennsylvania

² Center for Sleep and Circadian Neurobiology, University of Pennsylvania

³ Department of Biostatistics and Epidemiology, University of Pennsylvania

⁴ Sleep & Health Research Program, Department of Psychiatry, University of Arizona

⁵ Northumbria Center for Sleep Research, Northumbria University, New Castle, United Kingdom

⁶ Psychiatry & Behavioral Sciences, Stanford University School of Medicine

⁷ Palo Alto Veterans Institute for Research

Introduction: According to the 3P model of insomnia, the variable that mediates the transition from acute to chronic insomnia is “sleep extension”, the behavioral tendency to expand sleep opportunity to compensate for sleep loss. In the present analysis, we evaluated how Time in Bed (TIB) varies relative to the incidence of acute insomnia.

Methods: Data were from a national cohort of 1,435 subjects who were recruited as good sleepers. Subjects were monitored over one year’s time with sleep diaries. State transitions were defined as follows for Acute Insomnia (AI), Recovered (REC), Chronic Insomnia (CI), and Persistent Poor Sleep (PPS). AI: 2 consecutive weeks with a frequency ≥ 3 nights/week of SL and/or WASO of a severity ≥ 30 min. REC: 12 consecutive weeks with a frequency ≤ 2 nights/week of SL and/or WASO problems. CI: 12 consecutive weeks at or above the threshold for AI. PPS: Neither CI or REC. TIB was evaluated with longitudinal mixed effects models (group x time, with GS data as a fixed comparator). In addition, graphical estimates of group differences regarding temporal patterning were obtained using median splines for TIB, TST, and TWT, relative to incident acute insomnia (12 weeks prior, week of [time 0], and 12 weeks after).

Results: 357 (24.8%) subjects developed AI per annum. Of these, 72.2% were classified as REC, 5.6% as CI, and 20.7% as PPS. The mixed effects models revealed that the groups tended to differ for TIB prior to (< 0.067), during (> 0.001), and following (> 0.088) the AI event. Visual inspection of the median spline data suggested that subjects that develop chronic insomnia exhibit a transient increase in TIB and that is paralleled by a transient increase in TST. This extended sleep interval appears to precede the persistent increase in TWT.

Conclusions: The transition to CI appears to be triggered by sleep extension, but not a mismatch between sleep ability and sleep opportunity. Instead a long sleep event appears to presage persistent sleep continuity disturbance. Analyses are ongoing.

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