Author's Response to Nicolau et al.

Christopher E. Kline, PhD, on behalf of the study authors

WE THANK DR. NICOLAU and colleagues for their interest in our recently published paper, which described the sleep hygiene behaviors of a community-based sample of midlife women with and without insomnia or sleep-disordered breathing.¹ Dr. Hachul's group has been active at demonstrating the high prevalence of poor sleep among midlife women and evaluating treatment options (e.g., Hachul et al., 2009, 2014).^{2,3}

While we appreciate their commentary, we must point out two misinterpretations of our data. First, our sample did not consist of women who were seeking help for sleep disorders. Although subclinical sleep disturbance was indeed prevalent in our community-based sample,⁴ the majority of our participants (79% of 321 women) did not meet diagnostic criteria for insomnia or sleep-disordered breathing.¹ Unfortunately, as we noted as a study limitation, we do not know who was seeking treatment for their sleep problem at the time of the study. Second, and perhaps most importantly, we found that women with insomnia were significantly less likely to engage in negative sleep hygiene behaviors (i.e., long daytime naps, caffeine or alcohol consumption near bedtime, smoking) compared with women without insomnia. This finding suggests that these midlife women with insomnia may have been more mindful of the potential impact of these behaviors on their sleep and do not align with prior findings by Hachul and colleagues of lower mindfulness among postmenopausal women with insomnia.⁵

We agree with Dr. Hachul and colleagues' suggestion to investigate sleep hygiene practices according to the type of insomnia, as sleep hygiene behaviors may differ according to the type of sleep complaint. However, as we noted in our paper, there was considerable heterogeneity in the type(s) of insomnia complaints among our midlife women, which precluded any such subgroup analyses. We also agree that future research in this area should include a validated sleep hygiene measure, which would enable assessment of a wide range of behaviors and practices that we were unable to assess in our study (e.g., bedroom temperature and noise).

Although our cross-sectional analyses did not suggest that adopting positive sleep hygiene behaviors and minimizing negative sleep hygiene behaviors may reduce insomnia complaints, we agree that a tailored approach involving a variety of nonpharmacologic treatment options may be beneficial. Moreover, it is important to note that the American Academy of Sleep Medicine Practice Parameters for the treatment of insomnia indicate that there remains insufficient

evidence that sleep hygiene alone is an effective stand-alone therapy, though it is often included with other behavioral interventions.⁶ Much more certainly needs to be understood regarding the role of sleep hygiene in sleep medicine,⁷ but we hope readers will appreciate that insomnia does not necessarily correlate with poor sleep hygiene.

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Authors' contributions

Dr. Kline wrote the initial draft of this letter, with significant input and feedback from each of the authors from the original manuscript. The final version of this letter has been read and approved by all of the listed authors, who have each provided the attention necessary to ensure the integrity of this work.

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Author Disclosure Statement

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