Response to Invited Commentary

Girschik et al. Respond to “Sleep Duration and Breast Cancer”

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We appreciate the opportunity to respond to Dr. Stevens’ thoughtful commentary (1) on our article (2). As Dr. Stevens points out, disentangling the roles of “sleep duration” and “darkness” in the light-at-night hypothesis has not yet been achieved and remains an important area of future research (3, 4). However, it is important to remember that sleep duration is only one aspect of sleep. Furthermore, the light-at-night hypothesis is only one mechanism by which sleep may be related to cancer causation. Evidence also exists to suggest that short and/or poor-quality sleep may contribute to immune suppression and weight gain, both of which could act as independent pathways to breast cancer risk (5–7).

Dr. Stevens’ main criticism of our study is bias by indication (sometimes referred to as reverse causation), which is the potential for the onset of disease to influence the exposure. Having a disease such as breast cancer can change one’s sleep habits; in fact, the evidence strongly suggests that cancer patients experience decreased sleep duration and quality in comparison with the general population (8–10). As such, bias by indication in our study would be responsible for the cases’ reporting a shorter sleep duration than their usual duration (prior to diagnosis). Seeing a null effect under these conditions would require the “real” effect to be that longer sleep is associated with breast cancer. The available evidence does not support this, with studies of incident cancer generally showing no association between longer sleep and cancer risk (11–14). An increased risk of breast cancer for longer sleep would also be inconsistent with the light-at-night mechanism, although proponents of the other proposed biological mechanisms have not articulated a role for longer sleep.

We conclude that bias by indication is an unlikely explanation for our findings and that the null findings reported in our article suggest that there is no association between sleep duration or sleep quality and breast cancer risk.

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REFERENCES


