



# Are sleep duration, sleep apnea, and shift work associated with colorectal cancer risk?

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A recent *Journal of Gastrointestinal Oncology* article titled “Association of sleep duration, sleep apnea, and shift work with the risk of colorectal neoplasms: a systematic review and meta-analysis” caught our attention (1). The authors have reached an important conclusion that there is a significant positive association between long sleep duration and sleep apnea and colorectal adenoma and colorectal cancer, and a deeper comprehension of its involvement in carcinogenesis will help us understand how to prevent cancer. We would want to address a few fundamental problems with this article, nevertheless, after carefully reviewing this study.

To begin with, after serious examination, we discovered that this review was not registered in PROSPERO and lacked a central registration depository (CRD) number. Furthermore, only three electronic databases (PubMed, Embase, and Web of Science) were exhaustively searched for relevant English literature (1). Therefore, we recommended the authors to supply us with a thorough search procedure and select more electronic databases, such as Scopus, MEDLINE, and Cochrane Library, to search for relevant studies to make this meta-analysis impervious.

Secondly, it appears that the author committed a few glaring errors. *Tab. 1* of the paper shows the information of the included literature. The Arafa *et al.* paper was published in 2021, while the table refers to 2020 (1,2). In addition, the P value of the Cohort subgroup in *Tab. 2* was 0.059, which was

written as 0.041 when analyzing the data in the paper (1).

Thirdly, the authors did not agree with the definition of sleep apnea when analyzing the association between sleep apnea and colorectal tumor risk. In the literature included by the authors, Chen, Lin, and Fang *et al.* defined it as obstructive sleep apnea, whereas Thompson *et al.* did not make clear the type of sleep apnea (3-6). We suggest that the authors to unify the types of sleep apnea included, which would make the results more reliable. Moreover, the authors did not specify the duration of shift work. Walasa *et al.* defined it as shift work over or equal to 7.5 years; Devore *et al.* defined it as shift work over or equal to 10 years; Shi *et al.* defined shift work as over or equal to 15 years, whereas Yong *et al.*'s study did not state the duration of shift work (2,7-10). We suggest that the authors to conduct a subgroup analysis based on whether the duration is the same or not to eliminate the effect of the duration on the results.

Fourthly, *Tab. 2* shows the results of subgroup analysis on sleep duration in order to explore the source of heterogeneity (1). We suggest that covariates such as year of publication (before 2016 versus after 2016), and disease type (colorectal cancer versus colorectal adenoma) can also be considered.

Finally, although the authors have used statistical tests (e.g., Begg's rank correlation test or Egger's linear regression test) and funnel plots for analysis of publication

bias, we still recommend that authors to show funnel plots in the article to demonstrate publication bias visually (1).

In summary, Wang *et al.* (1) carried out a good-quality meta-analysis to examine the associations between sleep duration, sleep apnea, and shift work with the risk of colorectal neoplasms, including colorectal cancer and colorectal adenoma. In our view, we believe that the association between them needs to be further investigated and the literature needs to study large samples to understand the exact relationship.

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