

Review of: "Exploring the Multidimensional Influences on Sleep and Active Heart Rate Dynamics: A Comprehensive Study"

Yen-Kuang Lin¹

¹ National Taiwan Sport University, Taoyuan City, Taiwan

Potential competing interests: No potential competing interests to declare.

Thank you for the opportunity to review this work, "Exploring the Multidimensional Influences on Sleep and Active Heart Rate Dynamics: A Comprehensive Study". This study looks into the complex interactions of social, personal, psychological, environmental, and behavioral factors that influence sleep and activity heart rate dynamics among college students. Data from 487 participants who used wearable devices were examined using latent growth-curve models. The study stresses the significance of these complex factors in determining cardiovascular health and the potential for tailored therapies. Although this study presents a thorough analysis that successfully integrates a variety of components (social, personal, psychological, environmental, and behavioral) to provide a complex understanding of heart rate dynamics, there are still some weaknesses that prevent this study from being published in its current form.

First, the data were gathered from a single university, raising questions about the findings' applicability to other groups. Although the participants were diverse, the focus on college students may limit the data's applicability to other age groups or socioeconomic circumstances. Second, the study did not dive deeply into causative factors. While the study identifies connections between many parameters and heart rate dynamics, it does not go further into the underlying cause mechanisms. Understanding the causal processes may yield more meaningful insights for solutions. Lastly, since the study was rather exploratory than inferential, sample representativeness was critical. Because the data were obtained from a single school, there is a possibility of selection bias, and the findings may not accurately represent populations outside of this environment. The authors admit that the individuals' characteristics are consistent with the broader university cohort, although this restriction should be addressed when interpreting the findings.