

Peer Review

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

Romina Valentini¹

1. DIMED, University of Padua, Italy

Overall, this is an impressive and comprehensive study that makes valuable contributions to understanding the complex factors influencing heart rate dynamics during sleep and wakefulness. The strengths include:

A large sample size of 487 participants tracked over an extended 637-day period, allowing for robust longitudinal analysis.

A multidimensional approach examining social, personal, psychological, environmental, and behavioral influences on heart rate.

The use of advanced latent growth curve modeling to rigorously analyze within-subject and between-subject variations.

Novel findings separating influences on sleep vs. active heart rate patterns.

The literature review provides a thorough overview of prior research and clearly identifies gaps that this study aims to address. The methods are clearly described, with appropriate treatment of missing data.

Sometimes there are some results written in the methods section.

The results section is quite dense but systematically reports the numerous factors associated with sleep and active heart rate changes over time. Highlights include the impacts of peer influence, gender, race/ethnicity, personality traits like conscientiousness, daily routines, physical activity levels, and environmental conditions like weather.

A few potential limitations are:

The single university sample may limit generalizability, as noted by the authors. Replication in other populations would strengthen the findings.

Reliance on self-reported measures for some psychological variables could introduce bias.

The observational design precludes causal inferences about which factors directly influence heart rate changes.

Overall, this is an extremely thorough and well-conducted study that significantly enhances our understanding of heart rate regulation. The multidimensional perspective and longitudinal analysis are particular strengths. With some minor limitations acknowledged, this work makes an important contribution that can inform future research and interventions to promote cardiovascular health.

Declarations

Potential competing interests: No potential competing interests to declare.