

Investigating effects of sleep, technology use and interpersonal stress towards mental health among university students

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Introduction

- Interpersonal stress, stress generated through interpersonal interactions, is a major form of stress faced by university students (Fernández González et al., 2017). High interpersonal stress may lead to symptoms of anxiety and depression (Coiro et al., 2016).
- Digital platforms, such as social media, have seen widespread use in recent years; yet, the impact of technology use towards mental health is still debated, and meta-analyses only show small but negative correlations between technology use and mental health (McCrae et al., 2017; Orben & Przybylski, 2019).
- Given the fact that most social interactions among university students occur online, due to the popularisation of digital platforms and due to the COVID-19 pandemic (Pandya & Lodha, 2021), investigating the role technology plays in the correlation between sleep, interpersonal stress and mental health would give us insights into how students have coped with the shift from offline to online social interaction.
- Given this, we hypothesized that sleep quality, technology use and interpersonal stress has an effect on mental wellbeing and each other.

Methodology, Design and Participants

- The data of 57 participants was analysed in the study; the average year of study is year 2.8.
- Participants were asked to complete 3 questionnaire inventories, pertaining to sleep quality (Pittsburgh Sleep Quality Index, PSQI), interpersonal stress (portion of Adolescent Perceived Event Scale, A-PES) and mental health (Warwick-Edinburgh Mental Health Scale, WEMWBS)
- Participants were also asked to provide 7 day' worth of technology use statistics (screen time, notifications, unlocks), through the Screen Time application (on iOS) and Digital Wellbeing application (on Android). Data from the day of completing the survey was removed.

Citations

Coiro, M. J., Bettis, A. H., & Compas, B. E. (2016). College students coping with interpersonal stress: Examining a control-based model of coping. *Journal of American College Health, 65*(3), 177–186. <https://doi.org/10.1080/07448481.2016.1266641>

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Orben, A., & Przybylski, A. K. (2019). The association between adolescent well-being and digital technology use. *Nature Human Behaviour, 3*(2), 173–182. <https://doi.org/10.1038/s41562-018-0506-1>

Pandya, A., & Lodha, P. (2021). Social Connectedness, Excessive Screen Time During COVID-19 and Mental Health: A Review of Current Evidence. *Frontiers in Human Dynamics, 3*(684137). <https://doi.org/10.3389/fhumd.2021.684137>

Results

- Spearman's Rho correlation and hierarchical regression analyses were used to analyse the data.
- Sleep quality (PSQI), interpersonal stress (A-PES) and mental wellbeing (WEMWBS) are moderately inter-correlated with each other (Figure 1), however technology use statistics were mostly uncorrelated to each other and to other measures in the study.
- **A lower PSQI score (indicating better sleep quality) is correlated with a higher A-PES score (indicating lower interpersonal stress), and a higher WEMWBS score (indicating higher mental wellbeing).**

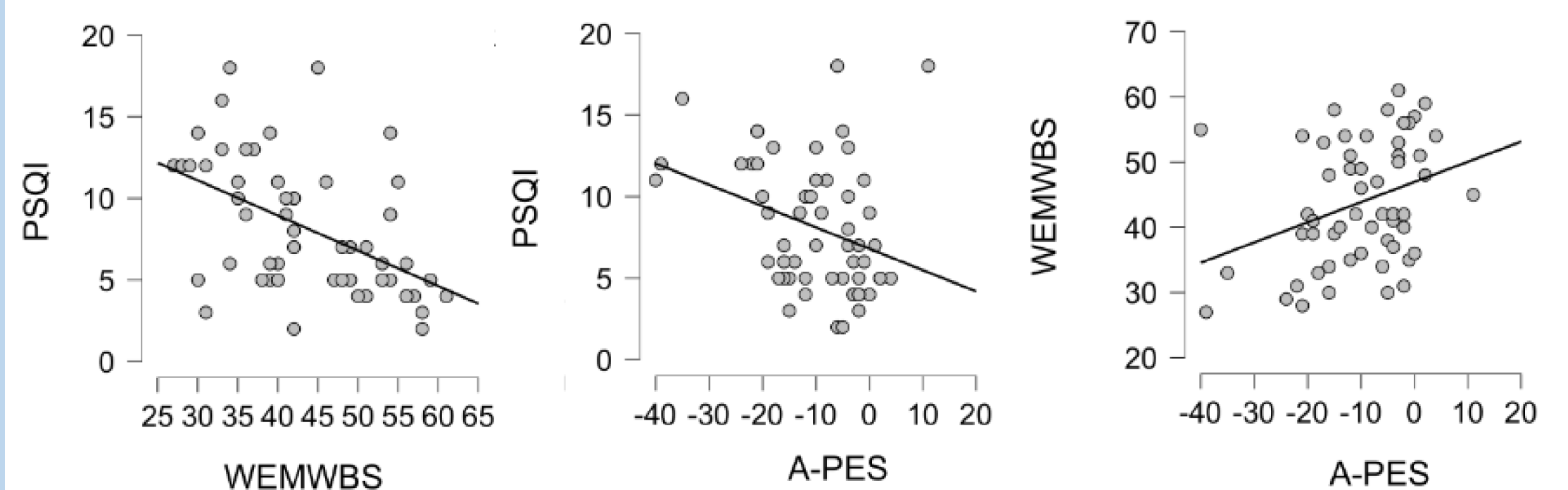


Figure 1. Graphical representations of significant Spearman's Rho correlations in the study. PSQI scores is negatively correlated with WEMWBS scores and A-PES scores, while A-PES scores are positively correlated with WEMWBS scores. Non-significant correlations (technology use statistics) are not shown.

- Coefficients of technology use statistics and A-PES scores were insignificant in the final regression model
- However A-PES scores were significantly correlated with WEMWBS scores when alone, but not when put with PSQI scores
- This suggests that PSQI scores are much more significantly correlated to WEMWBS scores compared to A-PES scores.

Conclusion

- Results found partial support for the hypothesis; however technology use statistics being uncorrelated may be explained by subjectivity of user experience not always correlating when compared to objectivity of mobile usage statistics (Ellis et al., 2019).
- Moreover, limitations include the lack of participants and female bias, in addition to cross sectional design
- Future research could focus on implications of subjective smartphone usage data compared to objective smartphone use statistics.

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