Perceived Sleep Quality and REM are Integral to Emotion Regulation

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INTRODUCTION

- Emotion regulation (ER) is important in helping individuals cope with and respond to challenges[1], and its dysfunction is closely related to many mental disorders[2]
- Reduced total sleep time (TST) and poor sleep quality impair ER[3,4]
- Few existing studies have examined the relationship between REM, perceived sleep quality, and ER in a daily life setting[5,6]

Hypotheses

1. Decreased REM and TST will lead to heightened emotion dysregulation
2. Poor perceived sleep quality will be associated with heightened emotion dysregulation
3. Depression will be associated with heightened emotion dysregulation

METHODS

- Participants (N=51) completed 1 week of sleep-monitoring with commercially available devices and sleep diaries
- Completed Brief Irritability Test (BITe), State Impulsivity Questionnaire (STIMP), and State Difficulties in Emotion Regulation Scale (S-DERS) each morning
- GLMMs with Poisson distribution used to determine relationship between sleep variables and ER

RESULTS

- Poor sleep quality was significantly associated with increased morning reports of irritability (β=-0.16, p<.001), impulsivity (β=-3.35, p<.001), and emotion dysregulation (β=-0.04, p=.002)
- Decreased TST was significantly associated with increased irritability (β=-0.05, p=.002) and impulsivity (β=-1.34, p =.002)
- Decreased REM time was significantly associated with increased irritability (β=-0.12, p<.001) and impulsivity (β=-2.44, p=.022)
- Baseline depressive symptom severity was significantly associated with all measures of emotion regulation (ps<.001)

DISCUSSION

- Confirms the association between decreased sleep quality and impaired ER and extends findings to daily life setting
- Supports the importance of reframing maladaptive cognitions surrounding sleep to enhance well-being
- Emphasizes the importance of studying ER as a heterogenous concept

Decreased REM time and TST are significantly associated with increased next-day irritability and impulsivity.

Poor perceived sleep quality is significantly associated with increased next-day emotion dysregulation.

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Figure 1. Decreased sleep time, increased depressive symptoms, and poor perceived sleep quality predict heightened irritability.

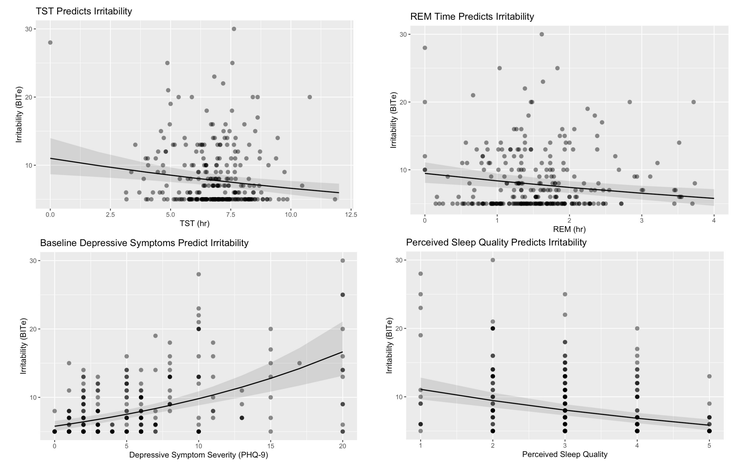
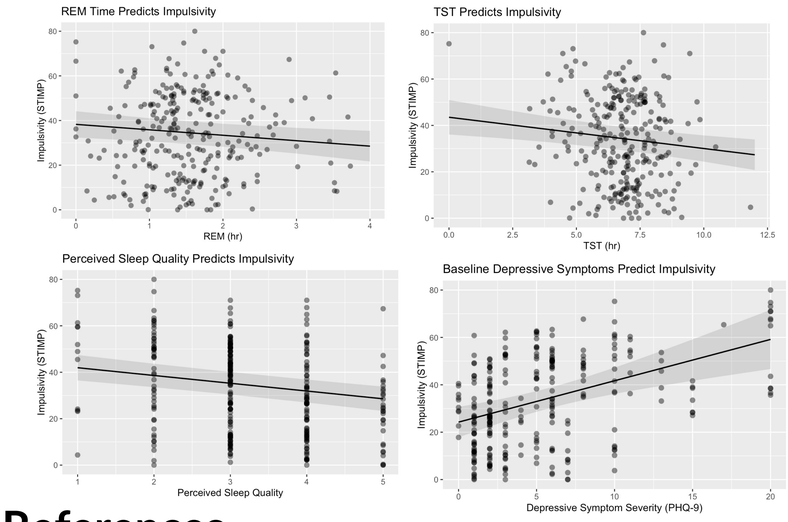


Figure 2. Decreased sleep time, increased depressive symptoms, and poor perceived sleep quality predict heightened impulsivity.



References

[1]Gruber, R., & Cassoff, J. (2014). The interplay between sleep and emotion regulation: conceptual framework empirical evidence and future directions. *Current psychiatry reports*, *16*(11), 500. https://doi.org/10.1007/s11920-014-0500-x
[2]Joormann, J., & Stanton, C. H. (2016). Examining emotion regulation in depression: A review and future directions. *Behaviour research and therapy*, *86*, 35-49. https://doi.org/10.1016/j.brat.2016.07.007
[3]Cote, K. A., Lustig, K. A., & MacDonald, K. J. (2019). The role of sleep in processing emotional information. *Handbook of Behavioral Neuroscience*, *30*, 505-518. https://doi.org/10.1016/B978-0-12-813743-7.00033-5
[4]Gerhardsson, A., Åkerstedt, T., Axelsson, J., Fischer, H., Lekander, M., & Schwarz, J. (2019). Effect of sleep deprivation on emotional working memory. *Journal of sleep research*, *28*(1), e12744. https://doi.org/10.1111/jsr.12744
[5]Bolinger, E., Born, J., & Zinke, K. (2018). Sleep divergently affects cognitive and automatic emotional response in children. *Neuropsychologia*, *117*, 84-91. https://doi.org/10.1016/j.neuropsychologia.2018.05.015
[6]Cairney, S. A., Durrant, S. J., Power, R., & Lewis, P. A. (2015). Complementary roles of slow-wave sleep and rapid eye movement sleep in emotional memory consolidation. Cerebral Cortex, 25(6), 1565-1575. https://doi.org/10.1093/cercor/bht349

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