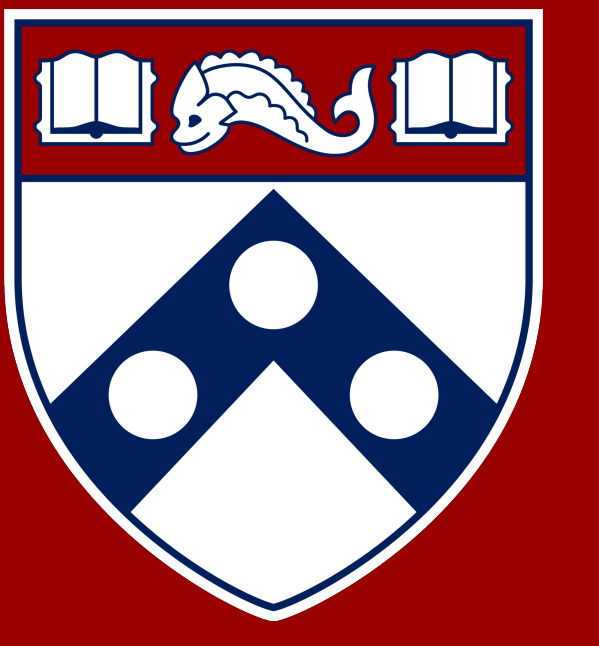


Effects of Sleep Deprivation on Mood in Depressed Participants With and Without Suicidal Ideation



Emma Palermo¹, Jennifer Goldschmied, PhD², Philip Gehrman, PhD²

¹University of Pennsylvania, Department of Psychology, ²University of Pennsylvania, Department of Psychiatry

Contact: epalermo@sas.upenn.edu

Introduction

- Studies have shown that sleep deprivation causes rapid improvement in symptoms in over 40% of individuals with major depressive disorder (MDD) and seems to improve all signs and symptoms, including suicidal ideation (SI)^{1, 2, 3}
- Understanding the effects and mechanisms of sleep deprivation can give us clues to understanding the neural mechanisms underlying MDD¹
- Since sleep deprivation and disturbances can increase SI and risk of suicide, depressed individuals with SI may respond differently to sleep deprivation than those without SI⁴
- We aimed to test if depressed participants with SI would show worsened mood after sleep deprivation as compared to depressed participants without SI

Objective

- To determine if there is a difference between depressed participants with and without SI in positive and negative mood during sleep deprivation

Methods

Participants

- 36 individuals with MDD and 10 healthy controls (HC) were recruited for a study investigating the neural mechanisms underlying the antidepressant effects of sleep deprivation
- Diagnosis of MDD was based on the SCID, 4th ed. Participants were symptomatic and unmedicated at the time of the study
- Presence of SI was determined through assessment with the Beck Depression Inventory at screening and was dichotomized

Sleep Deprivation

- Participants completed a 5 day/4 night protocol consisting of adaptation, baseline, total sleep deprivation (TSD) and recovery phases
 - The sleep deprivation period lasted for 36 hours
 - During sleep deprivation, participants completed the Visual Analogue Scale (VAS) for both positive and negative mood at approximately 2-hour intervals

Results

Figure 1: Effects of Sleep Deprivation on Positive Mood by Group

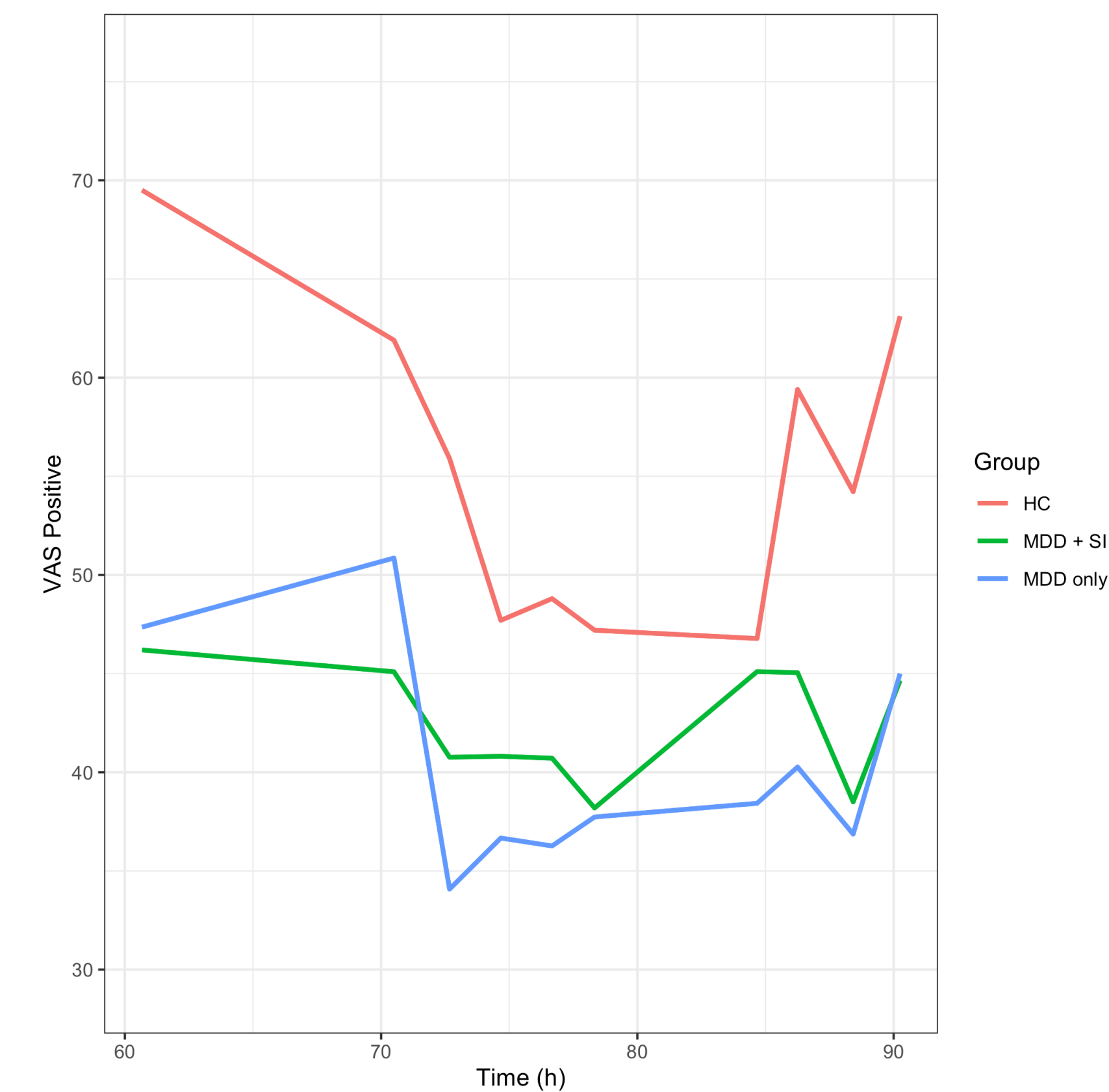


Figure 2: Effects of Sleep Deprivation on Negative Mood by Group

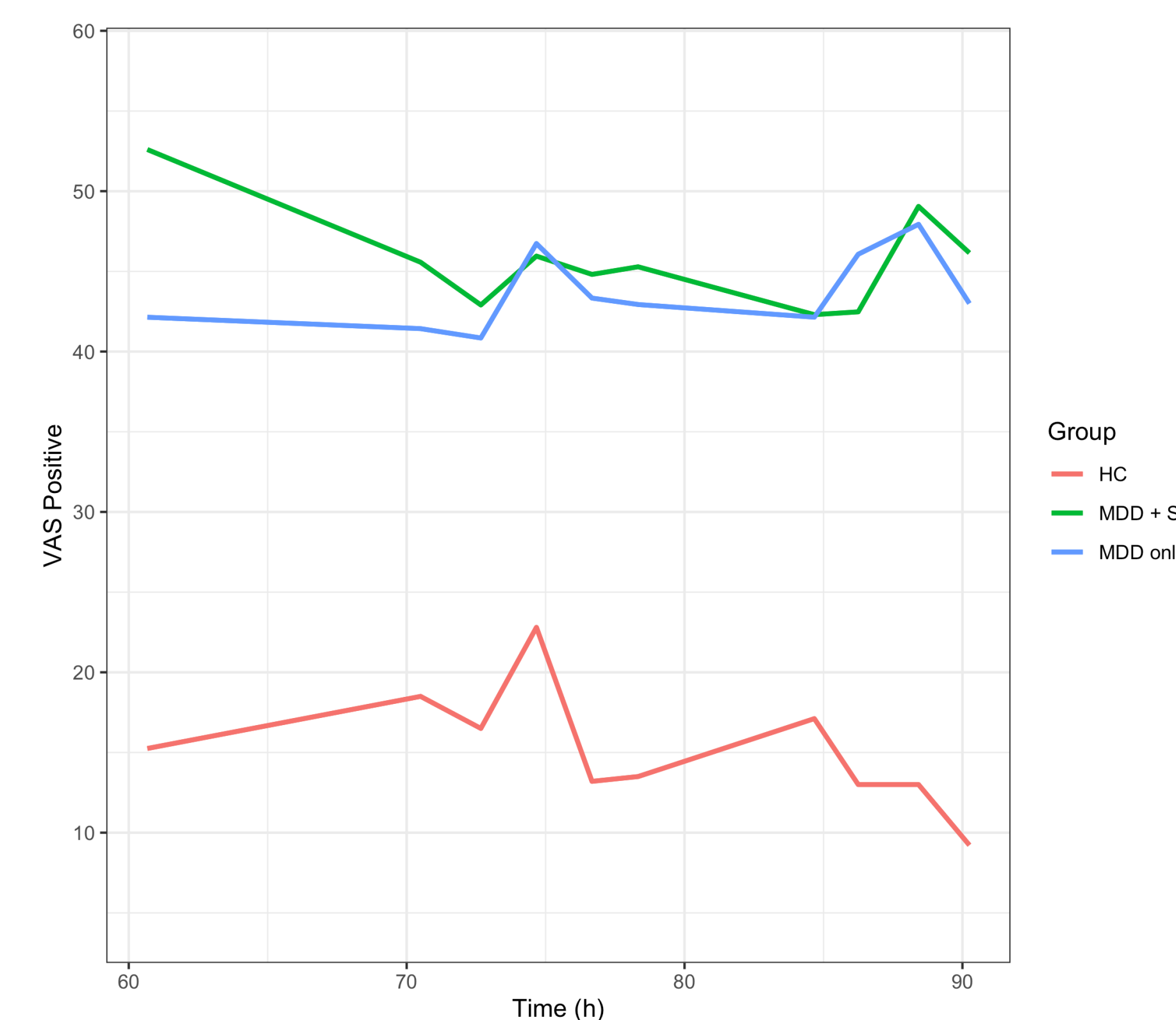


Table 1: Participant characteristics

	Healthy Controls N = 10	MDD only N = 15	MDD + SI N = 21
VAS Positive	15.27 (17.23)	43.73 (20.75)	45.67 (21.74)
VAS Negative	55.18 (24.66)	40.33 (21.74)	42.49 (18.57)
Age	35.78 (9.59)	36.07 (10.00)	30.81 (8.57)
Gender			
Male	6	5	4
Female	4	10	15
Other	0	0	2

Results

- Depressed participants showed lower positive affect as measured on the VAS than healthy controls ($\beta = -14.19, p = 0.02$).
- Depressed participants had higher levels of negative affect than healthy controls ($\beta = 30.54, p < 0.001$)
- The interaction of time and condition was not found to be significant for either positive or negative mood ($ps > 0.16$), suggesting that during sleep deprivation, the two groups did not have significantly different trajectories in mood
- Depressed participants with SI did not significantly differ from those without SI in terms of positive or negative mood ($ps > 0.20$), and no significant interactions were found for group and time ($ps > 0.21$)
- This suggests that the presence of SI did not significantly influence the effects of sleep deprivation on mood.

Conclusions

- Depressed participants had lower positive mood and higher negative mood during sleep deprivation as compared to healthy controls
- Lack of a significant difference between those with and without SI suggests that SI is not a meaningful indicator of how mood in depressed individuals will be influenced by sleep deprivation
- As sleep deprivation is a trigger for suicide, we may have assumed that those with SI would not benefit from the study, but they instead showed the same effects as MDD participants for mood
- Limitations include using SI as assessed during screening rather than during participation. Since analyses only included the TSD period, we were unable to analyze continuing effects of the deprivation
- Future research should aim to examine how sleep deprivation in MDD patients with SI affects symptoms beyond mood, and how these changes persist following the deprivation period

References/Acknowledgements

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