Absorbed in sleep: Dissociative absorption as a predictor of sleepiness following sleep deprivation in two high-functioning samples

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Abstract
In recent years, a labile sleep-wake cycle has been implicated as a cause for dissociative experiences, and studies show that dissociation is elevated following sleep deprivation. Dissociative individuals may find it harder to regulate sleepiness in the face of sleep disruption. Although there is significant variability in reactions to sleep deprivation, research on trait predictors is scarce. The present study examined the ability of trait dissociation to prospectively predict sleepiness following sleep loss and recovery sleep. Two high-functioning samples, namely, Remotely Piloted Aircraft officers (N = 29) and Air Force jet pilots (N = 57) completed state and trait questionnaires assessing sleep and dissociation before and after full or partial sleep loss. Dissociative absorption was a consistent predictor of an increase in sleepiness following sleep loss and following recovery sleep, controlling for baseline sleepiness levels. We discuss the findings in light of a difficulty to regulate and monitor consciousness states.

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1. Introduction

Sufficient sleep is essential for optimal cognitive, emotional, and psychomotor functioning (Maquet, 2001; Pilcher & Huffcutt, 1996; Stickgold, 2005). Acute sleep deprivation or chronic partial sleep restriction result in fatigue and sleepiness, deteriorated mood, impairment in cognitive and behavioral functioning, and increased accident-proneness (e.g., Alhola & Polo-Kantola, 2007; Philibert, 2005; Philip et al., 2004; Pilcher & Huffcutt, 1996). Nevertheless, some individuals are required to function optimally under acute or chronic sleep loss conditions, at times with high responsibility and risk for the individual or their surroundings, including physicians, drivers, and security and military officers, such as aviators and Remotely Piloted Aircraft (RPA) officers.

There are substantial trait-like interindividual differences in responses to sleep loss, even after taking age and gender into account; it seems that some people are more vulnerable to the effects of sleep loss than others (Alhola & Polo-Kantola, 2007;...
Dissociative absorption is the most common type of dissociation (Butler, 2006), and has raised interest and controversy regarding its existence as a unique dissociative factor and its relation to psychopathology (Soffer-Dudek et al., 2015). Yet, its relevance to sleepiness, as compared to the other dissociation factors, has not been explored to date. Individuals characterized by dissociative absorption tend to be unaware of their surroundings, fail in monitoring reality and imagination, and may, at times, stare blankly into space without noticing the passage of time. It seems that they find it difficult to regulate attentional and consciousness states, resulting in immersion in vivid imagination, and automatic actions. Thus, we hypothesized that individuals characterized by dissociative absorption may find it particularly difficult to regulate their sleepiness and monitor their waking functioning in the face of sleep loss. In addition, the idea that dissociative individuals find it difficult to regulate transitions between sleeping and waking states also leads to the hypothesis that they may find it harder to recover from sleep loss. Possibly, any irregularity in their sleep schedule may be harder to manage. Previous studies did not attempt to explore whether dissociation is related to sleepiness following recovery sleep, which was another aim of the present study.

To conclude, the present study set out to: (1) replicate previous studies showing an increase in state dissociation following sleep loss; (2) explore trait dissociation (total score and subscale scores) to attempt to prospectively-longitudinally predict sleepiness following sleep loss; and (3) explore whether dissociation may also predict sleepiness following recovery sleep. Notably, the present study has two major strengths: (1) the utilization of two separate samples, both high-functioning...
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