

THE ROLE OF SLEEP STAGES IN EMOTION REGULATION: ASSESSMENT OF THE SEQUENTIAL HYPOTHESIS

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Background: Sleep and emotions are interconnected bidirectionally. Previous research focused primarily on REM (Rapid Eye Movement) sleep and its involvement in emotional processes (Walker & van der Helm, 2009). While cumulative results suggest that other sleep stages are also involved in various cognitive processing (Ujma, 2021), there is a lack of data concerning the role of Non-REM sleep on emotion processing. By applying the sequential hypothesis (Giuditta et al., 1995) to the emotional field, it could be the succession of sleep stages more than unique stage that permitted emotional regulation processes. Considering the unique pattern of sympathovagal balance of the autonomic nervous system (ANS, which is strongly engaged during emotional responses), it is expected that Non-REM sleep modulates emotion regulation.

Aims: Investigating the role of both REM and Non-REM sleep on reduction of emotion experience and the link with neurovegetative profiles during these stages.

Method: Sleep architecture, sleep-EEG features and ANS activities were recorded in 17 healthy subjects over 3 non-consecutive nights (a habituation night, a control night and an emotional night). During the emotional night, participants were induced in fear before and after sleep by the same movie clips. Emotional responses (Galvanic Skin Responses and subjective feeling) were recorded during both inductions.

Preliminary results: At this stage of the analysis, we found significant modulation of REM and Non-REM sleep related to emotional responses. More negative feelings and higher emotional arousal were associated with a decrease in the proportion of REM sleep and an increase in spindle amplitude (transient oscillatory events during Non-REM sleep). Our results therefore support the sequential hypothesis that emotional regulation processes involve alternating sleep stages. The next step will be to integrate neurovegetative data, to establish their involvement in hypnic emotional regulation mechanisms.

Keywords: Non-REM sleep, Emotion regulation, Spindles, Sequential hypothesis

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