

# The complex interrelationship between dissociation and anomalous sleep experiences

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## Dear editor,

Dissociative experiences are common in the general population, with about one-third of individuals reporting at least one dissociative symptom<sup>1,2</sup>. The etiology of dissociation (especially of its more pathological expressions) has been primarily considered in terms of childhood trauma, but critiques of the trauma model also point the need of considering cognitive, psychopathological and sociocultural factors other than trauma in a comprehensive model of dissociative experiences<sup>3</sup>. Of particular interest here is the growing body of research uncovering the complex interrelationship between dissociation and anomalous sleep experiences such as recurrent nightmares, vivid and bizarre dreams, sleep paralysis, hypnagogic/hypnopompic imagery, and narcolepsy symptoms<sup>4,5</sup>.

This topic had already been discussed by some of the pioneers of the study of dissociation, such as Pierre Janet (1859-1947) and Morton Prince (1854-1929), but only recently did the subject gain research attention<sup>6</sup>. The dream has long been considered an interesting paradigm for dissociative experiences such as absorption/imaginative involvement and multiple identity states. Hilgard<sup>7</sup>, for example, defined the dream as a dissociative phenomenon per se. A significant body of evidence gives some credence to Hilgard's hypothesis. Yu<sup>8</sup>, for example, found that the intensity of a person's dreams is a good predictor of dissociative tendencies and conversion symptoms. Highly dissociative individuals, including patients diagnosed with dissociative disorders, usually report more vivid dreams and other unusual sleep experiences<sup>9</sup>. Dissociative experiences may also be confused with episodes of somnambulism, occurring in circumstances during which individuals remain physiologically awake<sup>10</sup>. However, the prevalence of dissociation during anomalous sleep experiences is largely unknown, either for general or clinical populations.

In a longitudinal experiment, Giesbrecht *et al.*<sup>11</sup> assessed every six hours the dissociative experiences of 25 healthy volunteers (deprived of sleep for one night). The researchers found that, although dissociative symptoms remained stable during the day, they significantly augmented during the night. The results remained statistically significant even after controlling for a series of confounders. Similarly, in a study by Denis *et al.*<sup>12</sup>, the frequency of dissociative experiences reported during the day was found to be related to both sleep paralysis frequency and the frequency/intensity of hallucinations experienced during sleep paralysis episodes.

It was hypothesized that disturbances of the sleep-wake cycle may cause or even maintain dissociative phenomena<sup>13</sup>. In a study with insomniac patients, Van Der Kloet *et al.*<sup>13</sup> assessed dissociative symptoms and EEG sleep parameters and found that lengthening of rapid eye movement (REM) sleep predicts dissociation. In its turn, insomniac patients revealed high dissociation scores. Based on the hypothesis that sleep deprivation and other disturbances in the sleep-wake cycle would lead to dissociative intrusions of sleep phenomena

in the waking state, Van der Kloet *et al.*<sup>14</sup> demonstrated that the improvement in sleep normalization and narcolepsy symptoms accompanied a significant decrease in the level of dissociation and general psychopathology in a clinical sample. It seems thus that sleep hygiene may contribute to the treatment or prevention of dissociative symptoms.

The above therapeutic findings may suggest, however, that dissociation is not related specifically to anomalous sleep experiences, but to sleep quality more generally. It is known that a number of the sleep experiences mentioned (e.g. sleep paralysis) has been consistently linked to general sleep quality and insomnia symptoms. Koffel and Watson<sup>15</sup>, however, cite studies suggesting that dissociation shares a specific relationship with anomalous sleep experiences, as opposed to insomnia.

Dissociation also showed to be related to a series of non-pathological anomalous sleep experiences such as lucid dreaming<sup>16</sup> and out-of-body experiences<sup>17</sup>. Based on the existing evidence, Cardeña and Alvarado<sup>18</sup> concluded that dissociation is one of the best predictors (along with hypnotic susceptibility and fantasy proneness) of out-of-body experiences. On the other hand, other studies have found that dissociative experiences correlate with nightmares and waking dreams, but do not correlate with lucid dreaming<sup>19</sup>, thereby suggesting that dissociation is only related to those sleep experiences that are difficult to control. More investigations are needed to understand the precise role of dissociation on lucid dreaming.

The relationship between anomalous sleep experiences and dissociation is a relatively unexplored research field pointing to a series of explanatory or etiological pathways to dissociative experiences beyond childhood trauma. In this sense, it may have implications beyond clinical practice. Anomalous sleep experiences such as sleep paralysis and bizarre dreams have given rise to many folkloric and paranormal beliefs, such as reports of alien abductions and attacks of monstrous creatures during the night<sup>20</sup>. This is a topic of potential relevance for the understanding of how similar beliefs about sleep-related phenomena emerged in different cultures.

The evidence reviewed above suggests that researchers have much to gain from the investigation of anomalous sleep experiences, either in terms of the development of new hypotheses on the nature of dissociation or regarding the treatment of dissociative symptoms.

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