



## What are sleep-related experiences? Associations with transliminality, psychological distress, and life stress

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### ARTICLE INFO

#### Article history:

Received 4 October 2007

Available online 16 September 2008

#### Keywords:

Sleep-related experiences

Dissociation

Transliminality

Psychopathology

Life stress

Longitudinal design

Altered consciousness

### ABSTRACT

Sleep-related experiences [Watson, D. (2001). Dissociations of the night: Individual differences in sleep-related experiences and their relation to dissociation and schizotypy. *Journal of Abnormal Psychology*, 110, 526–535] refer to a host of nocturnal altered-consciousness phenomena, including narcoleptic tendencies, nightmares, problem-solving dreams, waking dreams, and lucid dreams. In an attempt to clarify the meaning of this construct, we examined cross-sectional and longitudinal associations of sleep-related experiences (SREs), altered-consciousness tendencies (i.e., dissociation and transliminality), psychological distress, childhood maltreatment (i.e., abuse and neglect), and life stress in young adults. Both types of SREs (general SREs and lucid dreaming) were found to be distinguishable from altered-consciousness tendencies. Transliminality emerged as a longitudinal predictor of both general SREs and lucid dreams. Psychological distress and an increase in life stress predicted an increase in general SREs over a 3-month interval. We conclude that transliminality is a general altered-consciousness trait that accounts for some of the individual differences in sleep-related experiences, and that general sleep experiences are an outcome of psychological distress and life stress.

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### 1. Introduction

Watson (2001) proposed a fascinating—and relatively understudied—construct, labeled sleep-related experiences (SREs). This construct includes a variety of nocturnal altered-consciousness phenomena, such as nightmares, narcoleptic characteristics, recurring dreams, dream recall, vivid dreams, problem-solving dreams, dreams confused with reality (“waking dreams”), and lucid dreams. Although these different phenomena are rather diverse experiences, Watson showed that, apart from lucid dreaming (LD), the rest of these experiences constitute a single psychological construct, labeled general sleep experiences (GSEs).

The purpose of the present study is to elucidate the nature of sleep-related experiences (SREs) by way of locating this construct in the context of key clinical factors, namely psychological distress, altered-consciousness tendencies (dissociation and transliminality), and traumatic and life stress. Unlike previous research, which has mainly been based on cross-sectional designs, in the present study we utilized a longitudinal design, thereby increasing our ability to examine the direction of relationships between the aforementioned constructs. An additional strength of this study’s design is the inclusion of scales that have yet to be administered concurrently, such as transliminality and sleep experiences.

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### 1.1. Previous research

*Nightmare frequency* is a well-researched SRE, presumably due to its importance in post-traumatic-stress disorder and general psychopathology (e.g., Chivers & Blagrove, 1999; Cukrowicz et al., 2006; Mellman, David, Bustamante, Torres, & Fins, 2001; Nguyen, Madrid, Marquez, & Hicks, 2002). It is also the main criterion for diagnosis of nightmare disorder in the DSM-IV (American Psychiatric Association [APA], 1994). A general estimate of annual nightmare frequency lies in the range of 11.04–41.7 nightmares per year, depending on nightmare definition (Chivers & Blagrove, 1999; Zadra & Donderi, 2000). Furthermore, at least four percent of the population report that they regularly have nightmares (Levin & Nielsen, 2007; Stepansky et al., 1998).

*Narcolepsy* is a REM-related sleep disorder, in which some symptoms are common among normal population (Cheyne & Girard, 2007; Cheyne, Rueffer, & Newby-Clark, 1999; Jakes & Hemsley, 1987; Ohayon, 2000; Ohayon, Priest, Caulet, & Guilleminault, 1996). Such widespread symptoms include sleep paralysis (a conscious state in which there is inability to move prior to falling asleep or upon awakening), and vivid hypnagogic or hypnopompic hallucinations (hallucinatory sensory experiences occurring at sleep onset or offset; Cheyne et al., 1999; Kryger, Roth, & Dement, 2000). These hallucinations may be visual, auditory, kinesthetic (e.g., sensations such as falling or floating, sometimes experienced as out-of-body-experiences), or of another type (e.g., sensing the presence of an external agent; Girard & Cheyne, 2004; Ohayon, 2000).

*Recurring dreams* are dreams that repeat over time while maintaining the same theme and content across repetitions (Brown & Donderi, 1986; Heaton, Hill, Hess, Leotta, & Hoffman, 1998; Zadra, Desjardins, & Marcotte, 2006). These dreams should be differentiated from *post-traumatic* repetitive dreams, in which an actual traumatic event is replayed accurately within the dream (Hartmann, 1998). However, even when taking this distinction into consideration, recurring dreams have usually been found to be associated with negative dream content or emotions, or low psychological well-being (Brown & Donderi, 1986; Robbins & Houshi, 1983; Zadra, O'Brien, & Donderi, 1998; Zadra et al., 2006).

*Dream recall* is the tendency to remember dreams. In a sample of one thousand Austrians, Stepansky et al. (1998) found that 68% of participants reported remembering at least one dream a month. However, the frequency of recalling dreams varies to a great extent among different individuals (Schredl, 2004). This trait, which has been widely studied, perhaps since it is easily measured, has been correlated with various biological, state, and trait factors (for a review see: Schredl & Montasser, 1996; but see Beaulieu-Prevost & Zadra, 2007; Hartmann & Kunzendorf, 2007).

Finally, a *lucid dream* is a dream in which one is aware that one is dreaming, and can often control the dream events or content (Blagrove & Hartnell, 2000; LaBerge & DeGracia, 2000; Schredl & Erlacher, 2004; Vaitl et al., 2005). Estimations of the percent of lucid dreamers in the population are various and lie between 26% and 82% (e.g., Schredl & Erlacher, 2004; Snyder & Gackenbach, 1988; Stepansky et al., 1998).

The different types of dreams and nocturnal experiences described above may all be construed as “dissociations of the night” (Watson, 2001) or in other words, nocturnal altered-consciousness phenomena. Thus, it may be useful to investigate their common features or shared characteristics. Watson (2001, 2003) developed a preliminary version of the Iowa Sleep Experiences Survey, a 19-item questionnaire, the aim of which was to assess these phenomena as well as other, less studied, nocturnal altered-consciousness experiences (such as problem-solving dreams, vivid dreams, and “waking dreams”—dreams confused with reality). A principal component analysis revealed that a general factor accounts for sleep experiences best. Further developing the ISES, Watson (2001) reported that it is based on two factors: a 15-item general sleep experiences factor (GSE), and a 3-item lucid dreams factor (LD). To the best of our knowledge, the ISES is the only reliable and valid measure of a wide range of nocturnal altered-consciousness experiences.

### 1.2. Conceptualization and empirical research

Watson (2001) construed SREs as “dissociations of the night”, and demonstrated a relationship between SREs, trait dissociation, and schizotypy in a non-clinical population. Two possible, and at times contradicting, conceptualizations of SREs may be derived from his work: first, the use of a dissociation measure suitable for assessing trait dissociation in a non-clinical population, and indeed, the administration of this measure in such a population, imply a conceptualization of SREs as a nocturnal altered-consciousness trait which is not necessarily psychopathological. Second, the association of SREs with schizotypy and dissociation suggests a conceptualization of SREs as manifestations of psychopathology. In what follows, both perspectives will be reviewed, alongside supportive empirical findings.

The first conceptualization, namely that of SREs as a nocturnal altered-consciousness trait, is based on the association found between SREs and trait dissociation in a non-clinical population (Watson, 2001, see also Fassler, Knox, & Lynn, 2006; Giesbrecht & Merckelbach, 2004, 2006). Moreover, item-based analyses of the ISES reveal that nearly all of the different SRE items are significantly correlated with trait dissociation (Watson, 2001). In fact, the only item not significantly correlated with dissociation is dream recall. However, dream recall was associated with dissociative scales in later analyses (Watson, 2003).

Specific SREs have been shown to correlate with trait dissociation in other studies as well. For example, chronic nightmare sufferers obtained higher dissociation scores in a sample of undergraduate students (Agargun et al., 2003). A further link between specific SREs and dissociative tendencies may be found in the association between out-of-body experiences and lucid dreaming (for a review see Irwin, 1988). In addition, out-of-body experiences may be viewed as possible manifestations of a hypnagogic or hypnopompic hallucination (Girard & Cheyne, 2004; Ohayon, 2000).

Watson (2001) suggested that the mechanism underlying the association between SREs and dissociative tendencies might be a personality trait, which determines the relative ease vs. difficulty with which psychological material can shift

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