

WHY DO DEITIES AND DEMONS APPEAR IN OUR DREAMS?

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ABSTRACT

Lively dreams and visions have been well documented across cultures, throughout history. They deeply affect both elder and the younger people and their families and are a source of profound meaning and comfort. Prophetic dreams may be a result of one's unconscious processing of environmental cues. Having an implicit inference based on these cues manifest itself in one's dreams. Dreaming is a maverick mental state characterized by multiple features in which imagery, emotion, motor skills, and memory are created de novo as well as retrieved from the past. When people are in the depths of sleep, the cortex may be without activity, but the emotion centre in limbic system and the image interpretation areas in visual cortex are still very active inside their brain. Present study evaluated dream contents and associated emotions in healthy individuals and those people with sleep disorders suggesting potential directions for future dream research.

INTRODUCTION

Predictive Bayesian brain model states that during the awake state the brain constantly makes predictions about the environment. Tinnitus is the result of a prediction error due to deafferentiation, and missing input is filled in by the brain. But in the dream state there is no interaction with the environment and therefore no updating of the prediction error, resulting in the absence of tinnitus [1]. End-of-life dreams and visions were commonly experienced during dying. These dreams and visions can be a profound source of potential meaning and comfort to the dying [2]. The dreams of soldiers had a greater frequency of both aggression and threat. They were more intense in aggression and emotion than both the heavy gamers and the controls. The study findings suggest that exposure to real life violence and threat as well as the emotional significance of the experience is more frequently incorporated into dream imagery than simulated or virtual threat [3]. Sleep forms a critical component of adolescent development.

Inadequate sleep has severe consequences for adolescent morbidity, mortality, and overall quality of life. Impoverished adolescents are at severe risk for poor outcomes, and improvement in their sleep can be benevolent [4]. Negative relationship was not found between the ability to explicitly detect changes and precognitive dream variables. Also no relationship between precognitive dream belief and experience and implicit change detection [5]. The brain of migraineurs had dreaming with some peculiar features and negative connotation such as fear and anguish. It can be due to the recorded negative sensations induced by recurrent migraine pain, but it may just reflect a peculiar attitude of the mesolimbic structures of migraineurs brain, activated in both dreaming and migraine attacks [6]. Patients with idiopathic REM sleep behavior disorder (RBD) are at very high risk of developing synuclein-mediated neurodegenerative diseases like Parkinson's disease (PD), dementia with Lewy bodies and multiple system atrophy, with risk estimates that approximate 40-65% at 10 years. RBD is a reliable marker of prodromal synucleinopathy that open windows for neuroprotective therapy [7].

Study results revealed a significant relation between obsessions and insomnia symptoms, but not

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between insomnia and compulsions. When examining the different obsessive compulsive symptoms (OCS) dimensions, insomnia was again found to bear a specific relationship to obsessions, above and beyond that with the other dimensions. Depression is of highly comorbid with both obsessive compulsive Disorder (OCD) and sleep disturbances, depressive symptoms did not explain the OCS-sleep relationship [8]. Working with dreams is useful with grief and loss clients who present with their dreams. Adlerian dream analysis is a method of exploring dreams. It incorporates the lifestyle of the client and improvement was noted in better life style once the client began to talk about her dream [9].

In Alzheimer's disease and Parkinson's Disease

Patients with mild cognitive impairment had a frequency of sleep disturbances of any type equal to that of patients with Alzheimer's disease (AD) presenting mostly insomnia, nightmares or restless legs syndrome more frequently. Nightmares were frequent in patients having dementia with Lewy bodies and parkinson's disease dementia [10]. Signal detection theory analysis revealed a more liberal acceptance bias in those with high dream awareness. This was consistent with the notion of overlap in the perception of dreams, imagination and reality [11]. Presence of vivid dreams is associated with visual hallucinations (VHs) in PD and reaffirm that VHs are linked to cognitive impairment. Investigating vivid dreams helps in identification of VHs in PD. Identifying vivid dreams can be difficult considering that patients may fail to report symptoms for the fear of the stigma associated with psychosis and dementia [12]. Deities, saints and other supernatural beings frequently appear in dreams to instruct dreamers about specific remedies, therapeutic techniques, modes of care and numerous medicines in South Asia have their origins in dreams. These therapies challenge available models of historicising dreams [13]. Medications associated with greater risk for adverse effects or abuse than nabilone were often able to be discontinued with the initiation of nabilone, most often antipsychotics and sedative/hypnotics. No evidence of abuse was found within this high risk population or reduction of efficacy when nabilone was given in powder form with water rather than as a capsule [14]. Eye Movement Desensitization and Reprocessing was an effective treatment for Posttraumatic stress disorder (PTSD) patients and improved the associated sleep and psychological symptoms [15].

Study done in an unselected student sample indicated that two factors mediate the gender difference in nightmare frequency: neuroticism and overall dream recall frequency. The effect of neuroticism on the gender difference and the finding that the gender difference in nightmare frequency emerges at an age of about 10 years suggests that gender specific socialization processes play an important role in elucidating the gender differences in nightmare frequency in adolescents and young to middle

age adults [16]. Lucid dreamers are active in their lucid dreams and plan to accomplish different actions such as flying, talking with dream characters, or having sex. They are not always able to remember or successfully execute their intentions because of awakening or hindrances in the dream environment. The frequency of lucid dream experience was a good predictor of lucid dream phenomenology. Differences were observed in relation to age, gender, or whether the person is a natural or self-trained lucid dreamer [17]. In Veterans with PTSD and obstructive sleep apnea (OSA), continuous positive air pressure (CPAP) therapy reduced PTSD associated nightmares and improved overall PTSD symptoms [18]. Students with nightmares or parasomnias had greater odds for mental disorders. Sleep disorders are a common source of sleep disturbance and impairment in a sample of an older adolescent to emerging adult college student. Certain sleep disorders were associated with lower working memory capacity and poor mental health [19]. Vivid dreams and nocturnal restlessness were the most significant correlation factors with global cognitive function, as they commonly had significant correlation to cognition assessed with both the Mini- Mental State Examination (MMSE) and the Korean Version of the Montreal Cognitive Assessments (MoCA-K) [20]. Depressed patients with nightmares showed significantly higher suicide risk. Depression was a stronger risk factor for suicidal behavior when accompanied with nightmares. The study was valid for unipolar depression. Results concerning bipolar depression were inconclusive [21]. By contributing dreams and other significant material in the sessions, the patient gradually revealed her phantasies. This enabled the analyst to uncover the possible factors which determined her particular attribution of meaning to the analyst's words and her retention of information about how she had initially construed his interpretations [22]. The increased frequency of taste and olfactory dreams among migraineurs was specific, thus reflecting a particular sensitivity of gustative and olfactory brain structures, as suggested by osmofobia and nausea, typical of migraine. This suggests the role of amygdala and hypothalamus, which are known to be involved in migraine mechanisms as well in the biology of sleep and dreaming [23].

Dreams in Rapid Eye Movement Disorder

Current stimulation in the lower gamma band during REM sleep influenced ongoing brain activity and induced self-reflective awareness in dreams. Other stimulation frequencies were not effective. This suggests that higher order consciousness is indeed related to synchronous oscillations around 25 and 40 Hz [24]. Compared with the general population, nightmares were more prevalent in both narcolepsy with cataplexy (NC) and narcolepsy without cataplexy (N). They are not sufficiently investigated and treated. The neurobiological basis of narcolepsy and patients' dreaming activities were



closely related [25]. Late pregnancy is a period of markedly increased dysphoric dream imagery that may be a major contributor to impaired sleep at this time. Even though pregnant and non-pregnant women showed similar prospective dream recall, pregnant women reported prospectively more bad dreams. More pregnant women than non-pregnant women has higher incidence of nightmare that exceeded moderately severe pathology. Lower sleep quality and more night awakenings were noted in pregnant women [26].

86.9% of patients in a sample of treatment-seeking Canadian Forces members and veterans, reported having problems falling or staying asleep and 67.9% of patients reported being bothered by nightmares related to military specific traumatic events. Neither sleep disturbances nor nightmares significantly predicted suicidal ideation. Probable major depressive disorder (MDD) emerged as the most significant predictor [27]. Talking about dreams can be useful, this gives new and surprising elements about patient's personality helping to progress on the way to healing [28].

Blindness alters the sensory composition of dreams. Onset and duration of blindness plays an important role. The increased occurrence of nightmares in congenitally blind participants was related to a higher number of threatening experiences in daily life [29].

Delayed sleep phase disorder was most common in adolescence, presenting as difficulty falling asleep and awakening at socially acceptable times. Treatment needed is good sleep hygiene and a consistent sleep-wake schedule, with nighttime melatonin or morning bright light therapy as required. Diagnosing restless legs syndrome in children and management focusing on trigger avoidance and treatment of iron deficiency [30]. Neurodegenerative processes initially target the circuits controlling REM sleep. Clinical and basic neuroscience evidence indicates that RBD comes from breakdown of the network underlying REM sleep atonia [31]. Nightmare related studies yielded convergent results, providing strong basis for inferences about the connections between dreaming and cognitive emotional functioning. Potential directions for correlations between the maturation of neural organization, sleep architecture and dreaming patterns was suggested [32].

Post-Traumatic Stress Disorder

Perceived frequency of daytime stressors was associated with a greater number of nightmares, nightmare related distress, and long sleep latency, suggesting that the use of sleep diaries in future investigations can allow targeted treatments for veteran populations with PTSD and sleep disturbances [33]. Comparing the way the mind responds to the experience of hyperfamiliarity in diverse conditions such as delusions, dreams, pathological and non-pathological *déjà vu*, provides a way to comprehend claims that delusions and dreams are both states characterized by deficient reality testing [34]. Self-ratings,

as compared to external ratings, resulted in greater estimates of (1) emotional dreams; (2) positively valenced dreams; (3) positive and negative emotions per dream; and (4) various discrete emotions represented in dreams. The study results suggested that this is most commonly due to the underrepresentation of positive emotions in dream reports [35]. Nightmares were frequent in participants with insomnia than those without. Both nightmares and insomnia were significantly associated with the increase in depression. Participants with coexisting nightmares and insomnia showed higher depression than participants with insomnia alone or those with nightmares with no insomnia [36]. Ullman technique is an effective procedure for establishing connections between dream content and recent waking life experiences, even though wake life sources were found for only 14% of dream report text. The mean Exploration-Insight score on the Gains from Dream Interpretation questionnaire was quite high and comparable to outcomes from the well-known Hill therapist-led dream interpretation method [37]. Psychotic Major Depression (PMD) patients had similar levels of cognitive bizarreness in their dream and waking mentation. Dreams of PMD patients differed from those of controls in terms of content variables. They differed in terms of happiness, apprehension and dynamism. Dream content reflects a sharp discontinuity with the depressive state. Cognitive bizarreness significantly measures the stability of cognition across dreams and wakefulness in PMD inpatients [38]. Dreams indicated the deceased to be in a complex spiritual state. Dreams of the deceased as a central component of prolonged grief (PG) and PTSD were deeply upsetting among Cambodian refugees who survived the Pol Pot genocide of 1975-1979 [39]. Trauma related nightmares are symptoms of PTSD. Often resistant to label pharmacological PTSD treatment, and associated with a variety of adverse health outcomes [40].

When compared to bad dreams, nightmares represented a rarer and more severe expression of the same basic phenomenon. Physical aggression was the most frequently reported theme in nightmares. Interpersonal conflicts predominated in bad dreams. Nightmares were rated by participants as being substantially more emotionally intense than were bad dreams. 35% of nightmares and 55% of bad dreams contained primary emotions other than fear. When compared to bad dreams, nightmares were more bizarre and contained substantially more aggressions, failures and unfortunate ending [41].

Lucid dreams and Visions

Longer durations in lucid dreams were related to the lack of muscular feedback or slower neural processing during REM sleep. Task intervals and lucidity were time stamped with left-right-left-right eye movements. Performing a motor task in a lucid dream required longer time than in wakefulness [42]. Qualitative findings from dreams and visions of 63 hospice patients revealed six



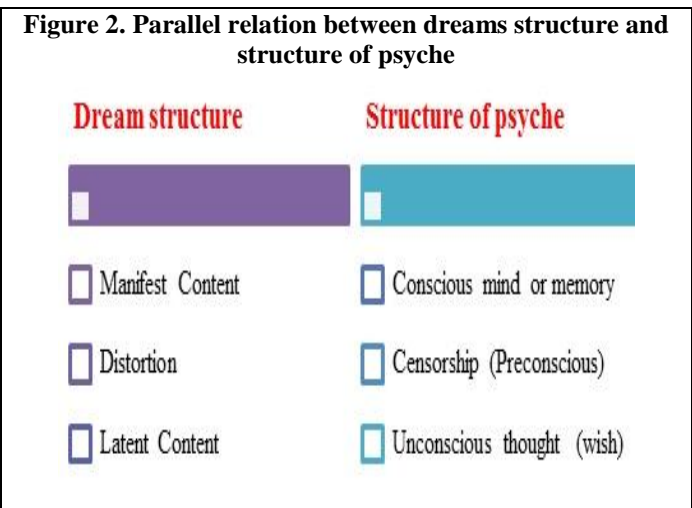
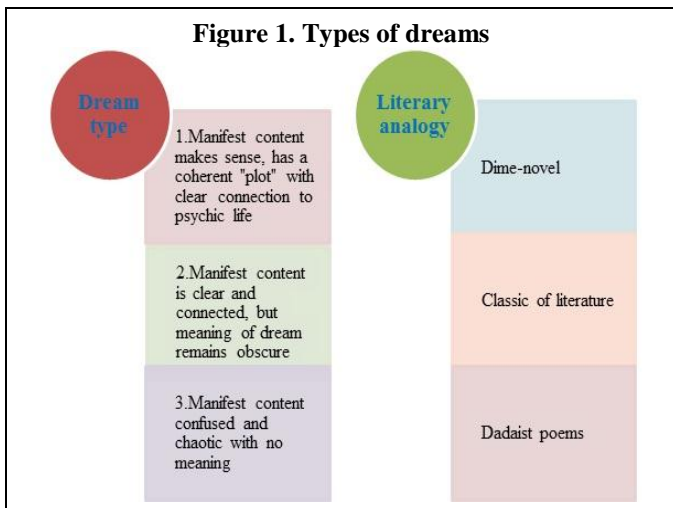
categories in inductive content analysis, used to examine the content and subjective significance of ELDVs: Comforting presence, preparing to go, watching or engaging with the deceased, loved ones waiting, distressing experiences, and unfinished business [43]. The study results demonstrated the feasibility of the differential diagnosis of psychosis based on the analysis of dream graphs, pointing to a fast, low cost and language invariant tool for psychiatric diagnosis and the objective search for biomarkers. The Freudian notion that "dreams are the royal road to the unconscious" is clinically useful [44]. Dreams and visions featuring the deceased friends, relatives, and animals/pets were significantly more comforting than those of the living, living and deceased combined, and other people and experiences. As the sample participants approached death, comforting dreams/visions of the deceased became more prevalent [45]. Lucid dreaming (LD) was rare, unstable, difficult to control, and facilitated by increases in REMS duration and transitions to wake state. Together with LD incidence in USA, Europe and Asia, study data from Latin America strengthen the notion that LD is a general phenomenon of the human species [46]. A better understanding of the relationships between suicidal ideation (SI) and sleep quality, sleep related cognitions, and nightmares is needed to develop potential prevention and treatment options for suicidality in adolescents. Study sample experienced sleep disturbances and SI to a greater degree than non clinical samples. Sleep quality was related to nightmares, while sleep quality and nightmares were each correlated with SI. Sleep quality, dysfunctional beliefs, and nightmares each predicted SI, independently [47].

Analysis indicated that dementia related sleep disturbances were common like confused awakenings and dementia-related behaviors at night, changes to sleep timing, and nightmares. Issues common for caregivers included being woken at night, having problems getting back to sleep, trips to the bathroom, and daytime sleepiness. Participants had to normalize their sleeping

problems by developing a number of coping strategies [48].

Dreams come from memories

The phenomenal dream self lacks some dimensions that are crucial for the efficacy of ancient art of memory (AAOM) in wakefulness. But, the comparison between dreams and AAOM can be fruitful by suggesting new perspectives for the study of lucid dreaming as well an altered perspective on the efficacy of AAOM itself [49]. The hypothesis that dreaming is involved in off-line memory processing was difficult to test because major methodological issues need to be addressed, such as dream recall and the effect of remembered dreams on memory [50]. Llewellyn developed a more specific thesis that rapid eye movement (REM) dreams, because of their similarities to mnemonic techniques, have the function of elaboratively encoding episodic memories [51]. Memories may be integrated at junctions but segregated along connecting network paths that meet at junctions. Episodic junctions may be instantiated during NREM sleep after hippocampal associational function during REM dreams. Hippocampal association involves relating, binding, and integrating episodic memories into a mnemonic compositional whole. This often bizarre, composite image has not been present to the senses. It is not real because it hyper associates several memories. During REM sleep, on the phenomenological level, this composite image is experienced as a dream scene. A dream scene may be instantiated as omnidirectional neocortical junction and retained by the hippocampus as an index. On episodic memory retrieval, an external stimulus or an internal representation is matched by the hippocampus against its indices. One or more indices then reference the relevant neocortical junctions from which episodic memories can be retrieved. Episodic junctions reach a processing (rather than conscious) level during normal wake to enable retrieval. This hypothesis if is correct, then the stuff of dreams is the stuff of memory [52].



In a sample of recent combat veterans, insomnia and nightmares were greatly associated with the severity of both PTSD and depressive symptoms. Insomnia in particular did not resolve spontaneously and was associated with ongoing PTSD. Addressing insomnia early, is therefore a strategy to alter the course of PTSD [53]. Multiple sclerosis (MS) is a complex disease that can involve different aspects of cognition. Hence, MS can influence patients' dreams. In fact, nobody knows what the importance of dream is in MS, but further research may introduce dream and dreaming as a sign of improvement or progression in MS disease [54]. A majority of adult sleepwalkers consulting for the disorder did not report clinically significant levels of depression or anxiety. Sleepwalkers with and without psychopathology appeared more similar [55]. The conceptual consequences of cognitive corruption and systematic rationality deficits in the dream state are much more serious for philosophical epistemology and the methodology of dream research [56].

CONCLUSION

The neurobiological basis of narcolepsy and patients' dreaming activities are closely related. Amygdala

and hypothalamus are involved in migraine mechanisms as well in the biology of sleep and dreaming. Depression is a strong risk factor for suicidal behavior when accompanied with nightmares. Global cognitive function and sleep disturbances, including vivid dreams and nocturnal restlessness were correlated in PD patients. Students with nightmares or parasomnias had greater risk for mental disorders. In Veterans with PTSD and OSA, continuous positive air pressure therapy reduced PTSD associated nightmares and improved PTSD symptoms. Prazosin was an effective option for combat related PTSD nightmares. Deities, saints and other supernatural beings frequently appeared in dreams to instruct dreamers about specific remedies, therapeutic techniques, possible modes of care etc. Dreams usually occur during rapid eye movement stage of sleep. The part of visual cortex that takes in new images from visual pathway sleeps along with the sleeping person, the part of visual cortex that interprets images, stays still wide awake, causing changes in plasticity of cortex [57]. Hence, essentially, this part of the brain gets down to activity, trying to make sense of and interpret as well as misinterpret all the past memory bits and imaginations in accordance with the local culture and traditions of the dreamer [58].

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