Letter to Editor

Dreaming in Individuals with Blindness

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What is dreaming in blind individuals like? For years, this question has been attracting much attention in science. However, dreaming is still, to a large extent, an unknown phenomenon for researchers (1, 2). Previous studies show that dreams include different sensory modalities and experiences (3). Dreaming in sighted individuals can be associated with their visual memory and daytime experiences (4). This has made dreaming even more mysterious for blind subjects regarding its contents (5). For sighted individuals, visual experiences are present in almost all dreams, while auditory, tactile, olfactory, and gustatory sensations are present in about 50%, 22%, 1%, and less than 1% of dreams, respectively (4). In blind ones, the visual content, which is mostly replaced with the senses of smell, sound, taste, touch, tactile, and kinesthetic components, is much lower than in sighted ones (6). The composition of sensory modalities, as well as the thematic and emotional content of dreams, differs in blind individuals. In terms of the emotional content of dreams, in blind individuals, the prevalence of anxiety and fear is higher in their dreams which are self-engaging and vivid (1, 2).

Just a few studies concurred that in dreams of the blind, the level of emotions was lower with fewer social interactions. Visual modalities in dreaming, which are considered expressions of visual imagery, result in attenuation of alpha waves and also a decrease in the functioning of working memory in both normal and blind individuals (4). Deactivation of the prefrontal cortex is also reported, with a slight difference, in both groups (4). According to some previous studies, late blind individuals, who become blind after the age of 7 years, experience visual content in their dreams, while congenitally blind or early blind ones, who become blind before the age of 5 or 7 years, mostly claim almost no visual experience (6). Some laboratory studies have claimed that late-blind and normal individuals have identical dreams, while congenitally blind ones have dreams without visual content (7). However, some studies have reported slight differences between congenitally blind individuals and sighted ones (8). Quite surprisingly, some neuroscientific studies have reported that congenitally blind subjects experience visual content while dreaming (1, 2).

Previous studies are mostly subjective and based on dream reports collected in sleep laboratories or home-based experiments. They are more qualitative with small and heterogeneous study populations and also with no statistical analyses, which lack a matched sighted control group. It can be hypothesized that different neural circuits exist during dreaming in early, late, and congenitally blind individuals and also sighted ones. To the best of our knowledge, a few studies have explored brain dynamics in blind individuals. This letter aims to open up a discussion in this field and invite future studies to focus on this issue as several questions have remained unanswered so far. More biocybernetics and computational neurosci-

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entific studies should be conducted to resolve uncertainty and inconsistency in previous studies and more neurophysiologic indices should be introduced to precisely study dreaming in blind subjects.

Conflict of Interests

Authors have no conflict of interests.

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