Research Directions: Sleep Psychology

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Question

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Research Directions

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The connection between dreaming, the brain and mental functioning: where are we now?

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Context

Dreaming has always aroused our curiosity. Theories as to the cause and function of dreams have been described since the beginning of recorded history (George 2020). In the late 19th century, experimental psychologists and psychologically-minded researchers from other disciplines made important methodological contibutions, emptical observations, and conceptual developments to the study of dreams (e.g., Jastrow, 1888; Manacéïne, 1897; De Sanctis, 1899; Vold, 1897). At the end of the 19th century, Mary Whiton Calkins and her female students made pioneering advancements in the psychological science of dreams (Calkins 1893; Weed et al. 1896). Freud's psychoanalytic theory soon overshadowed these groundbreaking empirical works as the interpretation of dream content and their presumed reflections of the unconscious mind became the focus. The detection of rapid eye movements during sleep in 1953 and the suggestion that dreams occurred exclusively during this newly defined sleep state electrified the field of dream research (Aserinsky and Kleitman 1953; Dement and Kleitman 1957). Although eye movements (Ladd, 1892), increased brain pulsations (Mosso, 1881), and electroencephalographic patterns (Loomis et al., 1937; Davis et al., 1938) had been previously argued to empirically correspond to dreaming, this discovery catalyzed the first "Meeting of Researchers in the Field of EEG and Dreams" at the University of Chicago in 1961 organized by psychologist Allan Rechtschaffen (Association for the Psychophysiological Study of Sleep Records). Renamed the Annual Meeting of the Association of the Psychophysiological Study of Sleep in subsequent years, these early meetings consisted principally of psychiatrists and psychologists, most of whom with interests in dream research. Among them, John Antrobus, Rosalind Cartwright, G. William Domhoff, David Foulkes, Donald R. Goodenough, Calvin S. Hall, Ernest Hartmann and Joe Kamiya, made valuable contributions to our understanding of dreaming through decades of psychological research (Antrobus, 1992; Domhoff and Kamyia, 1964; Ellman and Antrobus, 1991; Foulkes, 1966, 1985; Goodenough et al., 1965; Hall and Van de Castle, 1966; Hartmann, 2010). While David Foulkes tirelessly advocated for his vision of a descriptive and explanitory dream psychology, Rosalind Cartwright developed an applied vision for the field outlining over 100 dream-related questions that remain pertinent to sleep psychology (Cartwright 1977, 1978, 2010). With the rise of sleep medicine and the vicissitudes of funding, dream research drifted to the fringe of sleep research by the end of the 1980s (Foulkes 1996). Nevertheless, dreaming remains a central topic of sleep psychology, and many questions remain to be answered.

Several contemporary theories of dreaming have been proposed (e.g., Domhoff, 2022; Hobson, 1990; Horton, 2017; Schredl, 2000; Valli et al., 2005). Some conceptualize dreaming as a protoconscious state, providing a virtual reality model of the world that has evolutionary value or is of functional use to the development and maintenance of waking consciousness. Others view it as an epiphenomenal neurocognitive process that occurs during sleep. New and creative studies are ongoing to clarify the evolutionary mechanisms and functions of dreams shedding light on the relations between dreams and consciousness, cognition, memory consolidation, and mental health (e.g., Horowitz et al., 2023; Li et al., 2023; Voss et al. 2013; Wamsley, 2022). With recent advances in somnoimaging, that combines neuroimaging techniques with sleep research methods, we are now able to characterize cerebral function throughout the sleep–wake cycle. The application of these new somnoimaging techniques with machine learning and even newer AI applications to dream reports has the potential to accelerate our ability to answer persistent questions about dreaming (e.g., Desseilles et al., 2011; Horikawa et al., 2013; McNamara et al., 2019). But to date, the definitive functions of dreaming in relation to brain functioning and mental health remain the subjects of considerable debate and active research.

Research Directions: Sleep Psychology welcomes submissions that will help advance our understanding of how dreaming relates to the brain and mental functioning including neuroplasticity, cognition, consciousness and mental health. Specific topic areas of interest to this question include, but are not limited to:

- Associations between dreaming and neuroplasticity
- The relationship between dreaming and psychological processes during sleep and wakefulness
- Dreaming across the lifespan
- The relationship between dreaming and memory, emotional processing and consciousness
- Models of dreaming
- Sleep mentation and dreaming across sleep–wake states
- How psychological and social factors contribute to modifying the dream experience and its effect on the brain? (e.g., personal factors or collective trauma such as war or covid)
- The role of dreaming on brain health
- Pathological dreaming (e.g., nightmares) their neurobiological processes and how they affect mental health and psychological functioning
- The mechanisms of lucid dreaming and the role of lucid dreaming in sleep health and psychological funtioning
- What constitutes dream health?
- Neurocognitive processes of dreaming
- Individual differences in dreams

How to contribute to this Question

If you believe you can contribute to answering this Question with your research outputs find out how to submit in the Instructions for authors. This journal publishes Results, Analyses, Impact papers and additional content such as preprints and "gray literature". Questions will be closed when the editors agree that enough has been published to answer the Question so before submitting, check if this is still an active Question. If it is closed, another relevant Question may be currently open, so do review all the open Questions in your field. For any further queries check the information pages or contact this email sleeppsychology@cambridge.org.

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