

# Frontiers in dream research

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Dreaming has fascinated mankind since the dawn of history. In addition to the exploration of dreams in literature, cinema, and visual arts, the scientific approaches to dreaming can be divided into three main paradigms: psychoanalysis/dream interpretation, academic psychology, and neurophysiology. Since Sigmund Freud's book "The interpretation of dreams" published in 1899, dream interpretation and subsequently termed dream work is an important part of the psychotherapeutic practice (cf. Schredl et al., 2000). Especially the work of Clara Hill and her research group, combined the clinical approaches to dreams with an academic background by carrying out studies investigating the efficiency of dream work in the clinical setting (Hill, 2004). It would be very interesting to expand her paradigms to other methods of working with dreams in order to learn what is effective and helpful for the dreamer. Starting with the discovery of REM sleep by Aserinsky and Kleitman (1953), modern sleep research has grown rapidly. Whereas some researchers confused the terms REM sleep and dreaming (because it was thought that dreaming is almost exclusively related to REM sleep), it is very important to differentiate between the two levels, the physiological level (brain activity, heart rate etc.) and the psychological level (the subjective experience while sleeping). Keeping this distinction in mind, it is very interesting to study the relationship between these two levels, the so-called body-mind interaction during sleep (cf. Schredl, 2000). The third approach, based on academic psychology methodology, was especially stimulated by the work of Calvin S. Hall and his co-workers (cf. Hall & Van de Castle, 1966). By developing the method of dream content analysis and apply these rating scales to large dream samples, they were able to present findings about "normal" dreaming since up to this point, most of the dream material was clinical, i.e., stemming from persons with mental disorders undergoing psychotherapy. This approach aims at a proper definition of dreaming (subjective experience during sleep), a thorough description of the phenomenon (how dreams look like), and the sources of the dreams (How do waking-life events affect dreams?) (cf. Schredl & Wittmann, 2005).

Two special types of dreaming have been studied intensively in the last decades: lucid dreaming and nightmares. The term lucid dreaming designates dreams where the dreamer is aware that s/he is dreaming while dreaming. Although lucid dreaming has been known and practiced for centuries in Buddhism (Gyatrol, 1993), the reports of authors of the Western Hemisphere (e.g., St. Denis, 1867/1982; Van Eeden, 1907) have been treated with caution because many scientists speculated that these were experiences stemming from brief periods of waking which occur quite often during sleeping (cf. Erlacher, 2005). But two researchers, Keith Hearne (1978) and Stephen LaBerge (1980) were independently able to demonstrate that lucid dreaming is in fact occurring during REM sleep, the eye movements carried out by the lucid dreamers during the dream can be measured by modern sleep technology (EOG recording). Because the dreamers can carry out pre-arranged tasks during the dream, for example, knee bends, this paradigm is well suited to study the interaction between physiology and mind processes. Research has focused on nightmares mainly because of two reasons. First, Barry Krakow and his team have developed a brief but effective treatment strategy for nightmares (Krakow & Zadra, 2006). Second, nightmares are a core symptom of the posttraumatic stress disorder (Wittmann, Schredl & Kramer, 2007), so that

theories about nightmare etiology have been developed (cf. Levin & Nielsen, 2007).

The last topics that will be covered by the INTERNATIONAL JOURNAL OF DREAM RESEARCH are related to the psychological aspects of sleep in general, for example, perceived sleep quality and the feeling of being refreshed in the morning and factors which might affect these subjective sleep estimates.

Nielsen and German (1998) published a paper on the publication pattern in dream research and found peaks after the publication of Freud's "The interpretation of dreams" in 1900 and after the publication of Aserinsky's and Kleitman's paper on REM sleep in 1953. Following a period with declining numbers of publications captured by databases like PubMed and PsycInfo, there is a small but substantial increase after 1980 in the psychological literature. Based on these articles, the authors concluded that there is renewed interest in cognitive and dream analytic approaches. Their review ends in 1995, but an own database research in PsycInfo revealed that the number of dream articles is still growing: 142 (1996) to 187 (2006). Especially in the above mentioned field of nightmares, the publication rate doubled from 16 (1996) to 40 (2006), reflecting the importance of this topic.

The number of peer-reviewed journal that are mainly dedicated to dream research is very small. Since 1990, the journal *Dreaming* is published quarterly by the International Association for the Study of Dreams. The European journal *Sleep and Hypnosis* featured since its first year (1999) a large variety of dream-related articles. In order to increase the opportunities to publish articles in the field of dream research, the INTERNATIONAL JOURNAL OF DREAM RESEARCH was started.

The first issue of the INTERNATIONAL JOURNAL OF DREAM RESEARCH includes three original papers in the area dream content studies, lucid dreaming, and nightmares.

The first paper focuses on methodological issues of eliciting dream reports. Since the sixties, there is a sometimes heated debate whether home dreams or laboratory dreams are better. The laboratory offers the possibility of measuring sleep physiology in a standardized setting but – as demonstrated by earlier studies reviewed in the paper – strongly affects dream content. Thus, for some research agendas such as "normal" dreaming in the home setting, laboratory dreams are not appropriate. On the other hand, for measuring the interaction between physiological measures and dream content, laboratory studies will be very helpful, especially if monitoring and complex awakening schedules are necessary; a task not easily solved in the home setting despite the modern ambulatory sleep polysomnography.

As mentioned above, the investigation of lucid dreams is a very sophisticated method for studying the interaction between physiology and dream content. Because of the opportunity to measure eye movements carried out in the dream, the lucid dreamer can "signal" the beginning and end of a specific task carried out in the dream, e.g., ten knee bends or counting from 1 to 10. The physiological parameters like EEG, heart rate, and breathing can be analyzed and compared to dream segments with other activities. The second article reviews the parallels between lucid dreaming and imagination in waking life, the author reviews the empirical evidence in the field, some of the work done by him.

The third and last paper focuses on nightmares. The cognitive model for recurring nightmares proposed by Victor Spoormaker

is very intriguing because it fits within the framework of cognitive therapy and, thus, will stimulate future research regarding the effectiveness of cognitive-behavioral treatments like the Imagery Rehearsal Treatment developed by the group of Barry Krakow.

We want to encourage researchers to submit their findings to the INTERNATIONAL JOURNAL OF DREAM RESEARCH which is an open access journal without publication fee. We also hope that the readers will enjoy the presentation of the latest findings in dream research, a relatively new and very fascinating field.

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