



CLINICAL REVIEW

Medicolegal aspects of complex behaviours arising from the sleep period: A review and guide for the practising sleep physician



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SUMMARY

This review is aimed at summarizing the current state of knowledge regarding parasomnias, which have been implicated in medicolegal cases as well as providing guidance to those working within common-law jurisdictions regarding the technical aspects of the law. Sleepwalking and sexsomnia as a defence are being raised more frequently in criminal cases and there has been public debate on their validity. Unfortunately, expert evidence on forensic sleep disorders continues to be heavily opinion-based with the potential for miscarriages of justice seen in recent highly publicized cases. There is an apparent inertia in research into violent sleep disorders. We review the current state of forensic sleep science in the United Kingdom (UK) and abroad and discuss the need to formulate guidelines based on available evidence. We also highlight the pressing necessity for more research in this area as well as the need to reform the law, which is the subject of a recent Criminal Law Commission report in the United Kingdom. In time, this will facilitate the efficient, proportionate, and just disposal of violence arising from sleep, thus benefitting both society and the individual sufferer.

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Introduction

"In all of us, even in good men, there is a lawless wild-beast nature, which peers out in sleep." Plato "The Republic" Book IX, 571d

The implications of an incorrect diagnosis of either a non-rapid eye movement (non-REM) sleep disorder or rapid eye movement (REM) behaviour disorder to explain criminal behaviour are significant. On the one hand, the guilty or potentially dangerous may go free. On the other, an individual, whose only guilt lies in having an easily managed illness, may be incarcerated. There have been great advances in sleep medicine in the last decade – electroencephalography (EEG) monitoring of sleep, sophisticated imaging techniques and the recognition that psychiatric co-morbidities may influence sleep quality, sleep patterns and manifestations of parasomnias. However, whether a criminal act has occurred as a result of a parasomnia or arisen out of sleep is difficult to prove after the event – the circumstances can never be reliably reproduced.

There is an urgent need to critically re-examine legal perspectives on behaviours occurring during sleep which continue to be grounded in assumptions and decisions from the late 19th and early 20th centuries. These legal doctrines are increasingly out of step with our knowledge of the pathophysiology, treatment modalities and differential diagnosis of these disorders.

In this paper, we present a brief summary of legal definitions invoked in forensic acts performed during sleep or as a result of a sleep disorder. We focus particularly on the dearth of evidence to support both medical and legal decisions in this area. We aim not to review the forensic sleep cases in the literature, but rather raise points of discussion highlighting the problems with post-event testing and problems with proving a sleep defence.

Unfortunately, little original research is being done in this area [1]. Certain cases are reported over and over again in the literature and only a few centres in the world are undertaking limited studies in the field. Case reports tend to only expand the *possibilities* for forensic sleep behaviour, when what is arguably needed is systematic research to define the *probabilities*.

There is also a need for more research on the prevalence of criminal behaviour in sleep. It is usually preferable to have a parasomnia documented *a priori* than to seek to establish post-hoc evidence. This issue was identified by Mahowald and colleagues

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who reported an individual who experienced several incidents of violence allegedly in sleep, including chasing his wife and beating her with a hammer. Exhaustive investigations proved negative and it was felt he was trying to have his behaviour legitimated [2].

Psychiatric diagnoses that are often missed or not considered in the context of disorders of sleep (e.g., dissociation; fugue states) are also discussed and we emphasize an additional criterion for establishing the likelihood of a violent sleep disorder: physical proximity [3].

The first part of this review will focus on forensic sleep disorders, summarizing what is known and areas where evidence is lacking and the second part of this review will focus on the technical and legal aspects of violent parasomnias and behaviours arising out of sleep as examined under a common-law jurisdiction.

Part 1: sleep disorders associated with violence

Prevalence

The exact prevalence of sleep violence remains unknown. A telephone survey of the United Kingdom (UK) adult population suggested a prevalence of sleep violence of 2%. This assessment was based on administration of a standardized questionnaire (Sleep-EVAL system) rather than evaluation by a sleep specialist, and is likely to be an over-estimate as a result [4]. Sleep clinic studies have identified violent or harmful behaviour occurring in 59%–70% of patients with sleepwalking or sleep terrors; again, this is most likely an over-estimate due to the patient population presenting to specialized sleep clinics [5,6].

Most sleep violence is directed to the self. Given that trials involving putative sleep-related behaviour reported in the media are either homicide, sexual offences or motoring offences (bar one charge of criminal damage), this would suggest that other sleep-related violent offences may be dealt with informally. Research to quantify the amount of potentially criminal behaviour, which doesn't result in charges being brought, is required.

Disorders of arousal

Disorders of arousal (AD) may arise from any stage of NREM sleep and are generally characterized by reduced vigilance, impaired cognition, retrograde amnesia and motor behaviours of variable complexity [7]. Although these can be associated with distressing non-narrative dreamlike mentations [8], they are not thought to be episodic or “acted out dreams” as occur during REM behaviours [9]. They are often precipitated by factors such as external sounds, respiratory events or movements in bed [10]. ADs occur in as many as 20% of children, and 4% of adults. Sleepwalking occurs for the first time in adulthood in 0.6% of adults [11,12]. Disorders that fall under this subheading include: sleepwalking; confusional arousals; and sleep terrors. Patients can experience more than one parasomnia per night but generally, they do not recur during a single night. Forensic behaviours have been described with all types of parasomnia as discussed by Pressman in 2007 [3] and summarized below:

Confusional arousals

Confusional arousals are characterized by mental confusion or confusional behaviour during an arousal or awakening from a nocturnal sleep or daytime nap, which is not better explained by other disorders or medication use [7]. Patients will often describe significant amnesia for these episodes.

Forensic behaviour that occurs during a confusional arousal usually displays all of these features, particularly impaired reasoning and memory for the event, incomplete awakening and

impaired vigilance, usually as a consequence of being woken from sleep [10]. Additionally, the victim was usually in close proximity at the time of the episode and confusional arousals are short-lived – usually lasting 30 s to a minute. However, the absence of one or more of these features does not exclude the diagnosis, and may simply reflect amnesia occurring around the event.

Sleep terrors (night terror)

During an episode of sleep terrors, the patient will experience a sudden episode of terror during sleep, usually initiated by a cry or scream. This episode is often accompanied by significant sympathetic nervous system activation and behaviour associated with intense fear. In addition, the patient will experience either difficulty in arousal, mental confusion on arousal, amnesia or potentially dangerous behaviours [7]. These occur as a result of incomplete awakening from non-REM sleep.

Often, sleep terrors are associated with vivid, frightening imagery and although this could be confused with a nightmare, sleep terror imagery is usually a single image that is less complex than the narrative sequence seen in a REM nightmare [13,14]. However, it is often difficult to distinguish between the two.

Unlike confusional arousals, case series of criminal acts occurring as a consequence of sleep terrors are not uniform [3]. Although all of the accused describe vivid, frightening images at the onset of the event, and all left the bed whilst displaying complex behaviours, two cases previously described as being associated with “sleep terrors” were either unprovoked or the victim was not near the attacker at the time of the onset of the behaviour [3] and are inconsistent with other cases within the literature. This casts doubt on the diagnosis.

Sleepwalking

Sleepwalking is defined as ambulation during sleep and is accompanied by difficulty in arousal, mental confusion on arousal, amnesia, routine behaviours occurring at inappropriate times, inappropriate or nonsensical behaviours, or dangerous behaviours, occurring without any other apparent cause [7]. Typically, a sleepwalker will engage in simple behaviours that reflect the impairment of higher cognitive function, and may engage in walking, running or simple searching behaviours. In at least five of the reported cases of forensic sleepwalking there was neither proximity nor provocation [3], again suggesting that the diagnosis may have been more complex or not entirely certain.

Sexsomnia

Although not classified as a unique parasomnia, atypical sexual behaviour in sleep (or “sexsomnia”) is mentioned in the International Classification of Sleep Disorders (version 2) (ICSD-2) as an atypical confusional arousal [7] and has been extensively documented from its first description in 1986 [15]. However, in addition to being a NREM phenomenon, atypical sexual behaviour during sleep has been described in association with REM parasomnias, nocturnal seizures, restless legs and narcolepsy [16].

These behaviours can take a variety of forms, including masturbation, direct sexual intercourse with a partner, fondling or sexual sleep talking. Other forms of sexual behaviour can arise as a consequence of seizures during sleep, including hyperkinetic sexual movements or automatisms, ictal orgasm and hyperarousals.

These behaviours will have forensic implications particularly when occurring with someone other than the usual bed partner. The spectrum of behaviour is broad, including rape, sexual abuse of minors and inappropriate exposure. In a recent review of sexsomnia, 45% of patients had assaultive behaviour, 29% engaged in paedophilia and 36% were convicted as a consequence of their sleep behaviour [16]. These results are in contrast to a commonly quoted

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