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Title: Complex nocturnal behaviour – issues with expert evidence and the duty to the court

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Summary

Motor behaviour during the sleep period has several possible causes. In this review paper, we discuss the typical features of slow wave sleep parasomnias and nocturnal dissociation to illustrate the difficulties when evaluating complex sleep behaviours. These two categories of disorders illustrate issues around criminal responsibility and social control measures, in particular. One such concern is that slow wave sleep parasomnias may be considered 'not legally insane' by medical sleep experts which may be contrary to the relevant law in the jurisdiction. Nocturnal dissociative behaviour, by contrast, clearly involves mental health issues. There are implications for the criminal justice system when the disorders that cause complex nocturnal behaviour entail a continuing risk of harm to others. This means that the insanity verdict or equivalent may be appropriate to ensure supervision and restrictions to protect the public. The options for disposal are discussed, alongside the implications for expert witnesses.

Keywords: Forensic Parasomnias; Dissociation; Expert Evidence; Mental Condition Defences; Criminal Responsibility, slow wave sleep parasomnias

Glossary:

Actus reus: literally "guilty act", the conduct element of an offence.

Automatism: a state of involuntary and/or unconscious behaviour, where the person is not considered responsible for their actions.

Disposal: the options available to the judge when a person is found not guilty by reason of insanity or the equivalent. This may be detention in a secure psychiatric facility, some form of supervision and/or mandatory treatment in the community, or an absolute discharge.

ICSD3-TR: International Classification of Sleep Disorders, 3rd edition (Text Revised), 2023.

Jury: we use this term to cover all the finders of fact (that is, those who decide whether or not the accused is guilty or not guilty), whether a bench of judges or a jury of peers.

Mens rea: literally "guilty mind", the mental element of an offence. The different *mentes reae* include: negligence, knowledge, recklessness, and intent (specific or oblique).

RBD: rapid eye movement sleep behavior disorder.

SWS: slow wave sleep

Introduction

Behaviour occurring in the night arising out of the sleep period has several possible causes. [1,2,3,4,5,6] When this behaviour is an act of physical or sexual violence, it is

important that the cause is established as this affects the determination of blameworthiness and provision of preventive measures in a medico-legal context. The sleep expert is often asked to determine whether the person could have been experiencing a slow-wave sleep (SWS) parasomnia such as sleepwalking. However, more complex behaviours may suggest possibilities other than a SWS-parasomnia as a potential cause. These would include nocturnal dissociative episodes, alcohol or drug related behaviours, malingering, post-ictal behaviours or gaslighting/factitious behaviours (see Table 1).

This paper will focus on the legal importance of distinguishing between SWS-parasomnia and sleep-related dissociation and the implications for expert evidence in a court of law. Where nocturnal behaviour is particularly complex, the possibility of sleep-related dissociative behaviour or malingering needs to be carefully considered. We will also discuss the key issue of disposal.

Methods: This manuscript is structured as a narrative review focussing on medico-legal issues arising out of the sleep period. The published data in the area are highly heterogenous and not conducive to meta-analysis. The literature was searched for relevant articles on forensic sleep disorders for the period 1980-2025 and selected based on their relevance to the theme of the review. The search terms ‘forensic parasomnias’, ‘sexsomnia’, ‘sleep and law’, ‘sleep and legal’, ‘sleep and medicolegal’, ‘parasomnia and medicolegal’, ‘parasomnia and legal’, ‘slow-wave sleep disorder and legal’, ‘arousal disorder and legal’, ‘forensic sleep disorders’, ‘sleepwalking and recurrence’ and ‘sexsomnia and recurrence’ were used. This review focusses mostly on common law jurisdictions and we have confined ourselves to the English language legal literature which is dominated by common law. The inclusion of other jurisdictions is impractical and would extend the scope of this paper out with the original purpose

Table 1:

Forensically important causes of nocturnal behaviour

NREM Parasomnias

- Confusional arousals
- Sleep terrors
- Sleepwalking

- Sexsomnia

REM Parasomnias

- Rapid eye movement sleep behaviour disorder (RBD)

Parasomnia overlap syndrome

Trauma-related parasomnia

Other relevant causes of unwanted or unusual behaviours during sleep:

- Epilepsy with post-ictal wandering/other behaviours
- Paroxysmal nocturnal dystonia
- Sleep hypermotor epilepsy
- Obstructive sleep apnoea with associated movements
- Post-traumatic stress disorder with REM-behaviour disorder
- Sleep-related dissociative states
- Sleep-related dissociative disorders
- Status dissociatus
- Alcohol and drugs
- Malingering
- Factitious disorders

Forensic sleep episodes

Historically, it was considered that actions during sleep could not be blameworthy, except in very limited circumstances (as per the Latin aphorism *in somno voluntas non erat libera* [which translates as ‘the sleeping person has no free will’]¹[7]. However, this did not mean that those who killed out of a sleep state were not punished, as two examples of historical convictions of von Gutlinge and Culpeper demonstrate² [8,9].

We now understand that during parasomnias there is greater activity in particular regions of the brain than during normal sleep. Indeed, some sleep experts regard sleepwalking and other parasomnias as a particular form of sleep-wake dissociation [10]. This means that the aphorism arguably does not apply.

It must be noted that although the diagnosis of parasomnia is important, this does not determine that the episode was a parasomnia in nature. That is the crucial issue.

¹ The exclusions included where the accused had “arranged matters beforehand” or harboured enmity towards the victim.

² Robert MacNish in *The Philosophy of Sleep* relates a simplified version of the tale, changing the name to Sir Peter Lely who is acquitted.

Symptoms and behaviours

The ICSD3-TR (2023) states that during sleepwalking ‘Behaviours can be simple and non-goal-directed, or complex and protracted’ [11]. Most SWS-parasomnias are unlikely to result in harm to others unless they are in close proximity [1,12,13,14,15]. The more complex behaviours are those that are more likely to involve the criminal justice system. In these cases, any violence that occurs is less likely to be directed and only due to interference by another [1,12,13,14,15]. The most common type of SWS-parasomnia that leads to involvement of the criminal justice system is sexsomnia due to the potential for sexual violence [16 (Chapter 4)]. Minor criminal acts e.g. nude sleepwalking, are a common occurrence in hotels [16 (Chapter 3),17,18]. RBD can also result in harm, usually limited to the bed partner, which can be serious enough to result in criminal proceedings [2,19,20,21].

Table 2 provides a summary of the features of forensic parasomnia episodes.

Table 2: Features that support or refute a parasomnia defence

Strongly supports defence	Supports defence	Neutral	Refutes defence	Strongly refutes defence
Reliable eyewitness account absolutely consistent with parasomnia behaviour		“Accused didn’t appear to be asleep”		Reliable eyewitness account totally inconsistent with parasomnia behaviour
Unable to identify close relatives and friends		Mumbled conversations		
		Minor Intoxication	Major intoxication ³	Alcohol-related episode where alcohol known trigger
	Confused behaviour	Complex learned behaviour such as driving		Evidence of planning
	Difficulty navigating obstacles	Navigating familiar environments	Navigating unfamiliar environments	Evidence of working memory or higher cortical function
	Sexual activity with bed partner			Seeks out partner for sexual activity
	Reaction to confrontation, victim nearby			Seeks out victim

³ Some would say major intoxication is a strong rebuttal

	No motive or advantage from event		Clear motive	
	Activity contrary to waking sexual orientation, no evidence of sexual arousal (sexual offences)		Sexual attraction	
	Shock and horror at actions, inconsolable.	Denial.		
Previously diagnosed parasomnia behaviour in keeping with episode	Personal and family history of parasomnias and/or sleep disorders, especially when verified by several parties	Parasomnia or sleep disorder was diagnosed retrospectively		No previous history of parasomnia
	Out of character		Consistent with character	
		Total amnesia or very fragmented memories		Clear memory for events
	Roused with difficulty and confused on arousal		No change in state when confronted and responds appropriately to situation	
	Immediately identifies behaviour as parasomnia			Attempts to cover up illegal act (see above)
		Lack of specific findings on video-PSG		

Complex behaviours can cause diagnostic uncertainty. Any actions that appear to be directed suggest involvement of higher cortical function. These would include: goal-orientated behaviours by seeking out the victim; acting on existing animosity, as opposed to purely reactive violence, and behaviours that demonstrate access to memory. The ICSD3-TR (2023) definition for SWS-parasomnias rules out any goal-directed behaviours: ‘Disorders of arousal are devoid of higher cognitive functions such as planning, memory from before an incident, formation of a memory during an incident, proper social interaction, or recognition of others.’ [11] It also highlights attention and intent, which is extremely important with regards to criminal responsibility

- therefore the recent report by Siclari has some important potential implications (see below) [22]. The issue of attention and intent is for the jury to decide.

Amnesia may be impossible to disprove, but this is irrelevant to the issue of criminal responsibility (*Podola, Isitt*), and amnesia for a parasomnia episode is often only partial [12,22]. The ability of *Falater* to navigate his pool area was considered proof that he was not sleepwalking, but the ICSD3-TR (2023) notes:

‘Sleepwalkers can sometimes navigate in familiar surroundings’ (p. 285) [11, 16 (Chapter 3, Appendix D)].

Getting food out of the cupboard is fundamentally different from cooking a meal. Seeking out a weapon is not compatible with sleepwalking, but if the weapon is under the pillow, this becomes problematic [23,24,25].

Behaviours occurring during wakefulness should also be considered. Dissociation and malingering are both voluntary behaviours occurring during wakefulness, and it is important to consider circumstantial factors to assess which is more likely. Any evidence of planning and plausible motive points to voluntary, criminal behaviour.

As Bird, Newson and Dembny put it:

‘Complete lack of consciousness and control rarely accompanies a potentially criminal act; hence, difficult judgments need to be made about the degree of loss of consciousness and attention at the specific time.’ [26]

Similar sentiments have been expressed by other experts and commentators in the field, e.g. Moore summarised the dilemma as follows:

‘Cases of sleepwalking, post-hypnotic acts, and similar acts are often sufficiently complicated that they appear to be intelligently directed actions. In such cases, one is loathe not to attribute these acts to some agency, but if not to X [the defendant], then to whom?’ [27]

Legal Classification

The key medico-legal issue for forensic sleep episodes is criminal responsibility. There are different defences in different jurisdictions but generally, defences fall into two broad camps. The insanity defence will provide for social control measures, including involuntary detention in secure hospitals. The automatism or unconsciousness defence will not provide for any measures following acquittal. Some defences straddle

the two, such as the Canadian statutory special verdict 'not criminally responsible not criminally due to mental disorder' (NCR-MD). In that case, the issue of disposal falls to a separate civil panel, if the statutory verdict is returned at trial [28].

Yeo provides a useful classification of the various actions that have been categorised as automatism in medico-legal defence. Many of the actions involved would not be strictly classified as involuntary as such [29]. As Mackay stated:

"if this [total loss of voluntary control] was the true basis of automatism, then the defence would virtually be restricted to spasms, convulsions, and reflex acts which is clearly not the case"[30].

The common law countries all have a defence of automatism, which usually provides an excuse for criminal acts on the basis on involuntariness (New Zealand is one exception). It could be persuasively argued that many episodes that are labelled automatism are in fact unconsciousness rather than involuntariness [29].

Legal Considerations

It is crucial that expert witnesses understand the requirements of the jurisdiction, in order to discharge their duties properly. The requirements for the relevant mental condition defence are crucial for the evaluation of criminal responsibility. The diagnosis of parasomnia is important, as the cause of the behaviour has a bearing on both criminal responsibility and the appropriate disposal of the person if exonerated [16 (Chapter 5)]. However, the diagnosis of parasomnia is not sufficient to result in an acquittal by itself [31,32].

In any case, the assessment of the individual with complex nocturnal behaviour needs to involve a wider evaluation than simply whether the episode was a parasomnia, and in particular whether other issues affect criminal responsibility. If the behaviour displays higher functions, then the cause of the episode is irrelevant if it is deemed that the person had criminal responsibility based on voluntary action. The evidence for this would be behaviours that are not purely reactive including anything that indicates reference to memory, including planning, formation of intent, and attempts to cover it up [1,11,16]. However, exceptions are possible, with Siclari highlighting two examples of goal-directed behaviour during a delusion, demonstrating that a goal-directed behaviour may occur without insight or awareness. [22]

Options for defence

In England and Wales, there are three possible ways of sleepwalking providing a defence, as **Table 3** illustrates.

Table 3

Much of the legal literature divides automatism into non-insane and insane automatism [1,16, 30]. This language is confusing. Insane automatism is simply the insanity defence, which varies according to the jurisdiction [33,34,35].

Non-insane automatism is also known as *automatism simpliciter*. *Automatism simpliciter* is technically not a defence as such (see Table 3) and amounts to a failure to make out the offence, because there is no *actus reus* (guilty act).

Therefore, the burden is on the prosecution to prove that the accused was acting voluntarily to the criminal standard (as per the requirement in *DPP v Woolmington* to prove all the elements of the offence [36]). There must be a total loss of voluntary control (as per *Attorney General's Reference (No. 2 of 1992)* [37]).

The test for the insanity defence in the *M'Naghten Rules* is easier to satisfy here, since it will only be required to prove that the person did not understand the nature of their act⁴ - although the burden of proof lies with the defence to satisfy the test on the balance of probabilities [30]. Denial of the *mens rea* is also easier to prove, as it only requires that the accused could not form the required intent. This will generally be the preferred defence as it is harder for the prosecution to prove formation of the *mens rea*. Automatism simpliciter is still argued when the crime is strict liability (that is, it has no *mens rea* – a typical example is drink driving).

⁴ There is another limb concerning the ability to tell right from wrong, but that is rarely used.

Table 4 categorizes the three defences in a jurisdiction-neutral way:

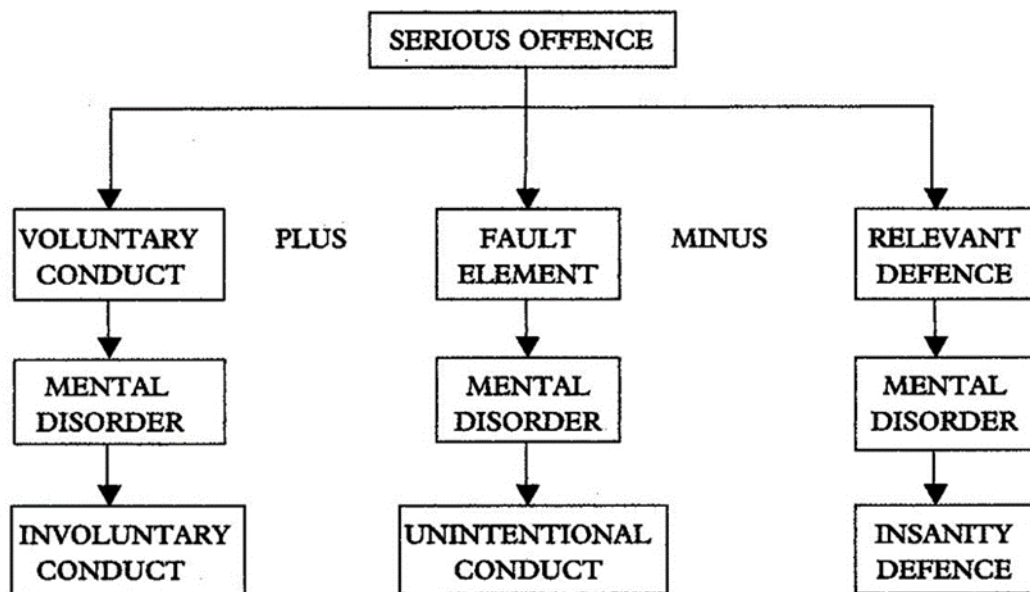


Table 4: Three defences in a jurisdiction

(Above diagrams from pp 582 & 583 'Voluntariness, Intention, and the Defence of Mental Disorder: Toward a Rational Approach' by B McSherry, with kind permission) [38].

Future risk

Previous publications have emphasized that SWS-parasomnias do not usually have a psychological basis. This would lead to the accused being acquitted, rather than detained in forensic psychiatric facilities [4,39]. However, they are associated with psychopathology and some of the conditions that can cause complex nocturnal behaviour are mental health disorders [40,41]. Parasomnia episodes can be precipitated by stress, directly or indirectly via disruption of sleep [41]. This means that the person may have a predisposition to recurrence, which fortunately appears to rarely be the case for sleepwalking violence, although sexsomnia is known to recur [16,42,43,44,45]. We do not have any robust evidence that sleepwalking homicide is very rarely recurrent, but it seems a reasonable conclusion - sleepwalking homicides are rare and usually proceed to trial, so repeat episodes would be detected by the small expert witness community. Recurrent sexsomnia was picked up in the case of Short because of previous police investigation and evaluation by forensic sleep

experts. Here it was apparent that some later episodes were not parasomnia, as on one occasion the accused was pursuing his victim on a bicycle [44].

There has been little research on recurrence of serious harmful behaviour, but the factors that seem likely to increase recurrence are alcohol use/abuse, stress, poor sleep hygiene/sleep deprivation, plus use of certain psychotropic medications [36,38]. Although some attribute the lack of recurrence to the theory that sleepwalking violence is due to a “perfect storm” of factors coming together, another theory would be that sleepwalkers who are subject to the full criminal justice process are particularly motivated to prevent any recurrence [16 (Chapter 2)]. Mahowald and Schenck did recognize that a subset of sleepwalkers did require outpatient supervision in an arrangement very similar to the disposal available under the Criminal Procedure (Insanity and Unfitness to Plead) Act 1991 [46].

Recurrence could also be used by “bad actors” to try and construct a defence ahead of an offence. Mahowald and Schenck report a patient who claimed violent behaviour during sleep who was suspected of attempting to construct such a defence [34]. It is our practice to emphasize to patients that a diagnosis of parasomnia does not necessarily provide them with a defence against harmful acts occurring during the night.

The person with potentially harmful behaviour should be counselled on the steps necessary to prevent harm to others, and this needs to be documented. In one of our cases, even when the couple were warned of the reasonable possibility of serious harm, they resisted pharmacological treatment and nighttime segregation. There are no cases on liability for failure to warn patients or bed partners, but it is a distinct possibility. Failure to follow any steps to protect others would be an important consideration for the jury.

There are several possible barriers to the institution of safety measures. Although resistance to these may be an indication of psychological issues, there are other explanations including: denial; marital harmony and intimacy; episodes not thought sufficiently frequent; feeling sorry for the partner affected by parasomnia, or simply no spare bedroom [47].

Evaluating complex nocturnal behaviours

Whilst most episodes of sleep-related violence involve more stereotyped actions and are easily diagnosed as a parasomnia (see Forensic Vignette 2), there are a number of cases where the cause is less clear and therefore dissociation or malingering are strong possibilities. As a further complication, these cases may involve other forensic issues, which makes specific diagnosis potentially more important due to concerns around criminal responsibility and public safety, rather than clinical management.

It is important to distinguish SWS from other causes of complex nocturnal behaviour [1,16,48,49]. The clinician should conduct a thorough assessment to include the dynamics of the relationship with the bed partner. In all instances, a history from an eyewitness, usually a regular bed partner, is vital. The testimony of the accused that they suffered parasomnia episodes cannot be accepted by itself.

Video-PSG should be conducted, and home studies may be useful when the presence of the bed partner may be a trigger for episodes of sexual behaviour in particular.

Consideration must be made for the safety of the bed partner and others in the home, including minors. Preventive measures include pharmacological treatment, alarms to prevent wandering, or physical separation [1].

Forensic vignette 1: proximity of weapons

It would be extremely unwise for someone who experiences parasomnias to sleep with a weapon nearby. In the cases of both Ricksgers and the Blundell's schoolboy, they were convicted of murder and attempted murder respectively. Ricksgers slept with a gun under his pillow. Some forensic sleep experts believed that he shot his wife during a confusional arousal, although the jury concluded otherwise [23,49]. The Blundell's schoolboy apparently slept with a hammer under his pillow, and attacked two pupils in the same dormitory and a schoolmaster who came to investigate. There was evidence that he had conducted internet searches on serial killers and hammer murders, and again the jury did not believe the defence arguments that this was a parasomnia episode [24,25].

Forensic vignette 2: textbook example of the parasomnia defence

In the case of Brian Thomas, he had no reason to suspect that he would harm his wife despite his history of a sleep disorder. In his case, he and his wife went for a romantic weekend in their campervan. Their evening had been disturbed by boy racers. Mr Thomas had a dream in the night that an assailant was on top of his wife and he was strangling them. When he awoke, he realised he had strangled his wife. He immediately phoned the police. There was no evidence of any motive for killing his wife. He had come off his medication prior to the trip because he believed it made him impotent [50].

The challenge of sleep-related dissociative states and disorders

There are issues around the nosology of sleep-related dissociation, as noted by Schenck and Mahowald (where they note the reasons why sleep-related dissociative disorders were not included in the ICSD-3 or ICSD3-TR) [51]. As this review demonstrates, the attempts to divide dissociation from other parasomnias is problematic, and more importantly, not necessarily legally important. Dissociation is “a state of mind in which there is a disconnection between a person’s thoughts, memories, feelings, actions, and/or sense of self” [52]. Many of these elements do not necessarily provide an excuse on the ground of reduced or absent criminal responsibility [53, 54]. The key legal issues are criminal responsibility and social control measures. The type of condition may be important in deciding whether there is a mental condition defence available, and whether or not social control measures can be imposed.

Nocturnal dissociative states masquerading as parasomnias are well described in the literature [55,56,57,58,59,60]. Where the behaviour was apparently goal-directed or involves significant higher cortical function, it is important to consider whether the person was awake during the episode (which will typically mean that they are either malingering, intoxicated or dissociated).

Dissociative sleep episodes are strongly associated with childhood abuse, either physical or sexual. Dissociation may also manifest during daytime, waking episodes. It is thought the trauma often leads to psychiatric co-morbidities, which precipitate or explain the nocturnal symptoms. However, it is common to have other psychiatric diagnoses, including dissociative identity disorder, post-traumatic stress disorders, emotionally unstable personality disorder, anxiety and/or depression, and substance abuse [51,57].

Episodes of dissociation may involve identity or behavioural change; or even animal-like behaviour (acting like a tiger, for example) [60]. It should be noted that during sexsomnia episodes, there can also be important differences from waking behaviour – the person may have a different sexual orientation, change their dominant hand, and be either rougher or gentler during coitus [14, 43].

Sleep-related dissociation often involves violence to self or others, in contrast to typical sleepwalking. Episodes typically start shortly after falling asleep (but can occur at any stage), as opposed to SWS-parasomnias which typically occur between 30 and 120 minutes from sleep onset [51].

Where dissociation is suspected, a psychiatric assessment needs to be performed by a clinician with appropriate expertise, otherwise an erroneous diagnosis of SWS-disorder may be made. Experienced sleep clinicians will often be able to recognize dissociative episodes due to the complexity of behaviour. However, the precise limits of SWS-parasomnias are not known, and in particular whether the presence of higher cortical functions are compatible with sleep. For example, Pressman has argued which capacities may be evidenced by a particular sleep behaviour, while a conference paper suggests that the spatial orientation during sleepwalking is better preserved than previously thought [61,62]. This reinforces the need to assess the episode and whether or not the mental state is compatible with the legal defences available.

The dividing line between dissociative episodes and sleepwalking is not clear. The maximum length of a sleepwalking episode has not been established. While most forensic sleep experts agree that twenty to thirty minutes is compatible with

parasomnia, this is unusual in our experience, with a typical duration less than ten minutes. Dissociative episodes can equally last for minutes to several hours or even days. Dissociative tendencies can also be associated with a tendency to sleepwalking episodes, and some sleep experts believe that longer episodes involve an evolution from a confusional arousal to a dissociative episode [16]. Table 5 illustrates the comparison between parasomnia and dissociation.

Crucially, the underlying mental health issues of patients with sleep-related dissociative states or disorders should lead to acquittals on the basis of insanity so that appropriate supervision can be mandated. The case law on so-called “psychological blow automatism” illustrates the policy concerns of the courts vividly. In the Canadian case of *Rabey*, an important distinction was that the triggering event was part of “the ordinary stresses and disappointments of life which are the common lot of mankind” [63]. This meant that the defendant had an inherent defect in their psychological make-up that necessitated future psychiatric care and supervision.

Table 5 Parasomnia versus Dissociation

	Parasomnia	Dissociation
Definition	Experience or behaviour that occurs during sleep. Could involve abnormal movements, behaviours, emotions, or hallucinations during sleep.	A psychological experience where a person feels disconnected from thoughts, identity, consciousness, feelings or memory. Can feel detached from reality.
State of Occurrence	During REM or NREM sleep or sleep-wake transitions.	Usually occurs when awake, often triggered by trauma or stress. Can occur from sleep
Examples	Sleepwalking, night terrors, REM sleep behavior disorder, etc	Dissociative identity disorder, dissociative amnesia, depersonalisation-derealisation disorder, dissociative fugue, etc.
Conscious Awareness	Limited or absent. The person is often unaware of their actions during the episode or may have only partial recollection (including hallucinations).	Varies; person may feel detached but aware of the dissociative state.
Duration	Variable – reports suggest can persist for hours although typically, last for seconds to minutes	Can persist for days-months.
Memory of Events	Variable – can have partial recollection of events.	Memory may be impaired (amnesia) or preserved with altered perception.
Associated Factors/Causes	Underlying tendency to sleep disorders (family history, childhood history, etc), stress, medications, sleep deprivation. Certain parasomnias (RBD) can be associated with degenerative neurological disorders.	Possible abnormality of posteromedial cortex, prescribed medications, substance misuse, trauma, chronic stress, certain mental health conditions.

Diagnosis	History and excluding other potential causes e.g. epilepsy. PSG to exclude precipitants e.g. OSAHS.	Psychological evaluation, clinical interview, excluding other potential causes.
Treatment	Improving sleep hygiene, medication (e.g. clonazepam), treating underlying sleep disorder.	Identify cause. Psychotherapy (depending on presentation), medication for comorbid conditions.
Risk Factors	Sleep deprivation, stress, substance use, genetics.	Trauma history, high stress environments.
Classification	Sleep disorders (ICSD, DSM-5).	Dissociative disorders (DSM-5).

Forensic vignette 3: Complex behaviour

Many forensic sleep experts consider that the extraordinary episode of Kenneth Parks was dissociation rather than sleepwalking. The episode was prolonged and demonstrated complex behaviour - he drove his car for 23 km across Toronto, navigating at least one set of traffic lights [64].

Driving a car badly is probably consistent with parasomnia, but navigating across Toronto via at least one set of traffic lights is not. The level of attention, planning and control shown by Parks and Isitt (see below) were all evidence of executive function, and not consistent with sleep. This finding also fits with the legal conception of automatism, which specifically rules out so-called “highway hypnosis” (which is currently seen as an example of the default mode network operating) - as per *Attorney General's Reference (No. 2 of 1992)* [65]. The lorry driver who is able to adjust in order to stay on the road is not in the state of mental absence and involuntary behaviour required for the legal excuse of automatism. Likewise, the driving of Finegan is not consistent with automatism and sleep driving (see below)[66]. We can contrast Matthew Sadler, who argued he was sleep-driving when he crashed his BMW into a lamp post [67].

Priming Factors

Cartwright theorised that in many medicolegal cases, as illustrated in this paper, there was a priming effect of stress and rumination that produced the complex behaviour observed [68]. She believed these circumstances produced behaviour that might seem

goal-directed but can be explained by the accused's habits and preoccupations. For example, she argued that Falater's apparent attempts to conceal evidence were actually a manifestation of his tendency to tidy up after work. Falater had been repairing a pool motor when he stabbed his wife 44 times. He then changed, tidied away his tools and went to bed [16 (Chapter 3, Appendix D),61]. Ultimately, any determination on the nature and cause of these behaviours lies out with the remit of the sleep expert and should remain with the jury.

Schenck also believes in a priming effect, where actions have become lodged in procedural memory and manifest during parasomnias (although in contrast to Cartwright, he believes that Falater was most likely in a sleep fugue) [16]. This priming effect relates purely to the complex motor actions rehearsed mentally rather than any intention to commit harm. This would not fully explain the behaviour displayed by Kenneth Parks, given his ability to navigate downtown Toronto. Recent research on SWS-parasomnias supports access to memory to parasomnia episodes [69]. This would in turn support the possibility of "priming".

Schenck has also argued on the basis of his clinical experience that sleepwalkers can experience "islands of lucidity", which would be indistinguishable from dissociation [16]. These "islands of lucidity" would not satisfy the requirements for automatism if they involve purposeful acts and apparent consciousness, as dissociation does. This is a minority theory, although sleep experts are divided on whether or not Parks was sleepwalking.

Studies of brain activity during parasomnia episodes have shown suppression of frontal lobe activity with activity in the limbic system. One persuasive theory is that the actions during sleepwalking are produced by the putative central pattern generators [70,71,72]. This would explain the actions observed which typically arise from the limbic system (fight, flight, feeding and fornication) [73]. This type of dissociation fits with a lack of criminal responsibility. Whether or not this indicates a lack of volition is a point of contention, as it can be debated what a total loss of voluntary control means [30]. However, this is only relevant to the particular mental condition defence that can be relied upon. It is worth noting that most if not all criminal justice systems work on the basis of concepts such as formation of requisite intent and possession or lack of

certain capacities, rather than any direct reference to particular brain regions, in the assessment of criminal responsibility. The criminal law refers to the mind, rather than the brain.

Consciousness

Recent publications have suggested that there may be a higher level of consciousness amongst sleepwalkers than previously accepted [20,64]. It is accepted that sleepwalkers have some level of consciousness, and this reduced level of consciousness does not entail criminal responsibility. Brian Thomas seems to have had the intention to strangle the intruder he believed was lying on top of his wife [50]. His distorted perception meant that he had not formed the *mens rea* for murder. However, if some sleepwalkers are able to perform intentional actions, it is possible they could be considered in court to be acting voluntarily and not in a state of automatism [20].

Role of motive or intent; evidence of covering up

Where there is hostility and/or a plausible motive, there should be extreme scepticism about any mental condition defence. Thus, where the accused has shown signs of specific sexual attraction to the complainant earlier in the evening, claims of a sexsomnia episode are rightly viewed with scepticism even if they have a corroborated history of sexsomnia [14, 74]. Castelnovo *et al* provided updated criteria for forensic parasomnia episodes, where they state there should be a lack of motive or premeditation:

The behavior is sudden, immediate, impulsive, and appears to lack any logical motivation. It is completely inappropriate considering the overall situation and is uncharacteristic of the individual when awake. There is no evidence of premeditation.[75]

However, it must be remembered these are issues for the jury to decide. It is problematic in the sense that the accused could have undeniable motive and hostility and yet be undeniably acting involuntarily, although there are sound policy reasons for

the position given the difficulty in distinguishing unconscious from conscious behaviour (see Forensic Vignette 4 below).

Similar considerations apply to any attempts to cover up. It will be for the jury to determine the nature and intent of the accused's actions. They would need to decide whether cleaning up blood is a natural reaction or an attempt to cover up [16,61,74]. Likewise, cleaning and tidying away tools as per the case of *Falater* could be argued to be consistent with the accused's normal behaviour [58,68].

A "no comment" interview is inconsistent with the expected reaction of the sleepwalker (for example, Kenneth Parks and Brian Thomas both contacted the police straightaway) [45,58]. It also increases the accused's ability to construct a spurious defence after the event.

Forensic vignette 4: Evidence of motive

There is a case reported in the literature where the accused harboured "subconscious emotional hostility" [76]. Nonetheless, because the state arose out of sleep, she was held not responsible under the principle of '*In somno voluntas non erat libera*', i.e. the court held that because the person was considered to be asleep, they could not be criminally responsible. Whether the court would be so accommodating where someone displayed overt hostility is an open question, given that this would be evidence towards intention [77]. In *Isitt*, the defendant fled the scene after a road accident, evading a police roadblock then running into the woods. He claimed afterwards to have no memory of these events. This putative dissociative episode was deemed incompatible with automatism because his actions were purposeful and displayed apparent awareness. He had reasons to want to evade the police [78].

Medico-legal Issues with complex nocturnal behaviour

Many typical parasomnias do not pose problems for the criminal justice system. Nudity, urinating in the wastepaper basket or reactive violence are easily identified as potentially sleep-related behaviours. Analysis of press reports suggest these cases rarely progress to charge or trial [16]. Sexsomnia is more problematic, as the

behaviour may be more complex and there may be contributing factors related to the bed partner [14]. The causes of the behaviour are often relevant to the considerations of the legal issues before the criminal court – in particular, the issue of the insanity defence and possible disposal.

A comprehensive assessment by psychiatrists with experience of SWS-parasomnias may be required, including inpatient assessment. Less experienced psychiatrists may attribute behaviour to sleep disorders that is psychiatric in origin, resulting in a diagnostic impasse.

Duty of sleep expert

The forensic sleep expert can offer the courts considerable assistance with their expertise. The expert witness must bear in mind their overriding duty to the courts and also the evidential rules of the particular jurisdiction. For example, they may be constrained by the bar on compurgation. This means that an expert witness cannot as a matter of law simply accept the word of the accused that they have suffered parasomnia episodes. It is necessary to have a witness to corroborate this.

There are two main issues in the criminal courts where there is a forensic sleep disorder – criminal responsibility and appropriate disposal. Criminal responsibility is an issue for the trier of fact (usually a jury) to decide. It is important that the expert witness addresses all the issues relevant to criminal responsibility – not just consciousness but also prior fault [32,79]. This issue is pivotal to the issue of whether or not the defendant receives a criminal conviction and punishment.

The issue of whether complex behaviours represent a total loss of voluntary control, and therefore are in keeping with the legal definition of automatism, remains challenging. The expert witness must consider several issues in accordance with their overriding duty to assist the court. They must consider not only whether or not the defendant was in a state where they were criminally responsible (and it will vary according to the jurisdiction whether or not they can address the ultimate issue), but whether there are any factors that are related to meta-responsibility and also the issue of continuing danger and what measures can be instituted to reduce the risk of recurrence of harm. Meta-responsibility is the responsibility not to create the conditions

for one's own defence, and this chiefly relates to intoxication and/or prior fault [65,66,80,81,82].

Prior Fault

This matter is often ignored in the literature. A recent paper included the error that unconsciousness due to parasomnia is sufficient to exonerate the accused [75].

This is not correct, because of the prior fault doctrine [which states that even where an accused is in a state that renders them not criminally responsible at the time, they may be held liable on the basis of being at fault for their condition [29,74,75,76,77]. An example of this would be a driver falling asleep at the wheel due to sleep deprivation (as per *Kay v Butterworth*)[65,83]. Prior fault is commonly the basis for convictions of drivers with diabetes who suffer hypoglycaemic episodes and could also apply to a driver having an epileptic fit at the wheel, who would be blameworthy if they took the wheel in the knowledge they were liable to having a seizure, as per the English case of *Sims* [59,84,85,86].

Intoxication

Plain intoxication is not a cause of automatism per se, as *Coley* confirms. Alcohol consumption is a vexed issue with regards to forensic sleep disorders. Previous editions of the ICSD stated alcohol was a possible cause of parasomnia, as did the academic literature [46,87]. Mahowald and Schenck notably changed their position to exclude parasomnia where significant amounts of alcohol had been consumed [88]. The ICSD3-TR

“advocates that disorders of arousal should not be diagnosed in the presence of alcoholic intoxication” (p.288) [11]

This assertion potentially makes it very difficult for dissenting expert witnesses to put forward their opinions in court. However, it is rather undermined by the preceding statements in the section:

“there is no evidence indicating that behavior resulting from alcohol intoxication can be distinguished from behavior resulting from a disorder of arousal. Thus a disorder of arousal cannot be diagnosed in the context of alcohol intoxication.” (p. 288)

However, it is the opinion of the majority of UK expert witnesses that in some patients, alcohol does trigger sleepwalking, and this is supported by Lopez's study [41,89]. There are certainly good reasons for scepticism, especially when large amounts of alcohol have been consumed but regardless, it is for the jury to determine the relevant cause where there are multiple possibilities (as per *Stripp* [90]).

Personal responsibility

If a person with sexsomnia shares a bed with a stranger without warning that person of their condition, and then sexual violence occurs during sleep, they may be held criminally liable. McRae suggests that the propensity for sexual violence during sleep is evidence of a moral flaw that should result in criminal culpability where the sufferer does not take steps to prevent recurrence [91]. Popat and Winslade also consider that parasomnia will not automatically provide an excuse in all circumstances if reasonable steps are not taken to prevent violent episodes during sleep [92].

Conclusions

It is understood that NREM parasomnias are not mental health disorders. Therefore, it is right that sleepwalkers exonerated of criminal acts are not detained in forensic psychiatric facilities. However, we argue that careful consideration should be made for the need to supervise some individuals to reduce the chance of any harm recurring. Although this cannot prevent further harm, the person who does not comply with the measures intended to prevent harm to others, will be very likely to be criminally liable for the reasons discussed above. Treatment is not mandatory under a supervision order in England and Wales. However, a Sexual Harm Prevention Order can impose restrictions such as those in *Fallon*, where the judge ordered that the exonerated individual could not sleep in any private home unless he informed the householder of his condition [93]. This is an argument for the judiciary to change the common practice and ask the jury to consider the insanity verdict in sexsomnia cases where this is necessary to implement social control measures.

Complex nocturnal behaviour is often caused by non-parasomnia disorders where there is the potential for recurrence. It is important in these cases to have a psychiatric evaluation, as these behaviours often present a significant risk of harm to bed partners

and others. This requires a different approach to that advocated in most of the forensic sleep literature.

The issue of whether the accused should be subject to social control measures is a matter for the criminal justice system. These considerations mean that it is incumbent upon the forensic sleep expert to consider at least three key questions, rather than the single question that has been suggested by some: 1) was the person having a parasomnia episode; 2) are they responsible for their condition in some way; and 3) does public safety require that they be subject to any supervision or social control measures. In other words, was their behaviour involuntary or unconscious? Was there prior fault? Should they be found not guilty by reason of insanity, for example. There may be further questions depending on the jurisdiction.

There may be specific diagnostic exclusions for policy reasons e.g. disorders induced by intoxication. It is also clear that in some jurisdictions, the legal framework is problematic because it allows for tenuous claims of sleepwalking to be the basis of a successful defence. This appears to be mostly in the countries that have the defence of automatism, because of the doctrinal underpinnings of this defence. Canada has tackled the issue with the creation of the statutory verdict of NCR-MD [28].

It is not sufficient for the expert witness to simply opine on whether the person was sleepwalking at the time [32,75,79,92]. There are several reasons for this. It is true that the expert witness needs to lay out their reasoning for the episode being sleepwalking and therefore a state of involuntary behaviour to the relevant standard of proof. They may or may not be able to address the ultimate issue depending on the jurisdiction e.g. whether the accused should be found guilty, but they will be able to assist the jury in applying the relevant legal test.

However, there are other issues relevant to guilt with the main issue being prior fault. It is not the case that a state of involuntary behaviour will absolve the defendant of criminal responsibility in all circumstances. This was acknowledged by Mahowald and Schenck when they proposed particular defences that relate to “continuing danger” [46].

When the consequences of complex nocturnal behaviours result in contact with the criminal justice system, then the cause of that behaviour becomes important in terms of both the level of criminal responsibility the patient had during the episode and their appropriate disposal if acquitted. Diagnostic criteria or risk assessments may or may not be important, depending on the jurisdiction.

Disposal is the last key question for an expert witness to address. In the case of a plain acquittal, the courts have no criminal powers (although there may be civil orders that can be made). In the case of an acquittal on the ground of insanity or the equivalent, the courts may have the powers to mandate a hospital order or outpatient supervision or impose conditions on that person. A hospital order requires justification, which relies on expert testimony about any benefit from treatment in a special hospital. In the case of England and Wales, a hospital order will not be granted for a sleepwalker as this will be judged to be a physical disorder (which would be contrary to s24 Domestic Violence, Crime and Victims Act 2004) but may be entirely appropriate for the person with sleep-related dissociation [94].

When there is complex nocturnal behaviour, the expert witness needs to consider whether there are issues of public protection that might require social control measures. This requires an understanding of the relevant legal framework – particularly what the legal test is for the statutory defence, and what diagnostic criteria and risk assessments are required. Most importantly, it is not for the expert witness to decide the guilt or otherwise of the accused, although they may be able to express their opinion on this issue. Different jurisdictions and different juries can and do come to different conclusions even with identical circumstances.

Practice Points

- This paper discusses the responsibilities of expert witnesses in light of widespread misunderstandings, as demonstrated by incorrect statements made in the academic literature
- The paper discusses the issues that expert witnesses will be asked to address and the issues that the jury will address.

- The role of the expert witness and their overriding duty to the court are highlighted.

Research Agenda

- There is a need for research into the mental state and the capacity of someone experiencing a slow-wave sleep disorder, in order that expert witness testimony can be appropriately tailored to the legal tests applied in a particular jurisdiction.
- It is apparent that the diagnosis of a slow wave sleep disorder alone may not be sufficient to provide a defence for the accused where such a diagnosis has been alleged.
- There needs to be research into mental condition defences to explore whether any changes in legal practice or legislation are required in order to ensure that the slow wave sleep disorder defence cannot be exploited to defeat the ends of justice.

Acknowledgement

We would like to thank the three anonymous reviewers for their very constructive comments which helped improve the paper immensely.

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