Sleepwalkers sometimes remember what they've done

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Three myths about sleepwalking – sleepwalkers have no memory of their actions, sleepwalkers' behaviour is without motivation, and sleepwalking has no daytime impact – are dispelled in a recent study led by Antonio Zadra of the University of Montreal and its affiliated Sacré-Coeur Hospital. Working from numerous studies over the last 15 years at the hospital's Centre for Advanced Studies in Sleep Medicine at the Hôpital du Sacré-Cœur de Montréal and a thorough analysis of the literature, Zadra and his colleagues have raised the veil on sleepwalking and clarified the diagnostic criteria for researchers and clinicians.

Their findings were published in *Lancet Neurology*.

Question: What are the causes and consequences of sleepwalking?

Antonio Zadra (A.Z.): "Several indicators suggest that a genetic factor is involved. In 80% of sleepwalkers, a family history of sleepwalking exists. The concordance of sleepwalking is five times higher in monozygotic twins compared to non-identical twins. Our studies have also shown that lack of sleep and stress can lead to sleepwalking. Any situation that disrupts sleep can result in sleepwalking episodes in predisposed individuals."

A.Z.: "Most sleepwalking episodes are harmless. Apart from the fact that the deep slow-wave sleep of sleepwalkers is fragmented, wanderings are

usually brief and pose no danger, or when they do, it is minimal. In rare cases, wandering episodes may be longer, and sleepwalkers may injure themselves and put themselves or others in danger: some have even gone as far as driving a car!"

Question: It is said that the sleep disorder mainly affects children. Is this true?

A.Z.: "Many children transitionally sleepwalk between 6 and 12 years of age. It is thought that passing from sleep to wakefulness requires a certain maturation of the brain. In some children, the brain may have difficulty making this transition. Often, the problem disappears after puberty. But sleepwalking may persist into adulthood in almost 25% of cases. It decreases with age, however, because the older you get, the fewer hours of deep slow-wave sleep you enjoy, which is the stage in which sleepwalking episodes occur."

A.Z.: "Both children and adults are in a state of so-called dissociated arousal during wandering episodes: parts of the brain are asleep while others are awake. There are elements of wakefulness since sleepwalkers can perform actions such as washing, opening and closing doors, or going down stairs. Their eyes are open and they can recognize people. But there are also elements specific to sleep: sleepwalkers' judgment and their ability for self-thought are altered, and their behavioural reactions are nonsensical."

Question: According to you, the idea that people are partially awake and partially asleep is something that must be considered in conceptualizing sleepwalking?

A.Z.: "Absolutely. This is one of the points we outline in our article. There are increasing signs that even in normal subjects the brain does

not fall asleep in a single block all at once. Sleep may occur in a localized manner. Parts of the brain can fall asleep before others."

Question: This may explain why the amnesia of sleepwalkers is not always complete. But can sleepwalkers really remember their actions while sleeping vertically?

A.Z.: "Yes. In children and adolescents, amnesia is more frequent, probably due to neurophysiological reasons. In adults, a high proportion of sleepwalkers occasionally remember what they did during their sleepwalking episodes. Some even remember what they were thinking and the emotions they felt."

Question: Your work has also shown that the behaviour of sleepwalkers is not simply automatic. Can you explain?

A.Z.: "This is another popular myth. There is a misconception that sleepwalkers do things without knowing why. However, there is a significant proportion of sleepwalkers who remember what they have done and can explain the reasons for their actions. They are the first to say, once awake, that their explanations are nonsensical. However, during the episode, there is an underlying rationale. For example, a man once took his dog that had been sleeping at the foot of his bed to the bathtub to douse it with water. He thought his dog was on fire! There was neither the logic nor the judgment typical of wakefulness. But the behaviour was not automatic in the sense that a motivation accompanied and explained the action."

Question: Another myth you are interested in relates

to impact on the waking state. According to you, beyond the nocturnal phenomenon, sleepwalking is associated with diurnal disorders characterized by somnolence.

A.Z.: "Around 45% of sleepwalkers are clinically somnolent during the day. Younger sleepwalkers are able to hide it more easily. Compared to control subjects, however, they perform less well in vigilance tests. And if given the opportunity to take a nap, they fall asleep faster than normal subjects do."

A.Z.: "Over the last few years, we have shown that the deep slow-wave sleep of sleepwalkers is atypical. Fragmented by numerous micro-arousals of 3 to 10 seconds, their sleep is less restorative. Sleepwalking is therefore not only a problem of transitioning between deep sleep and wakefulness. There is something more fundamental in their sleep every night, whether or not they have sleepwalking episodes."

More information: Antonio Zadra, Alex Desautels, Dominique Petit, Jacques Montplaisir, Somnambulism: clinical aspects and pathophysiological hypotheses, *The Lancet Neurology*, Volume 12, Issue 3, March 2013, Pages 285-294, ISSN 1474-4422, 10.1016/S1474-4422(12)70322-8

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