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Parasomnias: Nightmares, Sleepwalking, and Sleep Terrors

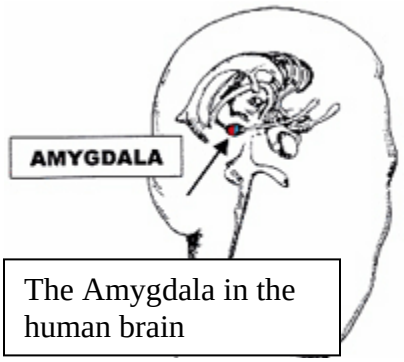
Martha and Bernie lay asleep one night. Martha eyes Bernie attentively as he stirs in his sleep. "Not tonight", she pleads to herself, "Please not tonight". Bernie turns over, breathes in, and turns back around, lost in the world of dreams. Martha watches him for awhile, but nothing happens. Martha unclenches her jaw, and lets her tired hands drop by her side. Martha closes one eye, then another, and just when she is about to fall asleep…Bernie sits up, rod straight; his eyes full of an unspoken horror. And then, the screaming comes, "AHHHH!" he screams. This carries on for 15 minutes, and Martha knows there is nothing she can do to help. Martha wishes she was dreaming… and she wishes Bernie wasn't.

Parasomnias; they are just a childhood commonality for some, but a serious problem for others. Parasomnias can be defined as; "conditions in which sleep is disrupted by inappropriate activation, sometimes in the brain centers that control body movement and sometimes in the autonomic system, which governs various physical and emotional functions" (Hobson and Silvestri). In other words, they are interruptions in one's normal sleep activity. Some parasomnias occur in Non-REM sleep and others in REM sleep (Hobson and Silvestri). Non-REM sleep is the type of sleep we receive in the first third of the night, and it means non rapid eye movement (Hobson and Silvestri). REM, or rapid eye movement sleep, is the sleep we receive in the last two thirds of the night (Hobson and Silvestri). In Non-REM sleep, we aren't dreaming, in REM sleep, we are dreaming (Hobson and Silvestri). Though many different sleep

disorders can be classified as parasomnias, three major types of parasomnias are: sleep terrors, sleepwalking, and nightmares (Hobson and Silvestri). The causes, symptoms, and treatment of these three parasomnias will be further explored.

Nightmares

The fist major parasomnia is nightmares. This occurs during REM sleep; nightmares are really just REM sleep anxiety dreams (Hobson and Silvestri). Children are more likely than adults to have nightmares, because they have more REM sleep comparatively (Hobson and Silvestri). The amygdalda (see picture) and other brain regions govern fear and anxiety, while the dorsolateral prefrontal cortex moderates the expression of fear and anxiety (Hobson and Silvestri). In REM sleep, the amygdalda and other brain regions are activated, while the dorsolateral prefrontal cortex is inactive (Hobson and Silvestri). This is why we accept such wild instances, like monsters with 7 heads, while we are dreaming (Angier). Steven Woodward, a psychologist in California, called the amygdala the “axis of Fear” (Angier). This allows for fear and anxiety to take over, making anxiety the most common emotion in dreams (Hobson and Silvestri). When this anxiety becomes uncontrollable, a dream turns into a nightmare (Hobson and Silvestri). Surprisingly, nightmares are not caused by or related to anxiety during the day (Hobson and Silvestri). Though many nightmares are naturally caused by the brain, some nightmares can be caused by drugs that are used to treat other disorders (Hobson and Silvestri). These drugs include L-Dopa, migraine drugs, and antidepressants called clomipramine and fluoxetine (Hobson and Silvestri). The marketing name for fluoxetine is Prozac (Hobson and Silvestri). This may explain why nightmares are common in depressed adults (Hobson and Silvestri). Nightmares can also be



The Amygdala in the human brain

caused by a childhood trauma, or even an adulthood trauma (Angier). Events that happen in adulthood can unlock painful childhood memories that can cause nightmares (Angier). For example, there was a man who was physically abused by his schizophrenic mother as a child (Angier). He caught someone in his room looking through his drawers one night, which brought back scary childhood memories (Angier). From then on, he had recurring nightmares of the intruder as a middle-aged woman, and a knife hanging over his head (Angier).

All of us know the symptoms of a nightmare, because we have all probably experienced one. Nightmares are usually governed by emotions such as fear, anxiety, danger, or confusion, and one experiencing a nightmare may feel like they are falling, or being pursued or attacked (Rickard). One does have a clear recollection of a nightmare the next morning, and one can even remember all the details (Rickard). Studies show that 50 percent of children ages 3 to 6 have nightmares and younger children may also have nightmares (Hobson and Silvestri). However, we cannot be certain, as these children are typically too young to describe their nightmares (Hobson and Silvestri). One symptom that distinguishes a nightmare from a regular dream is that nightmares are so horrid that you have to wake up (Angier). One researcher actually found out that the symptoms of nightmares vary by culture (Angier). Dream researcher Kelley Bulkeley said that Arab women commonly have nightmares about falling through the air (Angier). He believes this may represent the fear of becoming a “fallen women” (being unchaste) (Angier).

Nightmares are not treated in most children, because they are accepted as part of childhood. On the other hand, if nightmares become recurrent and problematic, then treatments are needed (Angier). Some adults seek therapy to help control their nightmares and to discover the psychological cause of their nightmares. This is called cognitive behavioral therapy (Hobson and Silvestri). Cyproheptadine , which inhibits the activity of serotonin, can also be used to treat

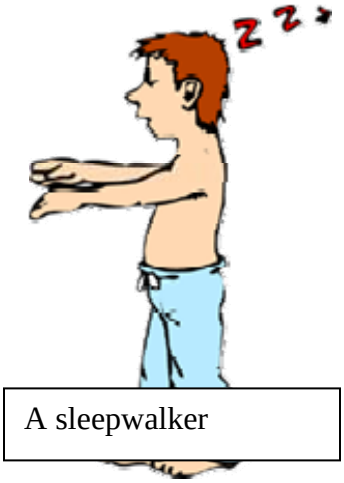
nightmares (Hobson and Silvestri). To get rid of nightmares, we have to remember that we can control our dreams (Angier). We can take monsters and replace them with bunnies, if we try hard enough. Dr. Ross Levin, a psychologist and sleep researcher in New York, helped his patient (described above) reconstruct his nightmare until there was no more fear or knives (Angier). A study was done to see if hypnosis could cure nightmares (Angier). Although it was a small study involving only 36 people, those with nightmares saw positive results ("Hypnosis May Help People with Parasomnias such as Nightmares, Sleepwalking"). Participants were hypnotized, and then they had to listen to their tape each day, and complete a number of follow-up surveys ("Hypnosis May Help People with Parasomnias such as Nightmares, Sleepwalking"). At the 18-month follow-up, 5 out of 7 participants who responded experienced no more nightmares ("Hypnosis May Help People with Parasomnias such as Nightmares, Sleepwalking")! This study is just one more step towards curing nightmares. However, since it was on such a small scale, the results may not be the same if a large amount of people were tested.

Sleepwalking

Sleepwalking is a very familiar and common parasomnia. In fact, it is the most common Non-REM sleep disorder (Hobson and Silvestri). Sleepwalking is also called somnambulism (Hobson and Silvestri). One can pass down sleepwalking genetically, as it is known to run through families (Hobson and Silvestri). Sleepwalking is caused by motor activation, therefore making it a motor parasomnia (Hobson and Silvestri). Motor parasomnias are caused by the effects of sleep on the motor part of our brain (Hobson and Silvestri). Since we relax our muscles to fall asleep, the parts of the brainstem that control the walking state are shut down (Hobson and Silvestri). This is when we enter the four stages of Non-REM sleep (Hobson and Silvestri). As we progress through the four stages, it gets harder and harder to create organized movement

(Hobson and Silvestri). So why can people sleepwalk? While some neurons that produce chemicals are inactive in Non-REM sleep and reactivated during REM sleep, nerve circuits that use dopamine never become completely inactive (Hobson and Silvestri). It is a possibility that this is why organized movement is possible and can happen even in deep sleep (Hobson and Silvestri). In some cases, sleepwalking can be caused by REM sleep behavior disorder, or by partial epileptic seizures (Hobson and Silvestri). Researchers are starting to identify Ambien as a possible cause for sleepwalking (Szabo). Ambien is a drug used to treat insomnia, and it sometimes has wild side effects (Szabo). In a June 2005 article in the journal "Sleep", 19 people were found eating in their sleep, and two of them actually started a small fire trying to cook (Szabo). The label recognizes sleepwalking as an extremely rare side effect, but with so many people taking Ambien, it could occur more frequently than we think (Szabo).

The symptoms of sleep walking are self-explanatory: A person gets out of bed and walks while he/she is asleep. Sleepwalkers indeed make complex movements that seem purposeful (Hobson and Silvestri). Or, they may just sit up and move their hands (Rickard). They may fold their clothes or walk around the house (Rickard). Even though they are asleep, sleepwalkers have their eyes open (Rickard). As mentioned earlier, a sleepwalker is still getting waves of Non-REM sleep, and a sleepwalker most likely will not remember the episode. Sleepwalking, like many parasomnias, is most common in children (Hobson and Silvestri). In fact, 15 percent of children aged five to twelve are sleepwalkers (Rickard). Usually sleepwalking episodes are peaceful, in which the sleepwalker returns to bed without causing property damage or harming someone (Hobson and Silvestri). Sometimes, however, sleepwalking can be



A sleepwalker

dangerous. People can hurt or even kill someone, although one cannot be punished for murdering someone while sleepwalking (Hobson and Silvestri).

Sleepwalking does not have many treatments, because drugs are not usually necessary to treat it (Hobson and Silvestri). This is because sleepwalking is treated by a natural process; aging (Hobson and Silvestri). Children have the deepest Non-REM sleep, because in the last two stages of Non-REM sleep, hormones that make kids grow and mature sexually are released (Hobson and Silvestri). As we grow older and finish maturing, we lose the third and fourth stages of Non-REM sleep (Hobson and Silvestri). As we lose these stages of Non-REM sleep, we start to lose the risk of Non-REM sleep disorders (Hobson and Silvestri). In fact, the risk of Non-REM sleep disorders almost disappears by age 40 (Hobson and Silvestri). This describes most cases, but sleepwalking is a serious problem for some. If sleepwalking gets to be a problem, then a patient can take a "short-acting" benzodiazepine like triazolam (Hobson and Silvestri). Since sleepwalking is sometimes caused by another disorder, patients may have to be treated for their other disorder, not sleepwalking (Hobson and Silvestri). If one's sleepwalking is caused by a REM sleep behavior disorder, then the patient would most likely take Clonazepam; a muscle relaxant (Hobson and Silvestri). They might also take imipramine, clondine, or L-dopa (Hobson and Silvestri). In the hypnosis study, 50% of people who completed the 18-month follow-up reported no more episodes of sleepwalking ("Hypnosis May Help People with Parasomnias such as Nightmares, Sleepwalking"). This means that hypnosis might by used to treat sleepwalkers in the future.

Sleep Terror Disorder

The third major parasomnia is sleep terror disorder. Sleep terror disorder can be a startling but usually harmless disorder, and it affects mostly children ("Sleep Terrors"). Some of

the possible causes include sleep deprivation, migraines, head injury, stroke, and bloated stomach (“Sleep Terrors”). It is rare in adults, so if an adult does have sleep terrors, it is usually because of a mental disorder. (Sleep Terrors) Possible causes for adult sleep terrors are bipolar disorder, anxiety disorders, and depression. (“Sleep Terrors”). Unlike for adults, there seems to be no relation between mental disorders and sleep terrors in children. (“Sleep Terrors”). One source states that sleep terrors are caused by other sleeping problems (“Sleep Terrors”). Obstructive Sleep Apnea, for example, may increase the risk of sleep terrors because it involves many awakenings during the night (“Sleep Terrors”).

Sleep terrors mostly occur in the first third of the night. (“Sleep Terrors”). This means that sleep terrors occur during the non-REM stage (Hobson and Silvestri). Non-REM means that the person isn’t dreaming (Hobson and Silvestri). The most amazing thing is that the person experiencing sleep terrors is still asleep, so they will have no idea it even happened (Rickard). While having an episode of sleep terrors, the person will usually have a scared look in their eyes, and they will also appear out of breath and sweat profusely (Rickard). Since they are not awake and therefore unaware of what is happening, it can be very hard to wake them, and it is best not to, because sometimes the episodes can be violent (“Sleep Terrors”). They may also shout unrecognizable speech and struggle and run around the house (“Sleep Terrors”).

A young child with sleep terrors

Most kids do not need treatment for sleep terrors, because this parasomnia usually vanishes when a kid is finished with puberty (Hobson and Silvestri). However, some people do need treatment, and they get this treatment from a variety of different drugs (Richards). Many of

the drugs used to prevent night terrors are antidepressants (Richards). Tricyclics and Tetracyclics (TCA's) are antidepressant drugs used to treat night terrors, as well as a variety of other disorders, like OCD (Richards). People who cannot be treated by TCA's use monoamine oxidase inhibitors to treat sleep terrors (Richards). These drugs are not as popular because they have specific dietary guidelines to go with them (Richards). Sedatives and hypnotics are rarely used to treat sleep terrors (Richards). Sedatives are the "old fashioned" drugs, as they were the first type of drugs that were used in psychiatric treatment (Richards). Some of them have dangerous side effects, which explain their rare usage (Richards). As previously mentioned, there was a study performed on hypnosis as a treatment for parasomnias. Unfortunately, hypnosis was least likely to help people with sleep terrors ("Hypnosis May Help People with Parasomnias such as Nightmares, Sleepwalking"). After 18 months of listening to their hypnosis session tape at home, only one out of five people with sleep terrors reported having no more episodes ("Hypnosis May Help People with Parasomnias such as Nightmares, Sleepwalking").

Conclusion

Parasomnias are being deciphered by scientists and researchers everywhere, but they still hold a plethora of secrets. Many different treatments are currently prescribed for parasomnias because nobody knows exactly what they are treating. For example, there are about 5 different types of drugs used to treat sleep terror disorder, and sleepwalking is sometimes misdiagnosed. Some parasomnias are part of a domino effect; one thing leads to a whole string of disorders. Scientists are figuring out which parts of the brain control dreams and sleeping, but they still can't grasp the "why". Scientists have different viewpoints as to why we have sleep disorders, but these viewpoints are merely hypotheses. Dr. J. Allan Hobson, a Professor of Psychiatry at Harvard Medical School, and Dr. Lia Silvestri, a. Assistant Professor of Neurology at

Massachusetts Mental Health Center, regard parasomnias as inevitable mistakes within the complex system of sleep (Hobson and Silvestri). Parasomnias are just glitches in the system that happen when one part of the brain gets too over or under excited (Hobson and Silvestri). They feel that parasomnias are “errors in time and balance” in the brain (Hobson and Silvestri). On the other hand, Dr Nielsen and Dr. Levin attempted to logically explain nightmares. Rather than the accidental over activation of one part of the brain, they believe that nightmares are part of a “fear extinction system” (Angier). They believe that bad dreams are the brains way of getting over bad memories, and nightmares are a failure of the “fear extinction system” (Angier). Will scientists someday find a way to completely cure sleep terrors, or a way to ward off nightmares and get rid of sleepwalking? It may be so. To learn more about parasomnias like nightmares, sleepwalking, and night terrors, we need to learn more about ourselves. We need to learn more about the great mystery that we call the “brain”.

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