
CHAPTER 11

Emotions and Dream

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*Is it not monstrous that this player here,
But in a fiction, in a dream of passion,
Could force his soul so to his own conceit,
That, from her working, all his visage wann'd;
Tears in his eyes, distraction in 's aspect,
A broken voice, and his whole function suiting
With forms to his conceit? And all for nothing!*

(W. Shakespeare, Hamlet, ACT II. Sc. 2)

The expression of emotion is a brain-based cognitive process. Emotions have well-described biological correlates. The study of the biological basis of emotion dates back to 1872 and Darwin's last great book *The Expression of Emotions in Man and Animals*. In this writing Darwin proposed an evolutionary tree of animal species based on the development of emotional expression from base organisms through intermediary species with the achievement of the highest expression of emotion in humans (1872). Emotions are considered to be a complex collection of neural responses forming a distinct pattern that are produced as a response to an emotionally competent stimulus (Damasio, 2001).

Specific emotions can be altered by discrete areas of damage to the brain with different brain areas controlling different emotions (Damasio, 2003). In the amygdale, visual and auditory emotionally competent stimuli trigger emotions of fear and anger (Amaral, 2002). Emotional triggering also occurs in portions of the ventromedial prefrontal cortex, and area of the frontal supplementary motor area and the cingulate. None of these triggering sites alone produces emotion. The expression of emotion requires subsequent activity in other areas of the central nervous system (CNS) including the basal forebrain, hypothalamus, and brain stem nuclei among others (Fig. 11.1) (adapted from Damasio, 2003). Damasio has suggested that we should define emotion as the external expression of internal feelings.

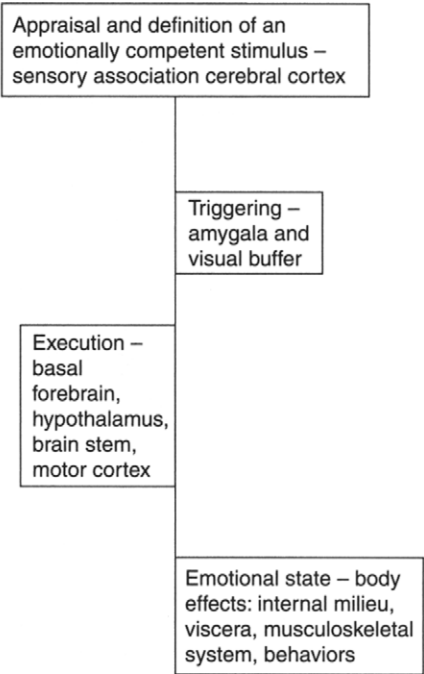


FIGURE 11.1 A diagram of the main stages of the triggering and execution of emotions and associated brain processing areas.

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FRIGHTENING DREAMS

Negative emotions are a part of many dreams. In some dreams emotion is all that is expressed or remembered on waking. This is particularly true of frightening dreams such as nightmares and night terrors. Extreme emotions characterize the arousal disorder known as the night terror. Night terrors are one of the arousal disorder parasomnias that include sleepwalking (somnambulism) and confusional arousals. These arousal disorders occur during partial or complete arousal from stages 3 and 4 of deep sleep. Night terrors and confusional arousals are most common in children, characterized by confusion and autonomic behavior (sweating, flushing, and dilated pupils) on waking, difficulty waking from the event; fragmented imagery of dream content, rapid return to sleep, and amnesia for the event the next morning. Sleepwalking can occur with these types of frightening dreams and include surprisingly complex behaviors. The child can be seen negotiating obstacles and carrying out seemingly purposeful tasks, as well as inappropriate behaviors, such as urination. During confusional arousals, the child may seem to be awake yet considerably confused. The child may cry, yell, moan, or speak in unintelligible sentences and may or may not recognize the parental figure. A “blood-curdling” scream, sweating, flushing, and dilated pupils accompany the most extreme form of confusional arousal, the sleep terror. Sleep terrors often frighten the parent even more than the

child. Despite such an extreme presentation, the childhood arousal disorders are usually not associated with psychopathology. These sleep-related behaviors are experiences over which the sleeper has no conscious deliberate control (Table 11.1). Night terrors, what some consider the most frightening and emotionally powerful of dreams, occur outside of rapid eye movement (REM) sleep.

Nightmares differ significantly from night terrors (Table 11.2). Nightmares have elaborate mental content, while the mental content of night terrors is usually sparse or absent. Night terrors are more likely than nightmares to be associated with vocalizations, somnambulism, and autonomic discharge. Night terrors are more likely to occur early in the night (1–3 a.m.) during the first deep sleep period while nightmares are often associated with the last and longest REM period of the night. Individuals experiencing night terrors are difficult to arouse, while those experiencing nightmares often awaken from the dream.

Typically, nightmares are coherent dream sequences that seem real and become increasingly more disturbing as they unfold. The emotions in nightmares usually

TABLE 11.1 Parasomnias
Disorders of arousal (from NREM (stages 3 and 4) sleep)
1. Confusional arousal
2. Sleepwalking
3. Sleep terrors
Parasomnias usually associated with REM sleep
1. REM sleep behavioral disorder
2. Recurrent isolated sleep paralysis
3. Nightmare disorder
Other parasomnias
1. Sleep-related dissociative disorders
2. Sleep enuresis
3. Sleep-related groaning
4. Exploding head syndrome
5. Sleep-related hallucinations
6. Sleep-related eating disorder

TABLE 11.2 Nightmares and Night Terrors: Distinguishing Characteristics	
Night Terror	Nightmare
Associated with arousals from deep sleep (stages 3 and 4)	Associated with REM sleep
Intense: vocalizations (blood-curdling scream), fright, somnambulism, autonomic discharge	Intense: vocalizations, fright, motility, autonomic discharge
Sparse mental content – amnesia	Elaborate mental content – less amnesia
Difficulty in arousing individual	Often associated with arousals from sleep
More likely to occur early in the night	More likely to occur late in the night
In childhood (2–4%)	Most common in children (40–50%)

involve anxiety, fear, or terror and frequently include negative emotions such as anger, rage, embarrassment, and disgust. Dream content most often focuses on the possibility of imminent physical danger to the individual (e.g., threat of attack, falling, injury, death) but may also involve aggression toward others, potential personal failures, suffocation, and other distressing themes. On awakening, individuals can usually give a detailed description of the nightmare's contents. Multiple nightmares within a single sleep episode may occur and may bear similar themes.

Some personality patterns are typically present in individuals with frequent nightmares. These personality characteristics include fantasy proneness, psychological absorption, dysphoric daydreaming, and "thin" boundaries (Hartmann, 1994). Such individuals are more likely to have a creative or artistic focus in their daily lives. Some of these individuals may utilize their dream and nightmares in highly successful creative careers in writing, acting, and film (Pagel et al., 1999). Individuals with frequent nightmares are prone to psychopathologies including the schizophrenia-spectrum disorders, anxiety disorders, and dissociative disorders. An individual's level of nightmare *distress* is much more robustly associated with psychopathology than is nightmare *frequency*. Associations with psychopathology have been described in adults and adolescents.

Up to 50% of children have frequent nightmares that are often drawn in description as monsters (Fig. 11.2). In children nightmares are generally not associated with psychiatric disorders, except for the specific association of nightmares occurring after major psychological or physical trauma in children with posttraumatic stress disorder (PTSD).



FIGURE 11.2 In younger children nightmares are most often described as the visual imagery of "monsters."

Nightmares are the most common symptom of PTSD, an anxiety disorder characterized by symptoms of “hyper-arousal” occurring after serious physical or mental trauma. Nightmares beginning within 3 months of a trauma are present in up to 80% of PTSD patients. Nightmares present after a trauma can predict the delayed onset of PTSD. PTSD nightmares are more likely to occur in females, individuals with low socioeconomic and educational levels, and those with prior psychopathology. The severity, duration, and proximity of a traumatic event are the most important risk factors for PTSD. Social support, family history, childhood experiences (including previous trauma), personality variables, and pre-existing mental disorders may affect the development of PTSD. However, the disorder can develop in individuals without clear predisposing conditions, particularly if the stressor is extreme.

Although approximately 1/2 of PTSD cases resolve within 3 months, posttraumatic nightmares can persist throughout life. Nightmares arising either immediately following a trauma (acute stress disorder, ASD) or 1 month or more after a trauma (PTSD) can occur during NREM sleep, especially stage 2, as well as during REM sleep and at sleep onset (Francis et al., 1994). Posttraumatic nightmares often take the form of a realistic reliving of a traumatic event. Some PTSD nightmares may depict only some of the elements of the traumatic experience in realistic or symbolic form. ASD and PTSD nightmares can develop at any age after physical or emotional trauma. An individual with PTSD is at risk for severe depression, marital conflict and divorce, loss of job, self-destructive and impulsive behavior, dissociative symptoms, multiple somatic complaints, hostility, social withdrawal, substance abuse and nightmares after withdrawal from substance abuse, survivor guilt, despair, and hopelessness (Pagel & Nielsen, 2005). It is not known to what extent the nightmares experienced by patients with PTSD contribute to these negative outcomes.

EMOTIONS AND DREAMING

The dreams that we remember are often those charged with affect. The waking experiences that are most likely to be incorporated into dreaming are those with emotional content (Piccione et al., 1977). Affective and emotional behaviors are the waking behaviors most likely to be affected by dreams (Ekstrand et al., 1977). Some studies suggest that an individual's mood before sleep changes during a night of sleep (Kramer, 1993). After a night of sleep most individuals are less unhappy and less unfriendly than they were at sleep onset. This finding has led to theories that dreams have a mood regulatory function. Dreams that reflect the waking emotional experiences of the dreamer, change across the night. Such emotionally charged dreams are linked to the emotional preoccupations of the dreamer the next morning. Successful dreams, based on this theory, are those that utilize progressive figurative problem solving during the night to resolve emotional conflict. In the morning after a night of successful dreaming, the dreamer has a decrease in emotional conflict and an increase in happiness (Kramer, 1993).

Nightmares and frightening dreams may reflect a failure in this mood regulatory system. Freud described failures in this system for subjects unable to ignore or assimilate experiences of profound displeasure associated with trauma:

We describe as “traumatic” any excitations from outside which are powerful enough to break through the protective shield. It seems to me that the concept of trauma necessarily implies a

connection of this kind with a breach in an otherwise efficacious barrier against stimuli. Such an event as an external trauma is bound to provoke a disturbance on a large scale in the functioning of an organism's energy and to set in motion every defensive measure ... There is no longer any possibility of preventing the mental apparatus from being flooded with large amount of stimulus, and another problem arises instead – the problem of mastering the amounts of stimulus which have broken in and of binding them, in a psychical sense, so that they can be disposed of (Freud 1916/1951).

Individuals with PTSD have experienced a physical or psychological trauma that is too extreme for the individual to emotionally integrate. When such an emotionally competent stimuli cannot be emotionally processed by this system, the individual develops recurrent frightening nightmares of the experience as he or she relives the experience during sleep. PTSD associated nightmares are often associated with increasingly negative moods on arousal marking a repeated failure of emotional integration of the negative experience (Levin & Nielsen, 2006). Mood regulation appears likely to a primary function of the dreaming process.

This theory fits well with the diagnostic profile of disorders associated with nightmares. Nightmare disorder occurs in individuals that have recurrent episodes of awakenings from sleep with recall of intensely disturbing dream mentation, usually involving fear or anxiety but also anger, sadness, disgust, and other dysphoric emotions (nightmares). Individuals with nightmare disorder do not have the history of a major psychological or physical trauma that is present in individuals having nightmares associated with PTSD. Individuals with nightmare disorder often have less nightmare distress than in those individuals with PTSD nightmares (Levin & Nielsen, 2006; Pagel & Nielsen, 2005).

EMOTIONS AND MIND

Emotions have evolutionary value, useful in assisting with the procreation of the species and through flight and fight, keeping the individual alive to pass on genetic material to the next generation. Dreams are full of emotional process, likely to serve a functional role in the emotional processing system. This emotional processing system, in large part biological and brain-based, functions in the cognitive process of dreaming.

While emotions and their expression are aligned with the body, feelings can be considered as a part of the “mind” component of the emotional process. Feelings, so defined, are thoughts with themes consistent with the emotion. Feelings constitute a mode of thinking, a style of mental processing, that integrates and addresses the emotion (Damasio, 2003). One way that feelings differ from emotions is that the perceptual objects and events at the origin of feelings are internal rather than external. Based on such a definition, the emotional processing that occurs in dreaming could be considered the process of “feeling” rather than emotion. Since dreams in sleep rarely contain perceptual input, dream emotions by this definition are feelings – thought and process about emotion.

Feelings apparently utilize the same neural processing system as emotions. In positron emission tomography (PET) scanning studies of individuals asked to concentrate on an emotional life experience, perceptual somatosensory cortex shows activation (Damasio et al., 2001). This finding indicates that at least some of the same perceptual systems that are activated in the process of emotion are

activated in the process of feeling. Feelings can be considered as the expression of human flourishing or human distress. The change in mood or happiness that occurs after a night of sleep reflects a change in feeling. Damasio (2001) suggests that such feelings are based on an actual brain substrate that inscribes a map in brain neural nets of the emotional and perceptual input associated with the experience of a particular emotion. In this way feelings interact with the neural network maps of emotional processing produced by perceptions associated with emotional experience and inscribed into memory.

EMOTIONAL DREAMING

Emotions are a major part of dreaming. Dreams are likely a functional part of an emotional processing system required for the assimilation of negative life experiences. The emotional system of the CNS has an evolutionary and biological basis. Dysfunctions in this system can result in psychiatric disorders such as PTSD that include symptoms of disordered dreaming. The neurological emotional systems and neural interconnections of this emotional processing system can be mapped in the CNS with our modern technological capabilities.

Much of the emotional component of dreaming appears to be brain rather than mind based. Because of that brain basis, this major component of dreaming appears to be amenable to modern neuroscience research. There may be an actual site in the CNS where a neural net is inscribed that reflects the memory of an emotional experience. In the future, the technology and techniques of modern medicine are likely to be utilized in the diagnosis as well as the treatment of disorders affecting the emotions of dreaming. The association of biologically based emotions with thoughts and feelings about those emotions remains a manner of contention often dependent on definition. The association between emotion and feeling lies at the limits of our understanding of how emotions may be developed and saved as memories in the CNS.