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Harnessing the Seeking, Satisfaction, and Embodiment Circuitries in Contemplative Approaches to Trauma

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This chapter offers an understanding of some key brain and psychological processes involved in trauma, in suffering and healing, and in potentially transformative contemplative practices—especially those for cultivating mindfulness, love, kindness, and compassion. This understanding is structured by a framework that draws on knowledge from many scientific, clinical, and contemplative traditions and necessarily goes beyond scientific data to provide an integrative vision. The framework highlights and clarifies how the brain circuitries of seeking, satisfaction, and embodiment can be harnessed to cultivate healing, freedom, and happiness. (A “circuitry” is a collection of brain areas that work together to perform certain tasks.) As explained in this chapter with references to neuroscience research, like the brain circuitry of fear, the circuitries of seeking, satisfaction, and embodiment are among the best established brain circuitries in neuroscience. In addition, the framework presented here is consistent with well-established ways of understanding and treating trauma, as well as the emerging contemplative approaches featured in this book.

The framework is a way of understanding human suffering, healing, and happiness in terms of (1) four key brain circuitries and (2) cycles of suffering and cycles of healing that entail particular relationships among the four circuitries. (“Cycle” here means a set of experiences and actions that

unfold repeatedly, in the same order, and typically in a self-perpetuating way.) In this chapter the framework is introduced and explained in four steps. First, the brain circuitries of fear, seeking, satisfaction, and embodiment are described. Because the brain's seeking circuitry has been neglected in psychological trauma theory, research, and treatment—which have been dominated by attention to the fear circuitry—a central goal of this chapter, and a requirement for understanding and making use of this framework, is focusing more attention on the seeking circuitry. Second, what are referred to within the framework as fundamental “cycles of suffering,” which involve relationships among the framework’s key brain circuitries, are explained and briefly illustrated with examples familiar to clinicians working with traumatized clients. Third, I explain and illustrate fundamental “cycles of healing” specified by the framework and roles of the key circuitries in those cycles. Finally, I offer the framework’s explanation of how the seeking, satisfaction, and embodiment circuitries can be harnessed by interventions with contemplative aspects and by contemplative practices—especially those that cultivate mindfulness, love, kindness, and compassion—to transform posttraumatic suffering and bring genuine happiness.

The framework offered here can be used by clinicians to understand—and to help their clients understand—posttraumatic symptoms and suffering, including addictions and emotion-regulation deficits associated with complex trauma. The framework can also be used to understand and explain potential pathways to healing, including how therapeutic interventions and contemplative practices can harness key brain circuitries to bring healing and happiness. Once familiar and conversant with the framework (especially when understanding is grounded in mindfully attending to moment-to-moment experience), clinicians and clients can easily see how the circuitries of fear, seeking, satisfaction, and embodiment are key drivers of their thoughts, feelings, and behaviors. This includes insight into the ongoing causes of symptoms; habitual ways of attempting to regulate emotional and physiological states; values, hopes, and life goals; and moment-to-moment reactions to what is pleasant and unpleasant, feared and wanted, and satisfying and fulfilling. In short, the framework is offered as a set of clarifying conceptual tools for exploring experience and behavior, for understanding suffering and healing, and for choosing and getting the most from clinical interventions and from the contemplative methods for treating trauma found in this book.

Fear Circuitry

The brain's fear circuitry includes the amygdala, a structure now commonly mentioned in the media and popular culture, as well as the hypothalamus and periaqueductal gray. It is one of the best known and most

studied circuitries in the brain (LeDoux, 2000, 2012; Panksepp & Biven, 2012) and a major focus of research on psychological trauma and post-traumatic stress disorder, or PTSD (e.g., Shin & Handwerger, 2009). It is not uncommon for therapists to refer to the amygdala as a source of their clients' symptoms and suffering, which makes sense because the fear circuitry of which the amygdala is part triggers common fear responses such as a pounding heart, shallow breathing, freezing, and “spacing out” (LeDoux, 2012).

Two important points: First, the fear circuitry is not only involved in what terrifies us. It is triggered by *anything* we find unpleasant and want to avoid. Indeed, Joseph LeDoux's (2000, 2012) pioneering and ongoing research on rats uses relatively mild but aversive foot shocks, not terrifying or traumatic experiences, to elicit fear behaviors and study the mammalian fear circuitry. Second, all but the most reflexive efforts to avoid or escape unwanted experiences that have triggered the fear circuitry invariably recruit the brain's *seeking* circuitry (described next). Our brains are constantly, automatically—mostly without our awareness—“tagging” some things as unpleasant and unwanted, and thus things to *avoid* and *escape* (e.g., Belova, Patton, Morrison, & Salzman, 2007; Lin & Nicolelis, 2008). When feared and unwanted emotions such as sadness, loneliness, or shame are triggered—however much we notice or not—our brains may seek to escape into addictive experiences (Krantzian, 1999, 2003). And for some who have been hurt in important relationships, especially as children, even “positive” experiences with other people, such as being offered genuine affection, caring, or love, can be unwanted and cause fear and attempts to escape (Gilbert, McEwan, Matos, & Rivas, 2010).

Seeking Circuitry

The brain's seeking circuitry is part of the brain's “reward circuitry” and plays a central role in addiction (Alcaro & Panksepp, 2011). Like the fear circuitry, the seeking circuitry is one of neuroscience's most studied and best established circuitries, including in humans, thanks to decades of research funded by the National Institute on Drug Abuse. Brain researchers have given different names to this circuitry, based on different overall understandings of brain functioning and of this circuitry's roles in behavior and emotion. The term *seeking* was coined by Jaak Panksepp, an influential neuroscientist who has written a widely used textbook on affective neuroscience (Panksepp, 1998) and who views humans' and animals' brains as inherently caused, by this circuitry, to reach out and actively engage with the world. As the amygdala plays a central role in the fear circuitry, the nucleus accumbens plays a central role in the seeking circuitry. However, detailed knowledge of the brain areas that make up the seeking circuitry is not necessary to appreciate the roles it may play in trauma and healing.

Researchers have found that the seeking circuitry is what enables us to want and seek *anything* (e.g., Alcaro & Panksepp, 2011; Olsen, 2011). It could be a new dress, pair of shoes or watch, or a new technology toy that one seeks. It could be an affectionate comment from a girlfriend, boyfriend, spouse, or partner, praise from a coworker or supervisor, or accomplishing a life goal. It could be the next pain pill, the next drink of alcohol, the next hit of crack or porn video. As discussed later, when we strive to fulfill our highest moral, religious, and spiritual values and goals, this circuitry helps us do it.

For people struggling with trauma-related suffering, their seeking can become overly focused on—even enslaved to—quick fixes. These fixes can be intoxicated states brought on by alcohol or drugs, but most important, they are *any experiences that are sought to escape from suffering*. Such fixes may be self-harming behaviors such as cutting or burning to reduce inner turmoil or berating someone with an angry tirade to escape feeling powerless. They also include habitual “defense mechanisms” such as rumination, mindless distraction, or dissociative spacing out, which harm us, less obviously, by disconnecting us from current experience (and therefore from our potential to respond to suffering and other unwanted experiences in healthy ways). The many ways we may ignore or deny what’s actually happening around and within us all can be understood as *brief escapes or quick fixes that involve the seeking circuitry*. Such escapes tend to be not only brief, but also addictive, and unfulfilling in any lasting way—ultimately causing more problems than they solve.

The Pleasure of Seeking

The seeking circuitry is involved in the pleasures of seeking and expecting what we want and the excitement of both (Panksepp, 1998; Alcaro & Panksepp, 2011). But the “anticipatory pleasure” of seeking is only one kind of pleasure; it is different from the pleasure of satisfaction that comes from getting what we have sought, a distinction long recognized in ethology and psychology (e.g., Sherrington, 1906; Klein, 1987; Depue & Collins, 1999; Gilbert & Wilson, 2000; Kahneman & Snell, 1992). There is a difference between the pleasure of anticipating eating a hot fudge sundae and the pleasure of actually eating it. The same is true of any addictive substance or behavior. (However, some substances, such as cocaine and methamphetamine, can be addictive precisely because they increase the pleasure of seeking itself.)

Seeking Imaginary Rewards

When we are not focused on a particular task, our minds tend to wander. This wandering includes running through plans or scenarios in our heads and imagining things we want to happen and do not want to happen. Brain

researchers now call this the “default mode” of the human brain. It is what our brains do whenever we are “resting” or simply not fully absorbed in anything else, and the brain’s “default mode network” (or circuitry) has been mapped (e.g., Gusnard & Raichle, 2001; Fransson, 2005; McKernan, D’Angelo, Kaufman, & Binder, 2006). There are technical obstacles to measuring small bouts of seeking-circuitry activity during mind wandering, and the default mode and seeking circuitries are not identical. But research has shown their connection (Greicius, Krasnow, Reiss, & Menon, 2003), and if we step back and observe our own and our clients’ daydreams, memories, and plans, we can see what they often revolve around: seeking hoped-for and imaginary rewards—of either getting or keeping things we want or, when fear drives our default-mode seeking, escaping from things we don’t want or wish hadn’t already happened. Default mode activity is even more dominated by fears and imagined escapes in states of negative affect and depression (Farrin, Hull, Unwin, Wykes, & David, 2003; Smallwood, Fitzgerald, Miles, & Phillips, 2009; Smallwood, O’Connor, Sudbery, & Obonsawin, 2007).

In short, the seeking circuitry is constantly active, often in response to the fear circuitry being triggered. It is constantly driving thoughts, feelings, and behaviors. For millennia the central role of seeking in human experience and behavior, and the importance of taking responsibility for what one seeks and focusing one’s seeking on what promotes human flourishing, have been pointed out by contemplatives from major philosophical and religious traditions (e.g., Plato, Aristotle, Stoics, Jewish and Christian mysticism, Sufism, Buddhism, Confucianism, and Taoism).

Satisfaction Circuitry

Just as important as the seeking circuitry, in the framework advanced here, is what I refer to as the *satisfaction circuitry*. It is well established that opioid brain chemicals and receptors are involved in feelings of satisfaction, contentment, and connection with others (e.g., Akil et al., 1998; Depue & Morrone-Strupinsky, 2005; Machin & Dunbar, 2011; Nelson & Panksepp, 1998). As Panksepp and Biven (2012) have written, activated mu opioid receptors not only take away feelings of pain but “send messages of pleasant satisfaction in the brain” (p. 25). This opioid circuitry can give us deeply fulfilling pleasures of feeling happy and loved, and any time we feel *contented*, this circuitry is involved. Such experiences, of course, are minimal or missing in the lives of many traumatized people.

Again, one need not know every brain chemical, receptor type, and region involved in satisfaction (although there is substantial and growing research). But it is helpful to know that a central role in this circuitry is played by opioids, both because it is true and because most clinicians and many therapy clients have heard of opioids and their association with

experiences of pleasure and satisfaction, thanks to media reports that opioids produced by the brain (i.e., “endogenous opioids”) account for “runner’s high” and to the high prevalence of opioid pain medication abuse and dependence in many communities. Indeed, like the brain’s endogenous opiates, those from *outside* the body—whether snorted, injected, or ingested via pain pills—act directly on this satisfaction circuitry. That is why such opiate-induced highs involve intense (if short-lived) feelings of great satisfaction and well-being, even bliss.

Embodiment Circuitry

The framework offered here refers to another well-established brain circuitry, which I refer to as the *embodiment circuitry*, though it has been given other names that typically include “interoception” (e.g., Craig, 2002; Singer, Critchley, & Preuschoff, 2009). *Embodiment circuitry* includes the construct of interoception (i.e., the sense of the physiological condition of the entire body), but also denotes that this circuitry allows us to know *what it feels like to be in our bodies*. A key part of the embodiment circuitry is the insular cortex or insula, the one cortical region that brings together *all* information coming from the body (e.g., sensations of movement, touch, tension, pressure, pain, pleasure, etc.; Craig, 2002; Singer et al., 2009; Satpute, Shu, Weber, Roy, & Ochsner, 2013). For clinicians the construct of embodiment is important and helpful, because particular clients have differing degrees of awareness of body sensations, including those that go with emotions. A significant portion of traumatized people suffer from emotional numbing or dissociation, which can be understood as being relatively not embodied, and corresponds to less insula activity in response to trauma reminders (Hopper, Frewen, van der Kolk, & Lanius, 2007; Lanius et al., 2010).

Body Sensations Trigger Fear and Seeking (to Escape)

Information from the body includes unpleasant and unwanted sensations—such as those of pain, fear, anxiety, sadness, or withdrawal from an addictive substance. Information from the body also includes pleasant and wanted sensations, including those associated with substance intoxication and behaviors people find addicting. Such sensations, processed by the embodiment circuitry, can be strong drivers of craving, whether for addictive substances, food, or behaviors including gambling, shopping, and sex (Naqvi & Bechara, 2010). For example, researchers found that when people addicted to cigarettes suffered brain damage, it was much more likely that those with damage to the insula than to other brain areas abruptly quit smoking—suddenly, completely, and *without even trying*. Asked why,

those with damage to this key part of the embodiment circuitry said such things as “My body forgot the urge to smoke” (Naqvi, Rudrauf, Damasio, & Bechara, 2007). As discussed later, pleasant body sensations, especially of satisfying and loving experiences, can be powerful antidotes to fear and the craving to escape.

Cycles of Suffering

Traumatized people are often caught in self-perpetuating cycles of suffering. It can be helpful to understand these cycles as unhealthy relationships among the circuitries of fear, seeking, satisfaction, and embodiment.¹

What makes cycles of suffering self-perpetuating? Seeking is focused on escaping suffering in ways that do not really address one’s pain and problems (let alone bring genuine and lasting satisfaction or happiness) but instead keep them going and make them worse. Cycles of suffering are both caused and partly *constituted* by the seeking of escapes that only perpetuate suffering. Cycles of suffering are often cycles of addiction, with addiction defined here broadly to include all habitual behaviors used repeatedly to seek escape from suffering, including such habitual mental behaviors as obsessing and ruminating. All of these cycles of suffering—however addictive they are, and however negative their immediate and long-term consequences—involve pursuit of quick fixes that bring no more satisfaction or “reward” than this: brief and partial escape from an unwanted experience.

In the framework advanced here, different cycles of suffering involve distinct unhealthy relationships among the circuitries of fear, seeking, satisfaction, and embodiment. For those struggling with trauma, the framework specifies two common cycles of suffering—one revolving around fear and anxiety, the other around depression, defeat, and demoralization. These two common suffering cycles and the corresponding activity of the brain circuitries of fear, seeking, and satisfaction are depicted in Figure 12.1.

In the *fear/anxiety cycle*, seeking is focused on avoiding things one is afraid of or anxious about and/or avoiding fear and anxiety themselves. Thus the seeking circuitry is driven primarily by the fear circuitry, not by pursuit of what is truly satisfying or fulfilling. When the escape ends, the suffering from which one sought to escape returns, and may be intensified because the way one sought escape itself causes or increases one’s fear and anxiety (e.g., a person gets drunk to escape fears and anxieties and then feels fearful and anxious about the effects of their drunken behavior on

¹Buddhist psychology and meditation practice are important sources of this framework, including their focus on fear/aversion and seeking/craving, which, along with ignorance, are known as the “three poisons,” or three root causes of suffering (see also Grabovac, Lau, & Willets, 2011).

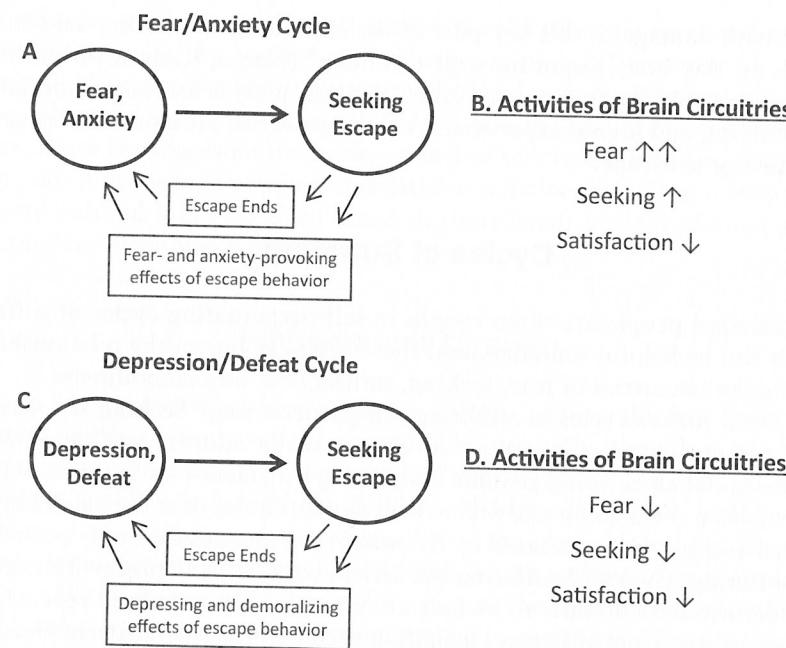


FIGURE 12.1. Suffering cycles and hypothesized activities of key brain circuitries. In the fear/anxiety cycle (A), seeking escape from what's feared and from fear and anxiety lead to more fear and anxiety, and (B) high fear-circuitry activity drives the seeking circuitry in the presence of little or no satisfaction-circuitry activity. The depression/defeat cycle entails (C) more sporadic seeking of escape from depression and defeat and (D) suppressed seeking-circuitry activity in the presence of little or no fear and satisfaction circuitry activity. In both cycles the embodiment circuitry is occupied to the extent that it processes bodily information with unpleasant sensations.

a loved one and his or her perceptions of them). In this cycle the embodiment circuitry is occupied with sensations of fear and anxiety, and with sensations of craving for escape from sensations of fear, anxiety, and craving. There is little activation of the satisfaction circuitry anywhere in the cycle, with the possible exception of briefly while experiencing escape (e.g., intoxication, sexual pleasure).

In this framework's *depression/defeat cycle*, a person feels stuck in and overwhelmed by something bad that has *already* happened. The fear circuitry is relatively inactive, because something that may have been feared has already come to pass. The embodiment circuitry is occupied by sensations that go with feeling heavy, slow, tired, low-energy, bad about oneself, and unmoved by things that should be motivating or enjoyable. The seeking

circuitry is actually *suppressed*, so we do not expect good things to happen nor have much motivation for their pursuit (Treadway & Zald, 2011). To the extent that the seeking circuitry *is* active—whether sporadically in a burst, such as getting off the couch to go out and drink (or shop or have sex), or at an ongoing low level, as in someone motivated to smoke pot and watch TV all day—it focuses on escaping the bad feelings and sensations of depression and defeat. (This is true even when someone is engaged in the experiential avoidance of embodied emotional experience by ruminating on negative, pessimistic, and/or self-denigrating thoughts, memories, and fantasies.) As with the fear/anxiety cycle, when the escape behavior ends, the suffering of depression and defeat return, sometimes even worse than before, because the escape behavior (or the substance used to escape or the effects of withdrawing from the substance) is a cause of depression and feelings of defeat. And of course states of depression involve little or no activity of the satisfaction circuitry. Finally, the suppression and misdirection of the seeking circuitry in the absence of satisfaction—especially with one's own actions or lack thereof—contributes to *demoralization*.

Of course, sometimes people can be fearful or anxious *and* depressed, and may seek escape from other unwanted experiences too, for example of emotional numbness or dissociation. So long as one's seeking circuitry is suppressed or is focused almost entirely on escaping pain and suffering—rather than on seeking what is truly satisfying and fulfilling—one is caught in cycles of suffering.

Cycles of Healing and Recovery, Freedom and Happiness

Just as the framework specifies cycles of suffering, it describes cycles of healing. And just as the fear circuitry has been the focus of psychological trauma theory, research and therapy, the seeking circuitry has been neglected. A key contribution of the framework offered here is to focus attention on the seeking circuitry, including its potential roles in trauma-related suffering and, as addressed in this section, in healing from trauma and finding true happiness and fulfillment in life.

In the view advanced here, two keys to recovery and healing—and spiritual transformation—are focusing one's seeking circuitry on pursuing things that are (1) genuinely healing, not merely brief escapes from suffering (which can be confused with healing), and (2) truly satisfying and fulfilling, not merely fleeting pleasures. Therefore, the framework specifies two fundamental cycles of healing: *seeking to engage and transform suffering*, and *seeking true goods*. These cycles are seen as supporting each other and potentially simultaneous, but it is helpful to consider them separately—particularly with respect to how each is postulated to

change relationships among the circuitries of seeking, fear, satisfaction, and embodiment.

Healing Cycle: Seeking to Engage and Transform Suffering

According to the framework, this brain-based healing cycle entails seeking to know, tolerate, understand, and make positive use of pain and suffering (see Figure 12.2). What it means to seek to engage and transform suffering will differ from one person to another. For some, seeking to know and understand their suffering means lots of work with a therapist or counselor. Others seek to engage with and transform their suffering through sharing with family and friends, with members of their religious or spiritual community, or members of a support group for those struggling with similar forms of suffering. For others, it means writing about their experiences of suffering or expressing them artistically. And for more and more people, as discussed later, it involves engaging in meditation or other contemplative practices that cultivate mindful and loving embodiment, which fosters mindful and loving thoughts and actions.

Whatever works for a particular person, the *seeking to engage and transform suffering* healing cycle entails just that: seeking to *engage* with pain, suffering, and unwanted experiences, and doing so *in healthy and healing ways* that decrease trauma and *break cycles of suffering*. For example, a client might seek to experience feelings of shame associated with a sexual abuse experience, in order to better understand the origins of those feelings and reduce their intensity and frequency, but this will only be healing if she first accesses feelings of safety in her body and compassion toward herself.

Whatever path someone takes, however, engaging the embodiment circuitry, which registers and allows awareness of one's suffering, is understood here to be critical and cannot be neglected. For many traumatized people, attending to bodily aspects of suffering can be very difficult and "triggering." For everyone, this healing cycle requires strong motivation, because it can be quite unpleasant to engage with our suffering, which we typically attempt to avoid. To sustain that seeking and to find success in engaging suffering, traumatized clients require *support*, often from a therapist, counselor, and/or spiritual teacher. Indeed, as shown in Figure 12.2, this healing cycle can involve seeking a variety of resources that enable engagement with suffering and its transformation, including not only healing-promoting support from others, but also self-regulation and other skills; knowledge of and insights into trauma and healing in general and in oneself as a unique individual; healing attitudes, including compassion and kindness toward one's suffering; and cultivating new habits to replace old habits of responding to suffering in ways that only exacerbate it. (Many of these capacities depend on the brain's prefrontal cortex, a circuitry beyond the scope of this chapter.)

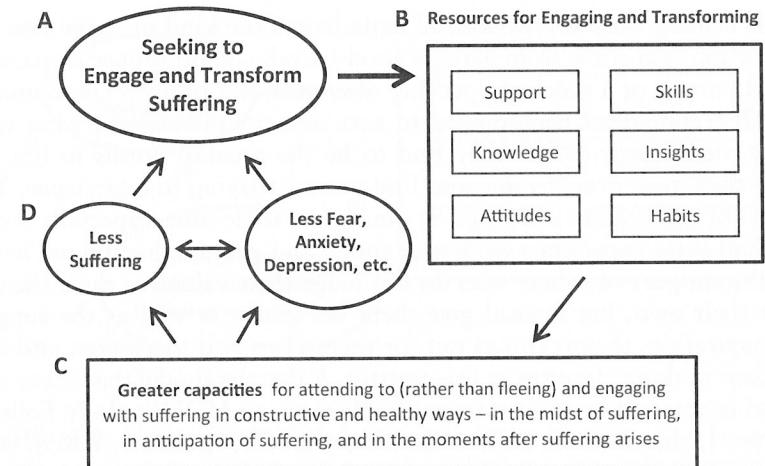


FIGURE 12.2. Healing cycle: Seeking to engage and transform suffering. In this cycle there is still suffering, but rather than seeking escape from suffering, (A) seeking is focused on acquiring (B) resources that allow (C) engaging with suffering (especially as bodily experiences processed by the embodiment circuitry) in constructive and healthy ways that transform suffering experiences into vehicles of (D) recovery and healing. The seeking circuitry is no longer driven by fear of suffering, but instead by motivations to know, understand, heal, and transform one's suffering.

True, engaging in this healing cycle is difficult and sometimes painful. But the payoff is huge. Traumatized people can come to live in much less fear. They can have more compassion for themselves, no matter what they're going through. They can find courage and strength inside that they never realized were there. In this framework's terms, they can free up their seeking circuitry to pursue much more satisfying and fulfilling things in life, which will bring more happiness and healthiness than they ever imagined possible.

Healing Cycle: Seeking True Goods

Fortunately, recovery and healing are not all about seeking to deal more effectively with pain and suffering. If that is all a clinician ever focuses on with a client, the work of therapy and healing is not so appealing, and definitely not inspiring, for the client or the clinician.

In the framework's second key healing cycle, *seeking true goods*, one is harnessing the brain circuitry of seeking—that always-active and powerful driver of our thoughts and behaviors—to seeking out the truly "good things in life." These true goods include love, peace, playfulness, and joy.

In this healing cycle one seeks and experiences the kind of happiness and satisfaction that come from being a good friend, a good spouse or partner, a good parent, or a successful worker or contributor to one's community.²

All traumatized people need to sort out, for themselves, what truly makes them happy. What they find to be the greatest goods in life, the things they most deeply value and find most satisfying to experience. This process of exploration and discovery may take some time, especially if they have had little experience with true goods and genuine happiness. It will take the support of others who do not judge their values or push them to adopt their own, but instead give them the space, as well as the support and inspiration, to sort things out for themselves and to awaken and harness their seeking circuitry to this pursuit. A therapy model that many find helpful is acceptance and commitment therapy, or ACT (Engle & Follette, Chapter 4, this volume; Follette & Pistorello, 2007; Harris, 2009). ACT has a major focus on helping clients sort through their values and goals and then commit to seeking to realize those they believe are most important.

As shown in Figure 12.3, according to this framework the *seeking true goods* healing cycle involves realigning the seeking circuitry with one's deepest needs and longings. A person engaging in this healing cycle is seeking what will be genuinely fulfilling and satisfying, and spending more and more time experiencing that satisfaction and fulfillment. Also, the more people activate their brain's satisfaction circuitry as a result of successful seeking of this kind, and occupy their embodiment circuitry with the sensations of that satisfaction, the less power the circuitries of fear and seeking have over them. That's what it *means* to be satisfied and content: accepting and embracing this moment, without wanting or seeking more from it; accepting whatever may come next, without fear.

As research has shown, when one activates the brain's opioid satisfaction circuitry, activity of the fear and seeking circuitries, including in response to old "triggers" of fear and craving, is actually reduced (e.g., Colasanti, Rabiner, Lingford-Hughes, & Nutt, 2011; Love, Stohler, & Zubieta, 2009; Ribeiro, Kennedy, Smith, Stohler, & Zubieta, 2005; Schreckenberger et al., 2008). When this happens, a person is no longer enslaved to fearing and seeking, nor to the cycles of suffering and addiction. Instead, as shown

²Buddhist psychology and meditation are also sources of the framework's focus on seeking what is truly good and satisfying. Specifically, in Mahayana Buddhism the greatest motivation, said to be an expression of *bodhicitta* or "mind of enlightenment," is the loving and compassionate motivation to seek enlightenment for the benefit of all beings, so one can help them achieve liberation from suffering and genuine happiness; according to Vajrayana or tantric Buddhism (the Dalai Lama's tradition), as explained in the classic *Introduction to Tantra: The Transformation of Desire* (Yeshe, 2001), "it is only through the skillful use of desirous energy [in biological terms, the seeking circuitry] and by building up the habit of experiencing what we might call true pleasure [biologically based in the satisfaction circuitry] that we can hope to achieve the everlasting bliss and joy of full illumination" (p. 10).

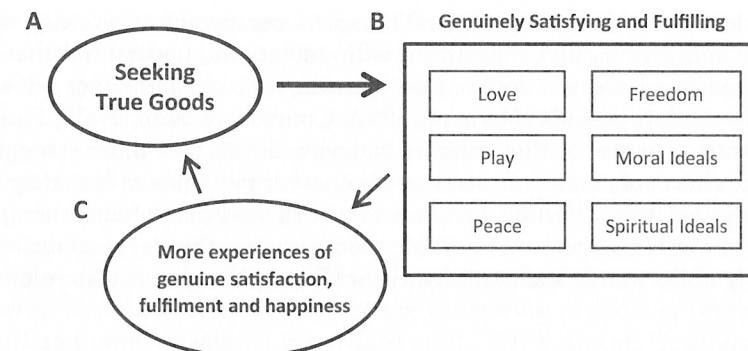


FIGURE 12.3. Healing cycle: Seeking true goods. In this cycle, (A) the seeking circuitry is focused on wanting and pursuing (B) what is genuinely satisfying and fulfilling. This leads to (C) more experiences of genuine satisfaction, fulfillment, and happiness, including the bodily aspects of such experiences as registered by the embodiment circuitry. This in turn increases motivation to seek and enjoy more true goods (rather than quick fixes and other "false goods" that perpetuate suffering), which decreases fear circuitry activation (see text) and suffering in general.

in Figure 12.3, a modulated seeking circuitry can be harnessed to a self-perpetuating seeking true goods cycle: The more one successfully seeks true goods, the more one enjoys the genuine satisfaction, fulfillment, and happiness they bring, and the more one's seeking circuitry becomes focused on seeking true goods that bring healing and happiness.

Contemplative Practices for Seeking to Engage and Transform Suffering

Contemplative practices can be used to carefully attend to and investigate any experience that human beings may have—including those of pain and suffering—and to cultivate capacities for doing so. Employing one's capacities for attention and investigation in this way is central to this framework's *seeking to engage and transform suffering* healing cycle, which involves seeking to know, tolerate, understand, and make positive use of one's pain and suffering.

Preparation

Before directly facing pain and suffering, people need skills for managing painful and unwanted feelings and body sensations, including traumatic

memories and addictive cravings. Therapists competent at working with traumatized people, including those with addictions, understand that the *first stage* of recovery is focused on learning and strengthening self-care and self-regulation skills (Herman, 1992; Courtois & Ford, 2009; Fiorillo & Fruzzetti, Chapter 5, this volume; Najavits, 2002). For those struggling with the effects of major trauma, there is another prerequisite for safely facing one's pain and suffering: a relationship with someone, often a therapist, who is not only competent at guiding them through the stages of recovery, but truly understands and cares for them (Briere, Chapter 1, this volume).

Mindfulness

A common definition of *mindfulness* is “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003). When someone freely chooses to embark on the *second stage* of recovery from trauma, also known as “remembrance and mourning” (Herman, 1992), mindfulness is an excellent tool for exploring trauma-related memories, feelings, bodily experiences, thought processes, and ways of relating to others. Experiences that had previously felt too unbearable to focus on can be explored and investigated, and seen as passing sensations and thoughts that arise under particular conditions, without resorting to seeking escape. When habitual reactions arise, or suffering cycles begin to unfold, one can mindfully observe and even experientially understand them and not get carried away.³

Bodily Awareness as Key

Mindful awareness of bodily sensations—that is, one's *moment-to-moment experiences of embodiment*—is the foundation for attending to and exploring one's emotions, thoughts, behaviors, and relationship patterns (e.g., Chiesa, Serretti, & Jakobsen, 2013; Kerr, Sacchet, Lazar, Moore, & Jones, 2013). Only with that grounding in embodied awareness—of the

impermanent bodily sensations—can one effectively bring mindful awareness to emotions and thoughts; otherwise, one is repeatedly swept away in habitual cycles of seeking brief escapes and quick fixes that perpetuate suffering and disconnection from present experience. Researchers have found that the insula, that key component of the embodiment circuitry which brings together *all* information coming from the body (see earlier discussion), is larger and has a greater density of “gray matter” in long-term mindfulness meditators (Lazar et al., 2005; Hölzel et al., 2008). Researchers have also found that mindfulness meditators exhibit brain functioning in which insula activity dominates the processing of sadness (Farb et al., 2010) and pain sensations (e.g., Gard et al., 2012; Grant, Courtemanche, & Rainville, 2011). For people struggling with trauma, this means that mindfulness can enable direct and safe engagement with the bodily sensations of pain and suffering, which, as several mindfulness researchers have pointed out (e.g., Farb et al., 2010; Gard et al., 2012), enables one to experience and understand those sensations as “relatively innocuous sensory information rather than as an affect-laden threat to the self requiring a regulatory response” (Farb et al., 2010, p. 31). Rather than seeking to control or escape those sensations, which does not bring healing and tends to perpetuate suffering, mindfulness allows tolerance and compassionate understanding of those sensations and other constructive and healing responses to them. In short, as illustrated by clinical examples in other chapters of this book (see, e.g., Brach, Chapter 2; Ogden, Chapter 14), mindfulness enables the transformation of suffering experiences into opportunities for healing, even spiritual awakening.

Examples of Mindfulness and Successfully Seeking to Engage and Transform Suffering

A female therapy client who was sexually abused as a child learned to mindfully observe constricted feelings in her chest and visual images of the abuse, without immediately getting lost in the feelings of disgust and shame that went with them. She also learned to mindfully observe the disgust and shame, including the transitory bodily sensations that went with them—again, without getting lost in them or seeking to escape. In time these memories, feelings, and sensations lost their grip on her, and she discovered peace, strength, and freedom that she had never known were possible. Another client, a male soldier sexually assaulted by his commanding officer, learned to mindfully observe—without judging himself or being consumed by fear or shame—memories of the overwhelming helplessness and betrayal he felt during the assault. Even without (yet) engaging in practices to cultivate self-compassion (see later discussion), new compassionate understandings of what had happened, and of his reactions to it, spontaneously arose and replaced the guilt and self-hate that he had struggled with for years.

³As meditation masters teach, concentration arising from concentration meditation is a precondition of mindfulness. Without a foundation of concentration, mindfulness is impossible, because attention is swept away by thoughts, emotions, and images that revolve around wants and fears. Also, effective meditative concentration requires both (1) quieting the fear circuitry and (2) adjusting activity of the seeking circuitry to the optimal amount required to sustain meditative focus, as indicated by the Tibetan term for the concentration practice of *shamatha*, which means “calm abiding” (Wallace, 1998). Similarly, in the Buddhist tradition mindfulness itself is a precondition for something more transformative than present-focused awareness, stress reduction, and other benefits for which it is now promoted. That is, mindfulness can be a foundation for liberating insight, or *vipassana*, which includes directly observing how aversion, seeking, and habitual relationships between them—which can otherwise unfold outside of awareness, in just fractions of a second—are causing suffering to oneself and others.

Special Help for Dissociation and Addiction

Clients who struggle with dissociation will likely need special help to safely and effectively learn and apply mindfulness (Waelde, Chapter 19, this volume). Those who struggle with addictions may need special help to avoid getting addicted to pleasant bodily and mental states that meditation can bring. We are all vulnerable to having our seeking become craving and attachment (i.e., to spoiling and losing true goods by relating to them as quick-fix escapes), but clients with stronger addictive tendencies may need special help avoiding this. And because both dissociative and addictive tendencies can result in mistaking attachment to states of disconnection for “enlightened detachment,” careful monitoring and specific methods may be needed to avoid getting stuck in that way (Waelde, Chapter 19, this volume).

For severely traumatized people, attending to body sensations associated with trauma, even unintentionally in the midst of a mindfulness exercise, can be quite triggering (e.g., of traumatic memories and trauma-based emotional reactions) and overwhelming. For them it is safest—and most helpful—if they first experience mindfulness in the context of a relationship with a mindful therapist. Experiencing mindfulness first within a therapy relationship can be healing, especially for those not ready to engage in mindfulness practice on their own, as illustrated by several case vignettes in chapters of this book (see, e.g., Brach, Chapter 2; Emerson & E. K. Hopper, Chapter 11; Fiorillo & Fruzzetti, Chapter 5; Grindler Katonah, Chapter 10; Ogden, Chapter 14; Parker, Chapter 20).

For these reasons and others, mindfulness and other contemplative methods for engaging with and transforming suffering are not quick fixes or panaceas. Even after cultivating the self-care and self-regulation skills needed to engage directly with trauma and suffering, engaging with and transforming suffering can be a long process. We are all creatures of habit, and old habits can be hard to break, especially if they once ensured our physical or psychological survival. But with a foundation of self-regulation skills, regular practice, and relationships that support both, mindfully engaging with one’s suffering can facilitate the healing cycle of *seeking to engage and transform suffering*.

Contemplative Practices and Seeking True Goods

Finally, the second healing cycle specified by the framework, *seeking true goods*, includes the use of contemplative practices to *harness the brain’s seeking circuitry*—which when wrongly directed causes so much of our suffering—to *the pursuit of true goods that bring genuine happiness*.

Our seeking circuitry is always active. Fortunately, unlike many other aspects of brain function, this one is accessible to us, something we can reflect upon and contemplate. And we can choose: *What shall I seek? What*

should I seek as my highest priorities? What do I want to seek in this moment? We can also contemplate and choose our answers to these questions: *What really makes me happy? What is my motivation for doing (or thinking or saying or writing) this?* These questions and choices are at the heart of contemplative practices and how we put them into practice in our lives.

What Should We Seek?

Religious and spiritual leaders have long sought (whether wisely or in confusion themselves) to help people seek transcendent “true goods”—obedience to God’s law; surrender to God’s will; an intimate relationship with God or Jesus; loving others, even our “enemies,” as we love ourselves; forever striving to free all beings from suffering. Profit-seeking companies, politicians, and advertisers bombard us with sights, sounds and words designed to harness our seeking circuitry to the (perceived) benefits they seek for themselves.⁴ The Declaration of Independence declares it a “self-evident” truth that we are endowed by our creator with unalienable rights, not only to life and liberty, but also to “the pursuit of happiness.” In short, the brain’s seeking circuitry is central to human life.

The Dalai Lama often says, “We all naturally desire happiness and not to suffer” (e.g., 1999, p. 49). He writes of “genuine happiness”—which has “inner peace” as its principal characteristic, “is rooted in concern for others and involves a high degree of sensitivity and feeling,” and provides a basic sense of well-being that cannot be undermined, “no matter what difficulties we encounter in life” (1999, pp. 55–56). He distinguishes this genuine happiness from all those states of mind that, despite being called “happiness” and sought by many, lack those qualities. He is pointing to those central questions at the heart of our lives, about what brings genuine happiness and should be the object of our seeking.

The Seeking Circuitry Has Been Unknown, Unappreciated, and Misunderstood

So far, aside from addiction research, the brain’s seeking circuitry has been largely unrecognized and overlooked in psychology and psychiatry. Among

⁴This now includes advertising and marketing for “mindfulness-based” techniques that are uncoupled from the ethical and religious contexts in which mindfulness was developed. As Purser and Loy (2013) observe, “While a stripped-down, secularized technique—what some critics are now calling ‘McMindfulness’—may make it more palatable to the corporate world, decontextualizing mindfulness from its original liberative and transformative purpose, as well as its foundation in social ethics, amounts to a Faustian bargain. Rather than applying mindfulness as a means to awaken individuals and organizations from the unwholesome roots of greed, ill will and delusion, it is usually being refashioned into a banal, therapeutic, self-help technique that can actually reinforce those roots.”

those focused on psychological trauma, attention has been almost entirely on the circuitry of fear (with the exception of Elman and colleagues' work on reward and seeking in PTSD; e.g., Elman et al., 2009; Hopper et al., 2008). Similarly, the focus on mindfulness and other contemplative methods for healing trauma surveyed in this book has involved little consideration of the seeking circuitry.⁵

Discussions of mindfulness often include cautions about the danger of seeking any result, and the concern that doing so is incompatible with mindfulness. Certainly, seeking results can be an obstacle to mindfulness and the unsought and unexpected insights and transformations that it can bring. But as stated in the Buddha's Second Noble Truth, the problem is *craving conditioned by ignorance*—not seeking itself, which need not involve craving and is inseparable from normative brain function, healthy living, and embodied life itself. Furthermore, as Purser and Loy (2013) note, "Buddhists differentiate between Right Mindfulness (*samma sati*) and Wrong Mindfulness (*miccha sati*)," and this distinction addresses "whether the quality of awareness is characterized by wholesome intentions and positive mental qualities that lead to human flourishing and optimal well-being for others as well as oneself." In short, Right Mindfulness entails seeking true goods for oneself and others (beyond nonjudgmental awareness of present experience and any benefits that it automatically engenders whether or not one seeks them).

Tara Brach has movingly written of an experience when, after days of having grasped, resisted, and attempted to control feelings of longing for love, she recognized this reality that seeking is central to life itself:

Late one evening I sat meditating alone in my room. My attention moved deeper and deeper into longing, until I felt as if I might explode with its heartbreakingly urgent yearning. Yet at the same time I knew that was exactly what I wanted—I wanted to die into longing, into communion, into love itself. At that moment I could finally let my longing be all that it was. I even invited it. . . . (Brach, 2003, pp. 153–154)

In a recent interview, the widely respected Buddhist teacher, author, and peace activist Thich Nhat Hanh recalled this formative experience when he was 7 or 8 years old:

One day I saw a picture of the Buddha. . . . [H]e was sitting on the grass very peaceful, smiling, and I was impressed. Around me people were not like that, so I had the desire to be someone like him. And I nourished that kind of desire until the age of 16, when I had the permission from my

⁵There are good reasons for this, including lack of knowledge of this critical aspect of brain function; a focus, shared with medicine, on treating illness and reducing suffering rather than promoting health and happiness; and fears of venturing into realms of morality, religion, and spirituality.

parents to go and ordain as a Buddhist monk. . . . We call it the beginner's mind: *the deep intention, the deepest desire that one person may have*. And I can say that since that time, until this day, this beginner's mind is still alive in me. (Nhat Hanh, 2012, emphasis in spoken words)

Similarly, the Dalai Lama is clearly a driven man, as well as an accepting one. Despite many obstacles, he *continually seeks* to be a vehicle of compassion, to serve Tibetans as their spiritual and political leader, and to serve humanity, including by helping to foster integrations of neuroscience with contemplative practices and insights. Yes, seeking can cause problems—when it becomes craving, grasping, clinging, and attachment to passing things that cannot bring genuine happiness. But seeking can be focused on true goods that, when experienced but not clung to, bring genuine happiness and *reduce* craving and attachment.

Seeking Love, Kindness, and Compassion

For Thich Nhat Hanh, it was an image of a happy and loving Buddha; for many Christians, it is an image of Jesus. Every religion and spiritual tradition has its images of wise, loving, and happy beings that can powerfully activate our seeking circuitry and deepest longings. Yet often more effective for cultivating love within oneself—at least initially, for those struggling with trauma—are simpler and more common images easily called to mind or found on the Internet, such as a cute baby, a puppy, or a kitten. The key to successfully utilizing images in this way: bringing the image to mind causes motivations and feelings of love, kindness, and compassion to arise *spontaneously and effortlessly*.

In the *metta* practice of the Theravadin Buddhist tradition, being taught to traumatized people by several authors in this book (e.g., Tara Brach; Christopher Germer and Kristin Neff; David J. Kearney), the focusing of attention on such an image and the bodily sensations of spontaneously arising motivations and feelings are combined with internally repeating phrases like these:

May you be happy.
May you be healthy.
May you be at peace.
May you be free of suffering.

Harnessing the Brain's Seeking Circuitry to Cultivating Embodied and Satisfying Love, Kindness, and Compassion

In this way, according to the framework offered here, during this practice visual imagination and verbal thoughts—typically absorbed in memories,

plans, and fantasies of imagined rewards—along with attention to bodily sensations are used to *harness the brain's seeking circuitry to love, kindness, and compassion*. If while doing the practice we *experience in our bodies* feelings of love, kindness, and compassion, we occupy the embodiment circuitry with them. If those good feelings are accompanied by feelings of contentment, peace, and satisfaction, then this practice also involves the satisfaction circuitry. And to the extent that we experience the bodily sensations of contentment, peace, and satisfaction, the embodiment and satisfaction circuitries are not only involved, but are also being transformed.

In this framework, harnessing the seeking, satisfaction, and embodiment circuitries to the cultivation of love, kindness, and compassion is the most basic and powerful form of the *seeking true goods* healing cycle. The benefits of cultivating love, kindness, and compassion toward oneself and others are many—especially for traumatized people who so far have experienced little of these in their lives.⁶ As with mindfulness, however, things can be more complex. Given the neglect, losses, abuses, and betrayals that many traumatized people have experienced in their lives, feelings of love, kindness, and compassion can trigger fear (Gilbert et al., 2010). This is normal, and there are many ways clinicians can help their clients to gently and safely explore, understand, and overcome these obstacles to receiving, cultivating, and giving love, kindness, and compassion (Germer, 2009; Germer & Neff, Chapter 3, this volume; Gilbert, 2005, 2010).

Other “True Goods”

There is a good case, made by many for millennia, that *love*—which we can experience and express in many ways—is the greatest good and the greatest source of genuine human happiness. But most of us agree that there are other (if lesser) “true goods” too, other experiences and goals that are most worthy of seeking and most likely to bring genuine happiness. Depending on our personalities, our cultural and religious backgrounds, and several other factors, we may highly value and seek various things along a continuum from false to true goods (e.g., power, money, technology tools and toys, entertainment, sexual stimulation, physical health, beauty, creativity, knowledge, courage, generosity, connection with nature, playfulness, achievement, contributing to others through our work).

⁶Germer and Neff (Chapter 3, this volume) discuss several benefits. But one of the greatest benefits—seldom mentioned but worth contemplating, whether we seek healing from trauma or fostering it in others—is this: By focusing one's seeking on love, one harnesses the brain's seeking circuitry to pursuing the greatest good and greatest happiness.

The world's religious and spiritual traditions supremely value wisdom, which includes liberation from ignorance and, to use a central Buddhist conception, “seeing things as they really are”—not as we fear or want them to be. Such wisdom entails accurately perceiving and knowing oneself, per the ancient Delphic maxim. Combining mindfulness with analytical meditations involving self-questioning—and the courage to know oneself—can yield insights into our true motivations for what we do and say (Wallace, 2001). In doing so we find that, for our clients and ourselves, even efforts to pursue true goods are sometimes *largely* motivated by fears of failure, judgment, or rejection; by cravings for lesser goods, such as others' attention or admiration; even by false goods, such as competitive advantage or revenge. Over the course of writing this chapter, I have been motivated by a sincere wish to share something helpful, but also by fears that it won't be good enough, that readers will find it useless, that I won't finish it on time, and by craving for readers' admiration. Seeking the true good of self-knowledge can help us to mindfully and compassionately acknowledge such normal human shortcomings, to gain more freedom from them, and to focus our seeking on true goods and genuine happiness.

In short, there are many contemplative practices—especially but not only those for cultivating love, kindness, and compassion—that can bring healing from trauma and much more, *by harnessing the brain's seeking circuitry to the pursuit of true goods and genuine happiness*.

Conclusion

This chapter offers a framework for understanding key brain and psychological processes involved in trauma, suffering, and healing, particularly healing fostered by contemplative practices for cultivating mindfulness, love, kindness, and compassion. The framework draws on scientific, clinical, and contemplative knowledge to provide an integrative vision. While simplifying things in some ways, the framework also acknowledges the complexity of trauma and healing. Also, appropriate neuroscience reviewers found nothing in this chapter that is inconsistent with current knowledge, although it is important to note that research on interactions between the brain circuitries of fear, seeking, satisfaction, and embodiment is currently limited. Certainly more research is needed. In the meantime those of us seeking to help traumatized people heal and find happiness can better appreciate and explore the power of contemplative practices (used carefully and appropriately) to harness the brain's seeking, satisfaction, and embodiment circuitries to decrease suffering and to cultivate more mindful, loving, and happy human beings.

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