Know Thyself: Well-Being and Subjective Experience

By Joseph LeDoux, Ph.D., Richard Brown, Ph.D.,
Daniel Pine, M.D., and Stefan Hofmann, Ph.D.

Editor’s Note: The study of subjective experience represents a significant challenge to cognitive scientists, but one that is beginning to be increasingly addressed. Subjectivity renders experience less amenable to traditional objective scientific measurements than other subject matter. Our authors believe that when seeking to understand the mind, subjectivity must ultimately be investigated and understood.
Ancient Greek philosophers were fond of the aphorism, “know thyself,” inscribed above the entrance of one of the Temples of Apollo at Delphi. One expression of this tradition, variably attributed to Socrates and Plato, is that “the unexamined life is not worth living.” Another, attributed to Aristotle, is “to know thyself is the beginning of wisdom.” And, according to Socrates, the path to such self-knowledge is through inner reflection, or what we now call introspection.

Thousands of years later, professions arose to help people know themselves better. Sigmund Freud, for example, introduced his method of psychoanalysis in the early 20th Century as a means of helping people cope with hysteria and other neuroses by bringing unconscious conflicts into conscious awareness, allowing troubling memories that had been repressed to be worked through.  

Although he was neither a psychiatrist nor a psychologist, Freud’s ideas greatly influenced the way people with mental health problems were treated for decades. His emphasis on making the unconscious conscious was retained by some who followed, while others emphasized the conscious self in the here and now. Regardless, subjective experience played a key role in treatment.

It is ironic that this emphasis on subjective experience in psychological treatment gained traction and flourished at roughly the same time that behaviorists were exorcising subjective experiences from mainstream psychological research. Conversely, just as the influence of behaviorism was receding in the 1960s, treatment approaches that de-emphasized subjective experience came into existence.

For example, based on the conditioning methods developed by the behaviorists, so-called behavior therapy emerged in the late 1950s. The assumption underlying this approach was that subjective experience is only a crude reflection of adjustment problems, which are better addressed by changing the way people behave when interacting with their environment. With adequate behavioral change, in this view, subjective state problems will simply dissipate. Later, cognitive change was added, giving rise to cognitive-behavioral therapy (CBT). While CBT largely replaced the pure behavioral approach, it did not traditionally emphasize subjective experience, though this is changing.
The Impact of Pharmaceuticals

The medical or pharmaceutical approach, which preceded behavioral and cognitive-behavioral therapies, treated mental health problems as medical problems. The patient’s subjective experience was recorded at intake, and used as the starting point, but the “disease” was then treated by medications that attempted to address the root cause by correcting chemical or circuit imbalances in the brain. The search for new drugs generally involved testing animals in challenging situations, on the assumption that medications that make animals less behaviorally timid, for example, should make people less fearful or anxious. Thus, as with the behavioral and cognitive-behavioral approaches, the underlying belief was that subjective experiences will be automatically corrected once something else—here, the chemical or circuit imbalance—is addressed.

Few would claim that these efforts have solved the problem of treating mental health maladies. Under the best of conditions, behavioral, cognitive-behavioral, and pharmaceutical treatments currently available for anxiety and mood disorders are more effective than placebo, but not by nearly as much as is needed. In this regard, the effort to discover new medications is informative.

Early findings suggested that benzodiazepines can sometimes help with anxiety, and medications that alter monoamines could help with depression and anxiety. This stimulated a massive research effort to find improved treatments. However, decades later, the conclusion is that few new classes of medications have demonstrated clinical efficacy. Concluding that the probability of future success is low, pharmaceutical companies have begun to reduce support for research on new medications to treat anxiety and depression.

Noting a crisis in the advancement of treatment options, the National Institute for Mental Health (NIMH) re-evaluated the approach to treatment, proposing that diagnostic categories (anxiety, depression, schizophrenia) be replaced with empirically-based, neurally-inspired dimensions (threat processing, avoidance, memory, cognitive control, subjective experience) that cut across diagnoses. But the value of this controversial move remains unclear, and under new leadership, NIMH is taking a wait-and-see approach to this change.
Considering Different Therapies

Behavioral, cognitive-behavioral, and pharmaceutical approaches have all traditionally assumed that successful treatment must go beyond, or beneath, subjective experience—that the way to improve mental health is to change problematic behavior or the information-processing functions and/or brain physiology underlying it. Reflecting this view, insurance companies today are more likely to refer to “behavioral health” than “mental health.” But perhaps this assumption, which equates the behavioral with the mental, needs to be reconsidered.

We have proposed that a key problem in the treatment of adjustment issues related to fear and anxiety is the scientific conception that underlies our understanding of these feelings. Since Charles Darwin, human emotions have been viewed as “states of mind” inherited from animal ancestors. As evidence, Darwin used similarities between the behaviors of animals and humans in situations in which humans typically report feeling fear or other emotions. Following Darwin’s lead, neuroscience researchers have assumed that studies of animal behavior can reveal the circuits of human emotions. For example, a common view today is that fear is a product of an ancient innate brain circuit shared amongst mammals. Typically, the amygdala is said to be the core of this “fear circuit.” When a threat activates the amygdala, a fear state occurs, characterized by certain behavioral and physiological responses. Therefore, treatments that change this circuit should reduce the behavioral and physiological responses, as well as the fear or anxiety.

Suppose that the assumption that conscious feelings and behavioral and physiological responses elicited by threats are entwined in subcortical circuits such as the amygdala is incorrect. That this might be the case is indicated by several observations. First, behavioral and physiological indicators do not always correlate well with subjective experiences of fear or anxiety, as they should if they are all products of the same circuit. Moreover, existing treatments do not equally affect objective responses and subjective experiences of fear or anxiety. Additionally, damage to the amygdala, the centerpiece of the so-called fear circuit, does not necessarily eliminate the ability to feel fearful or anxious. Also, it is possible, using subliminal stimulation, to activate the amygdala and elicit physiological responses to threats, without the person knowing a threat is present and without reporting that he or she feels fearful.
For these reasons, the idea that the subjective experience of fear is a hard-wired state inherited from animals is not universally accepted by psychologists\textsuperscript{41-45} or neuroscientists.\textsuperscript{28,46,47} How, then, might fear come about if not via an ancient subcortical circuit? It seems worth considering the possibility that it arises the same way as other kinds of conscious experiences.\textsuperscript{40}

Consciousness Enters the Equation

Little was known about consciousness when brain-centered studies of fear and anxiety began several decades ago, in part because subjective experience was viewed as a quasi-scientific notion unworthy of serious research. But this is no longer the case. Despite its dubious reputation in corners of the field that have a lingering connection to behaviorism, research on consciousness is thriving in both psychology and neuroscience.\textsuperscript{48-61}

The current wave of research on consciousness began in the 1960s and 70s with results from studies of neurological patients, including people with split-brains (a procedure to alleviate epileptic seizures),\textsuperscript{62,63} amnesia,\textsuperscript{64-66} and blindsight (a condition in which the sufferer responds to visual stimuli without consciously perceiving them).\textsuperscript{57,68} Research on each of these groups showed powerful and compelling dissociations between information processing that controls behaviors non-consciously, and the processing that underlies conscious experience.
A major theme in the research on the topic of consciousness today is the identification of neural circuits that make possible the inner awareness of mental states.\textsuperscript{52-54,69-75} This effort is premised on the assumption that conscious states result from the elaboration of nonconscious information processing. In this research, conscious experience is most commonly studied through self-report. While self-report, like subjective experience itself, has a reputation of being soft and un-scientific, we believe this view is misinformed. It can be an invaluable research tool,\textsuperscript{76,77} at its best when used to assess immediate experience, and less useful as time goes by (memory can change, and even be reconsolidated at retrieval). Self-report is also poor as a means for uncovering why someone did something, as motivations often affect behavior non-consciously. Various methods have arisen to improve on subjective reporting.\textsuperscript{78-81} But overall, self-report measures hold up well, and are the foundation of modern studies of conscious experience.\textsuperscript{82}

Such research has been especially successful in using functional brain imaging to identify circuits that transform non-conscious information, as represented by sensory processing circuits, into conscious experiences.\textsuperscript{52-54,69-75} This work has shown that when people are consciously aware of a visual stimulus, the visual cortex is activated but so too are areas of the prefrontal and parietal cortex that have been implicated in working memory. From this work has arisen the basic idea that the brain has a variety of specialized processing modules that operate non-consciously, and that consciousness occurs when information they provide is captured by attention and brought into neural circuits that support higher-cortical functions.

While most of the work on consciousness has focused on perception, it has been proposed that emotional feelings work the same way.\textsuperscript{40} The key idea here is that both emotional and non-emotional states of consciousness depend on the same basic fronto-parietal cognitive circuit, but in emotional experiences, the circuitry processes additional kinds of input.

If this view is correct, it would go a long way towards explaining why treatments based on findings from animal behavior are not more effective in helping people feel better. In targeting subcortical behavioral control circuits, such treatments inadequately change subjective experience. Subjective
experience, in other words, is not just another symptom that will also go away when you change the circuit that controls behavior. The subjective experience circuit itself has to be changed.

Some suggest that this view dismisses the contribution of animal research.\textsuperscript{38,39} This, however, is a mischaracterization. We have noted in our publications that changing behavioral or physiological symptoms on the basis of treatments developed through animal research is extremely useful.\textsuperscript{11,28,29} Animal research is especially helpful for understanding and treating symptoms arising from circuits that are conserved between humans and animals that control behavioral and physiological responses, (for example, subcortical circuits involving the amygdala). It is less helpful in understanding functions of circuits conserved to a lesser degree (i.e., fronto-parietal circuits), since such circuits have unique cellular features in humans\textsuperscript{83-86} and support cognitive capacities that differ dramatically between humans and other animals.\textsuperscript{87-94}

Some of the limitations of existing behavioral, cognitive, and pharmaceutical treatments may be due to a misunderstanding what the treatments are actually doing. If we are right, truly successful mental health treatment might require us to view that affliction arises from a federation of systems that generate different symptoms and require different approaches. Thus, treating a behavioral control circuit alone will not necessarily ameliorate pathological feelings of fear or dread; but it might well tone down the intensity of such states. Similarly, treating subjective experience alone may not be sufficient. Although the involved systems have fundamentally different functions, they are highly interactive, and each must be addressed.

We and others propose that subjective experience is a cognitively constructed event.\textsuperscript{11,28,29,40,43-47,100} The construction process draws upon one’s cultural milieu, social situation, and memories of and concepts about danger, all in the context of the physiological state of the brain and body. If so, then changing the hard-wired circuit will only be partially helpful. The subjective state itself also has to be a focus of treatment.

Our emphasis on subjective experience, some recent commentators have said, threatens to send psychiatry back to a dark time when subjective states were its focus.\textsuperscript{36,39} But this critique overlooks the fact that subjective experience, as noted above, is no longer viewed as taboo, quasi-scientific
topic. Research on consciousness is in fact thriving in psychology and brain science. The critique also
overlooks the success of mindfulness-based approaches, which emphasize subjective experience
and awareness, in the treatment of mental health problems.  

The science of subjective experience has come a long way in recent years. While it is still about
turning the mind in on itself, a rigorous body of scientific research on consciousness is emerging.
Applied to clinical problems, modern understanding of consciousness could pave the way for more
precise and valid assessments of human emotions and provide clinicians with new and improved
strategies for treating emotional suffering.

Bios

Joseph LeDoux, Ph.D., is the Henry and Lucy Moses Professor of Science at NYU in the Center for
Neural Science, and he directs the Emotional Brain Institute of NYU and the Nathan Kline Institute.
He also a Professor of Psychiatry and Child and Adolescent Psychiatry at NYU Langone Medical
School. His work is focused on the brain mechanisms of memory and emotion and he is the author
of The Emotional Brain, Synaptic Self, and Anxious. LeDoux is an elected member of the National
Academy of Sciences and the American Academy of Arts and Sciences. He has received the William
James Award from the Association for Psychological Science, the Karl Spencer Lashley Award from
the American Philosophical Society, the Fyssen International Prize in Cognitive Science, Jean Louis
Signoret Prize of the IPSEN Foundation, the Santiago Grisolia Prize, the American Psychological
Association Distinguished Scientific Contributions Award, and the American Psychological
Association Donald O. Hebb Award. His book Anxious received the 2016 William James Book Award
from the American Psychological Association. He is also the lead singer and songwriter in the rock
band, The Amygdaloids and performs with Colin Dempsey as the acoustic duo So We Are.

Richard Brown, Ph.D., is a professor in the philosophy program and an adjunct professor in the
psychology program at LaGuardia Community College. He is also a member of the NYU Project on
Space, Time, and Consciousness, which is sponsored by the NYU Global Institute for Advanced
Studies. He earned his Ph.D. in philosophy with a concentration in cognitive science from the CUNY
Graduate Center in 2008. His work is focused on the philosophy of mind, consciousness studies, and the foundations of cognitive science.

**Daniel S. Pine, M.D.** is Chief, Section on Development and Affective Neuroscience in the National Institute of Mental Health (NIMH) Intramural Research Program. After graduating from medical school at the University of Chicago, Pine spent 10 years in training and research on child psychiatry at the College of Physicians and Surgeons of Columbia University. Since medical school, he has been engaged continuously in research focusing on the epidemiology, biology, and treatment of pediatric mental illnesses. His areas of expertise include biological and pharmacological aspects of mood, anxiety, and behavioral disorders in children, as well as classification of psychopathology across the lifespan. Pine has served as the chair of the psychopharmacologic drug advisory committee for the Food and Drug Administration and chair of the Child and Adolescent Diagnosis Group for the DSM-5 Task Force. He has received the Joel Elkes Award from the American College of Neuropsychopharmacology, the Blanche Ittelson Award from the American Psychiatric Association, and the Ruane Prize from the Brain & Behavior Research Foundation.

**Stefan G. Hofmann, Ph.D.**, is director of the Psychotherapy and Emotion Research Laboratory at Boston University. His research focuses on the mechanism of treatment change, translating discoveries from neuroscience into clinical applications, emotions, and cultural expressions of psychopathology. He is former president of the Association for Behavioral and Cognitive Therapies, and the International Association for Cognitive Psychotherapy. He is also editor-in-chief of *Cognitive Therapy and Research* and is associate editor of the *Clinical Psychological Science*. His scientific work has been supported by grants from the National Institute of Mental Health and various private foundations. He has published more than 300 scientific papers and 15 books. He also works as a psychotherapist using Cognitive Behavioral Therapy.

Financial Disclosure
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