



Electrochemical energy, primordial feelings and feelings of knowing (FOK): Mindfulness-based intervention for interoceptive experience related to phobic and anxiety disorders

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ABSTRACT

This article presents a hypothesis that primordial feelings (e.g., pleasant, unpleasant, or neutral) may be created by the cognizing and categorizing of brain electrochemical activity. The realization of action potentials generated by neurons that cause electrochemical signals to be released and cross synapses may create primordial feelings. A primordial feeling may precede image making and mark the first moment of subjectivity while thinking. It may produce a Feeling of Knowing (FOK) that when associated with physical sensations originating within the body (i.e., interoception) cause a broadly heightened awareness of thought and become a risk factor for certain aspects of mental afflictions. The strategy outlined in this article is to use mindfulness-based interventions (MBIs) and exposure activity to break up the automaticity of habitual reactions to primordial feelings as FOKs associated with interoception and do something different. Thus the individual does not move away from the unpleasant interoceptive experience but instead stays with it and learns to not push the *not right* experience away but instead just let it be. Through mindfulness-based interventions unpleasant interoception is used to focus one's reactivity to unpleasant primordial feelings and FOKs and break up the automaticity of being driven by them. Thereby, one decides to approach these internal sensations through exposure to the interoceptive *not just right sense* instead of engaging in neutralizing activity.

Introduction

Many scientists will no doubt object to the melding of science with (other) philosophies, but when it comes to consciousness there may be useful aspects of philosophy that can assist an individual's thinking and help one imagine other possibilities, thus this kind of work may be important.

Reality as a stream of consciousness

In natural conditions, conscious moments may emerge as part of a stream of consciousness that is produced by the rapid series of sense impressions and mental events that arise and pass away, similar to how movement is created in film by a rapid succession of individual still images [1].

Sense impressions are sense organ perceptions [1,2]:

- exteroceptive body (e.g., sight, hearing, touch, smell, taste, thermoception, pain)
- proprioceptive senses (e.g., position, motion state)
- interoceptive body (e.g., physical sensations)

Mental events and conscious percepts are specific reportable content of mental life [2] as emotions, thoughts, and memories, [1] examples:

- perceptual stimuli (e.g., inner speech, dreams, visual imagery)

- fleeting present and its fading traces in immediate memory
- emotions (e.g., happiness, sadness, fear, anger, surprise, embarrassment, jealousy, guilt, and pride) [3]
- autobiographical episodes (experienced and recalled)
- expectations and effortful voluntary control
- explicit beliefs (about oneself, about the world)
- novel skills
- abstract concepts

General information about brain function and FOK

Perhaps experienced by individuals of many different species, a flow of cognition may begin with a primordial feeling and associated FOK that may be inseparable from a sense impression. This is merely basic perception [4], and conscious content may meld in a way that prevents an individual from discerning that a primordial feeling and associated FOK may have emerged before awareness of an object. Feelings of knowing (FOKs) are vague judgements, intuitions, abstract concepts and vivid expectations that are frequently important and refer to visual form, sound, taste, smell, touch, proprioception and physical sensations originating from within the body (i.e., interoception) [2]. As a quality of awareness, FOKs may be defined empirically as verifiable experiences that are reportable with high certainty but very little descriptive detail [2]. Thus FOKs are experienced as vague judgements (as opposed

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to percepts), feelings of familiarity, feelings of rightness and wrongness or feelings of beauty and goodness [2]. Habitual reactions to primordial feelings and FOKs may consist of the desire to pursue those that are pleasant and avoid those that are unpleasant [1]. This may produce a quality of awareness in the forms of attachment and aversion, respectively [1]. Interoception can originate from diverse sources including endocrine, immune and gastrointestinal systems as well as the peripheral nervous system [5]. Heightened interoception may relate to any kind of interoceptive experience. When related to cognitive aversion, it may be an unpleasant experience that is broadly characterized by a *not just right sense* that makes an individual want to do something to neutralize it. This may include an individual choosing to overthink (i.e., ruminate), explain situations in tremendous detail (i.e., a complex reassurance ritual) or engage in other neutralizing activity. Anything an individual does in response to the thought *I must do this* that is effortful and has to be done in response to the *not just right* experience could very well be neutralizing behavior. Neutralizing behavior generally has the characteristic of needing to be done in an intense or frantic manner and with perfection as one tries to resist, control, or *fix* one's fear, anxiety or ossessional thoughts.

Electrochemical information that, when liberated may serve a multifunctional role at the cellular level is needed for brain function. As such electrochemical information is necessary for unconscious events including the construction of brain maps that may be the basis for mental images. Accordingly, there is an unconscious dimension to electrochemical events that may correlate with conscious events and the reportable content of mental life. Is it possible to introduce the cognitive aspects of electrochemical information and investigate a possibility that an action potential (irritation impulse; [6]) at the cellular level correlates to a primordial feeling? An action potential releases electrochemical signals that cross synapses to activate a target tissue. The realization of the electrochemical event may be cognized and categorized as a primordial feeling (e.g., pleasant, unpleasant, neutral). This may produce a FOK (i.e., a feeling state) that creates a spontaneous affective experience of a sense impression or mental event. Due to the rapid and transient nature of primordial feelings and associated FOKs they may often go unnoticed, but when associated with interoception may serve to trigger a chain reaction of mental proliferation that can lead to suffering [1].

Overview: methods and rationale

This article proposes the implementation and melding of approaches from the Buddhist psychological model (BPM) [1] and the inhibitory learning theory (ILT) [7] as the foundation by which reactivity to primordial feelings and FOKs associated with interoception may be focused and fear may be reduced. Thus phobic and anxiety disorders may be worked with in the same manner. Included in this article are the definition of the BPM and practices used in this mindfulness-based intervention (MBI), and a definition of exposure-based therapy and ILT. Accordingly symptom reduction that may be achieved via attention regulation, insight orientated practice, and the repeated examination of the *three characteristics* (impermanence, suffering and not-self) in the objects of meditation [1] are discussed. This is combined with exposure therapy designed to reduce fear and foster more durable learning effects [7].

The BPM, mindfulness and attention regulation practice

The BPM is based on a set of Buddhist texts called the Abhidhamma Pitaka [1] and seeks to simplify mindfulness-based approaches as mindfulness and attention regulation practice (i.e., concentration practice) that may reduce symptoms and produce improvements in well-being. This model identifies mechanisms and provides a description of what may occur during mindfulness practice [1]. Mindfulness, as defined by the BPM, is the present moment awareness of the *three*

characteristics with respect to an object of meditation and is synonymous with an insight orientated practice called *Vipashyana*. The BPM does not include acceptance as an inherent aspect of mindfulness itself, rather it is an attitude that is brought to both insight and concentration practices [1]. Attention regulation practice (i.e., *shamatha*) according to the BPM does not involve observing the *three characteristics* as the focus of attention is on the object of meditation to the exclusion of everything else [1]. Thus when attention wanders it is refocused on the object of meditation in an effort to make attention on the object seem as stable and unchanging as possible [1]. The *three characteristics* serve as the core of the BPM mindfulness practice and are common to all sense impressions and mental events [1]:

- Impermanence: An individual's experience of the sensory present may last a few seconds and the cognitive present may consist of less than half a minute [2], thus sense impressions and mental events are impermanent [1].
- Suffering: According to the BPM, suffering is due to habitual reactions (i.e., attachment and aversion) to the feeling of a sense impression or mental event. Thus integral to this model is the idea that attachment and aversion arise in reaction to the feeling state itself rather than to an object of awareness [1]. A feeling state, as described by the BPM, is an immediate and spontaneous affective pleasant, unpleasant, or neutral experience of a sense impression or mental event. (There are differences in terminology due to the ambiguities related to the scientific versus English language and the BPM [1]. As defined within this article a feeling state equates to a FOK). According to the BPM, sentient beings (e.g., humans and other animals) suffer when they incorrectly assume (to varying degrees) they desire or are repulsed by an object of their awareness; in actuality it is their reaction to the feeling associated with image making that may cause attachment or aversion. This lack of awareness by an individual and misidentification of the cause of their suffering may extrapolate to their relationships. In this way, the suffering described by the BPM may also serve as a novel foundation for understanding the cognitive implications of an electrochemical event, and relationships between sentient beings and the *living environment*.
- Not Self: The human being that emerges within cognitive states is *not self* according to Buddhist thought, as sense impressions and mental events do not contain or constitute any lasting separate entity that could be called a self [1]. Instead the human being emerges in thoughts and memories that in themselves do not have a physical presence that one can touch or grasp. Could it be that primordial feelings and FOKs associated with interoception that may intimately connect brain mapping with a sense of self, also may serve to make content of the intangible (i.e., thoughts, memories) seem to truly exist? Might it be possible that primordial consciousness exists in the universe by itself in the absence of matter, like gravitational waves and excitations of space are able to exist in the absence of protons and electrons [8]?

Exposure-based therapy and ILT

Exposure-based therapy is based on the idea that pathological fear is maintained by exaggerated beliefs about danger that lead to maladaptive escape and avoidance behavior [7]. The process of inhibitory learning as described by the ILT represents a new understanding of classical conditioning extinction that basically pulls away from the idea of habituation. Thus exposure and habituation are not prohibited, but ILT is an active learning process rather than a mechanical kind of exposure process. Generally exposure involves an individual approaching their concerns in a graduated manner from the least difficult to the most difficult. Thus the process of exposure involves more challenging experiences and the things practiced in sessions become homework. The idea is that individuals will build on their success in the process of

direct exposure and learn that the concern settles more quickly than one might expect. The research as related to inhibitory learning speaks to a focus on maximizing *expectancy violations*, whereby an individual's behavior violates the expectations of another. Thereby the old learning does not go away but the new learning competes with it and changes an individual's conditioned reactivity to certain experiences. If an individual is still experiencing some anxiety after a prolonged period of time this is not as much a concern as systematically confronting all the aspects of the concern over time.

Open-mindedness and acceptance

The techniques described in ILT promote open-mindedness (i.e., fear tolerance) [7] that may include unpleasant feelings as FOKs. According to the BPM, the importance of explicitly teaching acceptance is to optimize the efficacy of mindfulness-based interventions that may reduce mental proliferation and facilitate attention regulation and mindfulness practice [1]. However, the BPM stresses that instruction and practice of acceptance should clearly delineate cognitive versus insight-based qualities of acceptance [1]. This is achieved by acknowledging the importance of cognitively based forms of acceptance while not overlooking the development of insight-based acceptance [1]. Thus by the development of insights (this may not refer to conscious reflection but instead a direct non-conceptual understanding) along with exploration into the nature of one's physical sensations and mental activities, an individual may experience a long-term reduction in habitual attachment/aversion reactions and a decrease in mental proliferation [1]. The BPM provides an explanation for the essential role of acceptance as an attitude (rather than an inherent aspect of mindfulness itself) in training both mindfulness and attention regulation [1]. This is due to an untrained mind being easily distracted by rumination or narrative thought processes, thus necessitating a repeated refocusing of attention on the chosen object [1]. Thereby during training, an attitude of acceptance and curiosity is used to bring a sense of lightness to this process [1].

'Consciousness,' fear reactions and unpleasant interoception

Momentary conscious capacity may be limited to a *cognitive quota* of up to 1–4 separate items and by chunking, stimulus organization and learning associations [2] an individual may think. Suggested by thought monitoring studies, the spontaneous flow of thoughts involves multiple *threads* of unconscious elements [2] such as when an individual will alternate between unconscious and conscious moments during problem solving [2]. Thus fundamentally all cognitive tasks may be a blend of unconscious and conscious events and an individual may experience interference effects whenever an overlearned skill is pitted against a new task [2]. As related to conscious content, when there are two mutually inconsistent perceptual ambiguities or competing inputs that include beliefs, there may be a strong consistency constraint and only one may become conscious at a time [2]. Emotions (e.g., fear) evolutionarily may serve an adaptive function as the means by which certain behaviors mobilize specific neural activity in both the brain and periphery [5]. Fear reactions may be comprised of three response symptoms [7]:

- Verbal - an individual is able to self-report their level of anxiety.
- Behavioral - an individual engages in observable escape and avoidance behaviors that serve to reduce anxiety and fear (e.g., compulsive rituals).
- Physiological - an individual experiences changes in heart rate and skin conductance.

The ability of a human being or other animal to alter its behavior as a result of experience may equate with its capacity to learn [7]. A difficult reaction for an individual to master may be finding the balance

between not trying to push an intrusive unpleasant interoceptive experience away and remaining a neutral observer of the intrusion. Thereby primordial feelings and FOKs that are experienced may produce a quality of awareness in the form of equanimity [1]. Equanimity is a Buddhist term synonymous with a *balanced state of mind* and may be a quality of primordial awareness where objects (i.e., sensory or cognitive) are viewed with neither attachment nor aversion but instead equal interest may be taken in the pleasant, unpleasant or neutral [1]. To override a habitual reaction may require logic, reasoning and willingness. Accordingly, to acknowledge an intense unpleasant primordial feeling as a FOK melded with interoception in the *here and now* without impulsively trying to stop it may require actions that flow opposite the *evolutionary grain*. Thus it is not surprising numerous studies have shown that fear learning easily generalizes across contexts, yet inhibitory (i.e., safety) learning does not [7].

Unpleasant primordial feelings as FOKs associated with bodily sensations (i.e., interoception) may be experienced by individuals as being fundamentally distressing because they signal in an intense but vague way that things are not right. An initial sense impression associated with a primordial feeling as a FOK often triggers mental proliferation as a series of mental events [1], and interoception may be encoded into affective feelings. These include nociception, disgust and empathy [5] and as such are different from primordial feelings as FOKs. When an individual is attached or aversive to a primordial feeling and FOK, they may experience an impulse and/or urge to pursue to induce, or avoid as a means to end it [1]. When an individual gets an interoceptive experience that is fundamentally unpleasant and unpleasant in the sense of it connecting with a *not right feeling* (i.e., an unpleasant FOK), they may want to do something to alleviate the very unpleasant feeling. This may involve a shift into complex cognitive activity to try to figure it out, settle it and/or do something with it. Thus individuals hypersensitive to pleasant or unpleasant primordial feelings as FOKs associated with bodily sensations (i.e., interoception) may try to modify the flow of conscious events. They may try to suppress thinking and this can cause a rebound effect where more of the same unpleasant interoception is experienced. Individuals with a history of hypersensitivity to primordial feelings and FOKs associated with interoception since early childhood may be quite skilled at mentally compartmentalizing. Thus they unknowingly teach themselves to compartmentalize their mental experience, and may be vividly aware of bodily sensations melded with pleasant or unpleasant primordial feelings as FOKs, and are able to cognitively separate them from mental events (i.e., emotions, thoughts, memories).

Return of fear (ROF)

Anything associated with an interoceptive unpleasant sensation and *not just right* experience may be at risk to connect to it in a variety of different ways. Thus every time an individual has the interoceptive sensation in the future, the drive for those associated thoughts that are inadvertently connected to it might be there. In this way, the original threat association (e.g., unpleasant interoception) that was acquired over a longer period of time has likely generalized to multiple contexts and thereby becomes progressively more accessible [7]. Thus an individual that may have undergone partial or complete extinction of the fear response to an unpleasant interoception may experience a return of fear (ROF; 7). For example, when unpleasant interoception is paired with a distressing intrusive thought as images, this may result in a conditioned fear response (e.g., fear, escape) in one context and occurs during fear acquisition. When the same unpleasant interoception is presented without a distressing intrusive thought as images (thus in a different context) and during a period where there is extinction of the fear response, renewal as ROF may occur. In this way, ROF may occur when unpleasant interoception is encountered in the original context or a novel one [7]. When an individual has responded to those *not right* sensations with certain kinds of behavior such as engaging in over

thinking one might say, these are effortful activities that may be there because of over learning and become automatic. In order to break the neutralizing activity one may need to break the fundamental connection between a distressing feeling (e.g., unpleasant interoception) and what one does to actively manage it to discover the fundamental discovery that settles not-rightness.

Fear extinction

Exposure therapy seeks to maximize a form of associative learning termed fear extinction whereby an individual repeatedly confronts fear-eliciting stimuli as conditioned stimuli (e.g., unpleasant interoception), in the absence of an aversive unconditioned stimulus (e.g., distressing intrusive thought as images) [7]. Research speaks to a conditioned stimulus (e.g., an unpleasant interoception) predicting both the occurrence as well as absence of the unconditioned stimulus (e.g., distressing intrusive thought as images) [7]. According to ILT, there is benefit to the learning of fear extinction when an individual experiences:

- Transformation as related to expectancies about the likelihood and severity of the feared consequences. Thus an individual no longer expects distressing intrusive thought as images (i.e., unconditioned stimulus) that follow unpleasant interoception (i.e., conditioned stimulus).
- Transformation as related to behavior whereby an individual approaches unpleasant interoception (i.e., conditioned stimulus) rather than engaging in escape/avoidance behavior [7].

Research points to the demonstration of superior long-term outcomes for individuals who learn to tolerate varying levels of anxious arousal during exposure [7]. However, research also suggests that even with successful exposure, obsessional fear is not *unlearned* and fear-based associations do not disappear but remain in memory and compete with newly learned non-threat associations [7]. According to ILT, exposures should be engineered to maximally violate expectations and require that [7]:

- An individual remain exposed to the feared stimuli (e.g., unpleasant interoception) for longer than one anticipates would be *safe*.
- An individual remain exposed to the feared stimuli (e.g., unpleasant interoception) at more intense levels than one anticipates would be *safe*.
- An individual remain exposed to the feared stimuli (e.g., unpleasant interoception) with greater frequency than one anticipates would be *safe*.

Fear tolerance and desirable difficulties

Fear tolerance may be accomplished (according to ILT) by introducing desirable difficulties into the application of exposure therapy in various ways [7]. The desirable difficulty may be an unpleasant interoception (i.e., conditioned stimulus) when an individual willingly chooses it as the focus of attention and object of meditation. Thus attention regulation and insight orientated practice may be engineered to contain the required information to mismatch one's fear-based expectations (e.g., *I can't tolerate unpleasant interoception; Anxiety will persist forever*); [7].

When an individual engages in both attention regulation and insight orientated practices as exposure trials, and where an unpleasant interoception is the focus of attention and object of meditation (i.e., desired difficulty), this may introduce variability. According to ILT, variability is important for the prevention of ROF as a result of a context change after extinction [7] for these reasons:

- When an individual engages in repeated practice they afford themselves the opportunity for corrective learning to occur and this

promotes greater storage and retrieval strength to enhance long-term retention.

- When an individual engages in practice where there is increased diversity as related to the conditions under which learning takes place, a greater number of retrieval cues are generated. These cues trigger areas of the brain such as the hippocampus and memories of the learning that occurred during exposure may improve the process by which learning may be generalized.
- When an individual has to engage in analyzing, evaluating, and synthesizing what is being learned as opposed to simply remembering in order to develop a common strategy for handling fear cues across contexts, learning is maximized [7].

Mindfulness-based intervention may prevent context renewal and ROF by introducing added challenges during exposure trials as meditative sessions and in-between sessions when practiced similarly. Thereby individuals learn experientially that an unpleasant bodily sensation (e.g., an unpleasant interoception) that emerges intrusively *just is*. Rather than unpleasant interoception serving as the cue to engage in neutralizing behavior, it cues an individual to focus their reactivity to primordial feelings and FOKs, and go towards stimuli that used to drive them. Thus a desirable difficulty as unpleasant interoception strengthens fear tolerance, as one learns that fear is an opportunity to practice managing distress, as opposed to a sign of relapse or failure [7]. Attention regulation practice and insight orientated practice may maximize long-term learning by introducing ubiquitous real-world challenges that have the added benefit of maximizing the retrieval of newly learned information [7] when practiced in this way:

- Attention regulation practice (i.e., during meditative sessions) - multiple and/or sustained daily meditative sessions of increasing duration with an unpleasant interoception as the focus of attention and object of meditation to the exclusion of everything else [1].
- Attention regulation practice (i.e., in between meditative sessions) - an unpleasant interoception is used as the object of awareness to focus [1] reactivity to unpleasant primordial feelings and FOKs.
- Insight orientated practice (i.e., during meditative sessions) - impermanence, suffering, and not-self (i.e., the *three characteristics*) [1], where interoception serves as the object of mediation and is viewed with neither attachment nor aversion; instead equal interest is taken in the pleasant, unpleasant, or neutral [1].

Structured exposure as meditative sessions may appear contradictory to exposure, stopping, focusing on aspects of intrusions (e.g., unpleasant interoception), and the core nonresponse an individual is working toward achieving. Nevertheless repeated exposure may afford an individual the time needed to achieve neural plasticity in order to maximize the likelihood that new non-threat associations will inhibit the retrieval of older threat associations (a goal of exposure according to ILT) [7]. Broadly defined, *neural plasticity* is the ability of the nervous system (during development and in the adult brain) to adopt a new functional or structural state in response to extrinsic and intrinsic factors [9]. Thus behavioral experience as repeated synaptic activity may have long-lasting structural and functional effects on the neural circuits of the brain including alterations in dendritic trees, growth of new axons, and the formation of new synapses via neural plasticity. Maladaptive neural plasticity also exists and may account for many developmental and acquired mental afflictions as well as neurodegenerative brain disorders [9].

Inadvertent strengthening of aversive reactions

What may be fundamentally important is for an individual to be mindful of their responses and to catch themselves when engaging in behavior with the goal of immediate symptom reduction (i.e., neutralizing behavior). Interoception as physical sensations associated with

respiration may be commonly experienced with a neutral primordial feeling and FOK. Accordingly, when an individual is surprised by an intrusive unpleasant interoception simply shifting their focus to respiration may invoke a sense of calm. However, by doing this an individual is using attention regulation and redirecting their attention preferentially to the breath in an attempt to achieve immediate symptom reduction [1]. Thus an individual may inadvertently strengthen their aversive reactions with an attention regulation intervention, rather than mindfully examining the transience, suffering and not-self characteristics [1] of the unpleasant interoception.

An illustration of the proposed integration of BPM and ILT

The practice of mindfulness-based intervention and engaging in exposure based-therapies could be potentially destabilizing [1]. A detailed description of this is beyond the scope of this article but may be properly managed by those sufficiently experienced to safely and effectively guide practitioners [1]. When working with individuals with obsessive compulsive disorder (OCD) it is important for clinicians to consider that there are some individuals with early childhood onset OCD who may have experienced some, if not all of the four theme-based symptom dimensions [7]:

- contamination obsessions and decontamination rituals.
- obsessions about being responsible for harm and checking rituals.
- obsessions and rituals related to symmetry, completeness, and the need for things to seem *just right*.
- unacceptable obsessional thoughts (e.g., concerning violence, sex, or religion) and mental neutralizing rituals.

These individuals may represent a more complex presentation of OCD and the clinician should have a thorough understanding of how their concerns work. This includes their obsessional intrusions and what their compulsion and neutralizing activities are. The patient may have an idea of how to do that if they will be forthcoming in sharing that and/or they may engage in exposure therapy on their own. OCD as a heterogeneous condition requires adaptation [7] and there may be individuals who may intuitively select exposure on the basis of life interference with the goal of ending thoughts, impulses, and/or urges that conflict with their values. Individuals that are hypersensitive to interoception may find these pleasant and/or unpleasant intrusive physical sensations interacting with OCD in an incredibly difficult manner. Bodily sensations that may include uncontrollable involuntary motor activity as impulses and/or urges may result in over activation as related to negative intrusive thoughts. Thereby these individuals may experience intrusive interoception followed by thoughts with content they are most horrified about, and whatever they think would be the most awful thing to happen. Some of these individuals may react to the intrusive interoceptive experience by acting on the intrusive thought as a way to neutralize discomfort, and because they want to have neither the bodily sensation nor the thought anymore. The individual with OCD may get an intrusive interoceptive experience and like everyone else does not have control of which thoughts will come up. They do not like having negative intrusive thoughts, but with intrusive interoception present they may try to neutralize. Varying levels of interoception may originate from diverse sources (e.g., pelvic nerve hypersensitivity, hyperthyroidism, onset of menopause, overactive bladder) and for individuals that are hypersensitive to primordial feelings and FOKs, bodily sensations may be interpreted as being fundamentally important. Thus interoception may serve to motivate these individuals to search for absolutes that manifest behaviorally in many different ways. Accordingly, they may act on intrusive thoughts as a way to neutralize

discomfort and yet many clinicians remain unaware of this presentation. A clinician who lacks understanding of these complexities may misinterpret an individual's motivation and overreact in a way that produces negative effects that may seriously compromise a patient's welfare.

Conclusion

Similarities between individuals' reactions to unpleasant interoception may afford an opportunity for phobic and anxiety disorders to be worked with in the same manner by the implementation and melding of approaches from the BPM [1] and the ILT [7]. Unpleasant interoception (i.e., conditioned stimulus) hypothetically may serve as an alternative approach whereby patients willingly confront stimuli that may provoke fear with strategies derived from the BPM [1] and ILT [7]. This may experientially empower an individual with techniques that may serve to break the fundamental connection between a distressing feeling (e.g., unpleasant interoception) and what one does to actively manage it, to discover the fundamental discovery that settles not-rightness. Fundamentally what it comes down to is when an individual is feeling the unpleasant aspects of one of these interoceptive experiences (i.e., *not just right sense*) driven by this internal sensation they may neutralize, typically with effortful elaborative thinking of some sort or some other neutralizing activity that could be more external, and the MBI and inhibitory learning enables one to not do the neutralizing. This approach may minimize the occurrence where an individual might be categorized as a non-responder and perhaps may reduce the number of individuals that may experience at least partial relapse. However, further research is needed to generate empirical data regarding the clinical utility of this approach.

Declaration of Competing Interest

The author declares that she has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

- [1] Grabovac AD, Lau MA, Willett BR. Mechanisms of mindfulness: a buddhist psychological model. *Mindfulness* 2011;2(3):154–66.
- [2] Baars, B. Consciousness. <https://doi.org/10.4249/scholarpedia.2207> 2015. Accessed 19 February 2020.
- [3] Damasio A. *Feeling of What Happens: Body and Emotion in the Making of Consciousness*. New York, NY: Mariner Books; 2000.
- [4] Khyentse D. *The Collected Works of Dilgo Khyentse Volume One*. Boulder, CO: Shambhala Publications; 2010.
- [5] Amole MC, Aue T, Balconi M, Bylsmab LM, Critchley H, Demareef A, et al. Physiological feelings. *Neurosci Biobehav Rev*. 2019;103:267–304.
- [6] Roshchina VV. Evolutionary considerations of neurotransmitters in microbial, plant, and animal cells. In: Lyte M, Freestone P, editors. *Microbial Endocrinology*. New York, NY: Springer; 2010. p. 17–52.
- [7] Jacoby RJ, Abramowitz JS. Inhibitory learning approaches to exposure therapy: a critical review and translation to obsessive-compulsive disorder. *Clin Psychol Rev*. 2016 Nov;49:28–40.
- [8] Linde, A. (n.d.). UNIVERSE, LIFE, CONSCIOUSNESS. <https://static1.squarespace.com/static/54d103efe4b0f90e6ca101cd/t/54f9cb08e4b0a50e0977f4d8/1425656584247/universe-life-consciousness.pdf> 199Accessed 6 April 2020.
- [9] Ganguly K, Poo M. Activity-dependent neural plasticity from bench to bedside. *Neuron* 2013;80(3):729–41.