

EMOTIONAL REACTIVITY AND PERSONALITY DIFFERENCES: AN EMERGING BASIS FOR EVALUATING AND TREATING CHRONIC ILLNESSES

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Abstract:

Some people, due to a genetic variant, are markedly more sensitive to their emotional environment than other people. The Orchid-Dandelion hypothesis of Ellis and Boyce anticipated this discovery, equating "orchid" personalities with greater vulnerability but also greater potential to thrive. We present the concept of Boundaries as foundational to understanding sensitivity thresholds. Individuals' degree of physiological reactivity, as studied by Kagan, appears to predate and condition introversion, extroversion, and additional personality traits. Aron's investigation of highly sensitive people corresponds with Kagan's findings. Hartmann's Boundary construct is presented as a means of assessing this essential difference in sensitivity among people. His approach examines personality on a spectrum of "thick boundary" to "thin boundary." We propose that one's boundary type has a direct bearing on susceptibility to various chronic illnesses. The value of knowing one's boundary type may also be extended to treatment modality, offering a truly personalized form of medicine.

Hippocrates stated, "It is more important to know what sort of person has a disease than to know what sort of disease a person has." His insight was correct then and it remains correct today. If anything, recent discoveries

from medicine and psychology are demonstrating that the *intersection* of person and illness will surely yield the most useful insights about the nature of chronic illness and, indeed, human nature itself.

As one especially salient example, Fox et al^[1] have demonstrated that some people, due to a genetic variant, are markedly more sensitive to their emotional environment than are other people. This research focused on the serotonin transporter gene. Previous studies had found that people with a 'short' version of the gene tend to pay more attention to negative or potentially threatening information. This negative bias is characteristic of many anxiety related disorders.

The findings of Fox, et al, however, revealed that individuals with the short version of the serotonin transporter gene were also more sensitive to *positive information*. According to the lead researcher, such people "are likely to be far more reactive to both very negative situations, such as a car crash, and very positive ones, such as a very supportive relationship." The short version of the gene can thus be viewed as conferring enhanced adaptability as well as greater vulnerability. In contrast, people with the long version of the gene are likely to be less influenced by negative stimuli but also less able to benefit from a highly positive emotional environment.^[2]

This insight regarding personality differences was effectively anticipated by Ellis and Boyce^[3] in 2008. They presented the Orchid-Dandelion hypothesis, which characterizes certain genes as "orchid" genes, after the flower whose blooms are spectacular but which also requires great care to cultivate. If the environment is supportive, according to Ellis and Boyce, a person with orchid genes will probably thrive – and possibly succeed in spectacular ways. But if neglected, or subjected to negative emotional input, such a person may

develop an anxiety disorder and find her or himself 'wilting.' Other people, however, are more resistant to the vicissitudes of life and less subject to the relative quality of their nurturance. They are more numerous and more hardy. They are the "dandelions."

Such constructs indicate that environmental stimuli can be deterministic, as genes were once believed to be, while the effects of the genome can be as malleable as only environments were believed to be. To persist in the debate over nature versus nurture now seems as futile as asking which feature of a rectangle – length or width – makes the most important contribution to its area.^[4]

Additionally – and perhaps even more importantly – there are implications for personal health. According to Fox, the discovery regarding the serotonin transporter gene "opens the door to the idea of personalized treatments for anxiety disorders. Information about the genotype...of a patient could be used to inform decisions about which treatments...are likely to be most effective."^[5]

In our estimation, the prospects are even more broad and intriguing than that. If we start by considering what may be the most fundamental of all personality traits – i.e., one's degree of sensitivity (or reactivity) to the environment – and then apply a means of *assessing* this most essential difference between people – then a new framework results for understanding why one person develops one type of chronic illness while someone else develops a different chronic condition. Furthermore, another door is opened to a personality-based method of identifying the integrative medical treatments most likely to help individuals affected by different forms of chronic illness. Such an approach reflects a truly holistic understanding that

people differ according to genomic, phenotypic, environmental, experiential, and phenomenal factors that, together, influence their propensity to express particular types of illness.^[6]

Boundaries: The Crucible of Personality

In the words of psychologist James Hillman,^[7] “There is only one core issue for all psychology. *Where is the ‘me’?* Where does the ‘me’ begin? Where does the ‘me’ stop?” Where does the ‘other’ begin?” This question can be considered equally central for biology, immunology and, as we shall see, personality studies.

Simply put, selves require boundaries. From an evolutionary perspective, even the most primitive creatures have a physical boundary (whether skin or another form of membrane) to discriminate ‘in here’ from ‘out there.’ The separation allows sensory stimuli to be processed, nutrients to be taken in, and waste products to be discharged. Such a boundary literally defines the individual.

Through the development of nervous systems over the eons, some animals became capable of assessing what was happening to them in a more sophisticated way, and of determining what was to be done about it (approach, avoid, chase, etc.). Brains gradually emerged in tandem with this ongoing, sensory-based assessment. Indeed, the more advanced a species became, the better it could understand what was happening to it, not simply receiving the incoming stimuli, nor even ‘per-ceiving’ them, but also relating to these stimuli – linking them to their sources and being curious about those sources. Human beings, in particular, developed the

ability to wonder broadly about the world and systematically explore (and exploit) the environment.

As individual selves, we are “self conscious,” i.e., conscious of our own existence. We notice what is happening to us but we also do more – we feel something about it, we think about it, we remember, plan, dream, imagine, and create. By being *bounded* within our bodies, we are ultimately enabled to have distinct minds and personalities.^[8]

This fundamental quality of boundedness is reflected in the following definition of personality: “a person as the embodiment of distinctive traits of mind and behavior.”^[9] *Embodiment is key.* The physical boundary between ‘me’ and ‘not me’ literally defines the individual as a living being, and provides the foundation for our unique personalities.

One might surmise, from the foregoing, that introversion and extroversion (i.e., staying within one’s boundary, on the one hand, and exploring beyond it, on the other) constitute the most basic of all personality traits. But Kagan^[10] has provided compelling evidence that one’s level of reactivity is a precursor to these traits. Highly reactive infants – those who are highly sensitive to environmental conditions – are likely to grow into introverted people, whereas low reactive infants – those who are relatively undisturbed by environmental stimuli – are likely to become extroverted individuals. Physiology (as measured by heart rate, blood pressure, finger temperature, etc.) predates personality.

Work by Aron corresponds with Kagan’s observations concerning high-reactive people. Aron’s term for them is “highly sensitive people” and she describes them as follows:^[11]

Highly sensitive individuals are those born with a tendency to notice more in their environment and deeply reflect on everything before acting...They are also more easily overwhelmed by "high volume" or large quantities of input arriving at once....

Mainly, their brains process information more thoroughly. This processing is not just in the brain, however, since highly sensitive people, children or adults, have faster reflexes...are more affected by pain, medications, and stimulants; and have more reactive immune systems and more allergies. In a sense, their entire body is designed to detect and understand more precisely whatever comes in.

She adds that such people are "unusually empathetic," feeling their own feelings and paying heed to others' emotions intensively. They also tend to have rich inner lives (with complex, vivid dreams) and come across as highly perceptive, creative and intuitive when able to surmount what often is a natural inclination toward shyness, fearfulness, stress, and withdrawal.^[12]

The accumulation of such evidence suggests that one's degree of reactivity to outside stimuli predates and conditions subsequent personality traits.^[13] Not just introversion/extroversion but other well-accepted and proposed dimensions of personality – including novelty seeking, harm avoidance, conscientiousness, agreeableness, neuroticism, openness to experience, resilience, positive emotionality, etc. – are inevitably shaped, in our estimation, by one's degree of environmental sensitivity. Put another way, we are all sculpted by the "thinness" or "thickness" of our personal boundaries.

A Measure of Boundaries

A means to assess the relative permeability of individual boundaries would, for the reasons described above, make a substantial contribution to understanding human health. The construct of Boundaries, as developed by Hartmann,^[14] helps accomplish this goal.

Hartmann suggests that everyone falls somewhere along a spectrum from “thick boundary” to “thin boundary.” Thick boundary people seem thick skinned: not so much gets to them. By contrast, thin boundary people seem thin skinned: lots of things get to them. Thick boundary people are stolid; thin boundary people are sensitive. Internally, thick boundary people are less aware of what they’re feeling in general than thin boundary people, who are often extremely aware. Adjectives that tend to apply to thick boundary people are rigid, calm, deliberate, well organized (they keep everything “in its place”), persevering. Adjectives that tend to apply to thin boundary people are open, vulnerable, reactive, flexible (they see “shades of grey”), agitated.^[15] As with other dimensions of personality, most people are somewhere near the middle of the spectrum versus either extreme.

Since the 1980s, at least 5,000 people have taken Hartmann’s Boundary Questionnaire (BQ) and more than 100 published papers have referenced it. The scores on the BQ are distributed across the spectrum of boundaries in a Bell-shaped curve. Women tend to score significantly thinner than men, and older people tend to score somewhat thicker than younger people.^[16] Research comparing and contrasting BQ score with better established and more well-known personality constructs has disclosed a high correspondence between thin boundaries and openness to experience, between thin boundaries and absorption, between thin boundaries and the Myers-Briggs

Inventory (MBTI) characteristic of intuition, and between thick boundaries and the MBTI characteristic of sensing.^[17]

The accumulated evidence shows that thin boundary people are highly sensitive in a variety of ways and from an early age:^[18]

- They react more strongly than do other individuals to sensory stimuli and can become agitated due to bright lights, loud sounds, particular aromas, tastes or textures.
- They respond more strongly to physical and emotional pain in themselves as well as in others.
- They can become stressed or fatigued due to an overload of sensory or emotional input.
- They were more deeply affected, or recall being more deeply affected, by events during childhood.

Thick boundary people (synonymous in many respects with the better known "Type C" personality^[19]) are considerably different:

- They tend to brush aside emotional upset in favor of simply 'handling' the situation and maintaining a calm demeanor.
- In practice, they suppress or deny strong feelings. They may experience an ongoing sense of ennui, of emptiness and detachment.
- Experiments show, however, that thick boundary people don't actually feel their feelings any less. Physiological indicators (e.g., heart rate, blood pressure, blood flow, hand temperature, muscle tension) betray their considerable agitation despite surface claims of being unruffled.^[20]

In sum, highly thick boundary people don't take in nearly as much in their environments as thin boundary individuals and are much slower to recognize what they're feeling. However, they are affected just as much by what is happening within.

Value of Knowing One's Boundary Type

In our view^[21], a person's characteristic style of processing emotional stimuli has a direct bearing on the kind of illnesses to which he or she will be susceptible. Highly sensitive (i.e., thin boundary) people are especially susceptible to a range of anxiety disorders, such as post-traumatic stress disorder (PTSD) and irritable bowel syndrome (IBS) as well as conditions that plainly mirror their characteristic hyper-reactivity (such as allergies, asthma, and migraine headache). Staunch, thick boundary people, who aren't nearly so reactive, are more susceptible to different illnesses. These include ulcer, hypertension, chronic fatigue syndrome (CFS), and rheumatoid arthritis.

Our work builds on the observations of Kagan, who noted that the highly reactive children he studied were prone to hay fever and eczema.^[22] Aron, similarly, points out that highly sensitive people are more allergic and their immune systems are seemingly more reactive.^[23] Researchers at the Centers for Disease Control found that people suffering from CFS have a bodily stress control system – in the form of the hypothalamic-pituitary-adrenal (HPA) axis – that is more susceptible to overload.^[24] Our correlation of boundary type with various chronic conditions considers the functioning of the HPA axis in different people.^[25]

Increasing evidence also appears to link manifestations of migraine^[26], IBS,^[27] PTSD,^[28] and depression^[29] with early trauma and adverse childhood experiences. These cases might be considered examples of “orchid” children who, if brought up in harsh, haphazard, inattentive or distressed environments, would be expected to succumb to them. Thin boundaries, we suggest, will be shown to be characteristic of such “orchids.” Recall that individuals with the short version of the serotonin transporter gene are more sensitive to positive influences as well as negative. This baseline sensitivity is what defines thin boundaries.

The value of knowing one’s boundary type extends also to treatment modality. Since specific forms of integrative medicine are known to alleviate the symptoms of particular kinds of chronic illness,^[30] the model of thick and thin boundaries presented here may help guide an applicable ‘menu’ of integrative therapies. (The most extensively studied are acupuncture, biofeedback, guided imagery, hypnosis, meditation, relaxation/stress reduction, and yoga.^[31]) This would represent truly personalized medicine – more practicable, accessible, and cost-effective than any genetic testing could be.

A Major Change in Outlook

Historically, scientific and medical authorities accepted without reservation that the mind was different than, and somehow separate from, the body...that the head’s place was to rule the heart...that the nervous system, immune system, and endocrine system were entirely separate from each other...that either nature or nurture was bound to be predominant in the development of human personality...and that certain conditions were “all in a person’s head.” That someone could suffer inexplicable pain or fatigue (or,

alternately, that someone could get better from a placebo) was attributed to the condition or its cause being “psychosomatic” – and deemed unworthy of serious scientific scrutiny for that reason.

We now know that those presumptions were wrong. The mind, it turns out, is a functional amalgam of the brain *and* the body – two sides of the same coin.^[32] The part of the brain specializing in rational thought, the neocortex, is literally bypassed in cases of emergency;^[33] meanwhile, our gut has its own nervous system that can take precedence over what the ‘upstairs’ brain thinks.^[34] The nervous, immune, and endocrine systems are in constant contact with each other, influencing one another reciprocally.^[35] Nature and nurture have likewise been found to collude in the formation of personality; genetic predispositions either come to pass or not based on factors in the person’s environment.^[36] Furthermore, a range of widespread modern maladies (consider depression for a start) demonstrates that we are complex, psychosomatic creatures – influenced by feelings, memories, and impressions that are no less real or valid for being outside of conscious awareness.^[37]

We propose it is time for two more sacred cows to be tipped over. One of these states that all people with a given medical diagnosis are essentially the same, so that if person x has the same condition as person y, then they both should derive benefit from the same treatment z. The second belief is equally simplistic and misguided. It implies that someone either has an illness or does not, making him or her either “normal” or “abnormal.”

As is evident through an understanding of Boundaries, however, personality predilections vary along a spectrum from extremely thick to extremely thin. Where science and medicine can make the most headway is through an

appreciation that both human nature and chronic illness occur along a continuum. This “spectrum” approach to both person and illness is on the way to replacing the linear model that is today’s convention.^[38]

When a given disorder stubbornly defies standard medical treatment, it is usually not productive to try to segment the problem as either physical *or* psychological, and to prescribe more or different medication in the hope that the symptoms will just go away. Instead, by examining the necessarily complex intersection of individual patient with medical condition, we shall learn the most about both, and treat the individual most humanely and effectively.

Conclusion

Because human beings are bounded within their bodies, they are enabled to have distinct minds and personalities. The “thinness” or “thickness” of one’s boundaries is synonymous with one’s physiological and emotional reactivity, i.e., one’s sensitivity. Other dimensions of personality are affected, to one degree or another, by one’s characteristic level of sensitivity. Hartmann’s Boundary construct shows great promise in evaluating this most fundamental difference among people. This approach presents a personality based method of identifying the integrative medical treatments most likely to help individuals affected by different chronic conditions. Ultimately, both personality and illness lie along a continuum. This “spectrum” approach ought to supersede more diametric notions of normality, health and illness.

NOTES

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