Medical and mental health practitioners recognize that stress reactions and anxiety play a part in physical and psychiatric symptoms, but they are often confounded by differences in the severity and nature of symptoms, by the combinations of symptoms that often shift within the person or within the family, and by the variant responses to treatment. Bowen family systems theory provides a wider lens with which to view the interaction between factors at play in the development of symptoms and in the responses to treatment. This article describes a natural systems view of symptoms, provides an overview of the neuroscience and stress research that helps make sense of symptoms, and illustrates this perspective with a case example.

**Bowen Theory and a Natural Systems View of Symptoms**

A systems view of symptoms offers an alternative to cause and effect thinking and to the focus on an individual unit—whether cell or person or organism—as the problem (GAP 1970). Murray Bowen (1913–1990) developed a natural systems theory of human functioning, based on the study of the family as a system and upon research from evolution and the natural sciences. He organised careful observation of families into eight concepts and described two fundamental forces to provide a comprehensive framework for understanding symptom development and responses to treatment and therapy. Bowen theory also provides guidelines and operating principles for psychotherapy.

The broader implications for the shift from medical models to natural systems thinking are described throughout Bowen’s classic collection of papers, *Family Therapy in Clinical Practice* (Bowen 1978).

The human family has evolved degrees of emotional connectedness between kin, such that the biology and behaviour of each individual is regulated by patterns of reacting and relating over generations within the family. Human emotion is grounded in the automatic reactivity of all life and is responsible for the allocation of energy toward survival of the individual organism, toward relationships in the family, and toward reproduction, brain development and learning. Calories, biochemistry, oxygen, ergs, neurogenic, psychic, and social energies are all aspects of energy allocation. Individual metabolism, physiology and psychology are regulated in relation to the stability or stress within the relationship system and by the intensity of emotional fusion or level of differentiation of self.

Emotional fusion is a term that Bowen developed to capture the extent to which family members are ‘stuck together’ or connected in such interdependent fashion that reactivity in one register is in all. Degrees of emotional fusion are present for everyone and in every family. The intensity varies with the levels of differentiation of self.

The ‘scale of differentiation of self’ describes a continuum from lower to higher degrees of fusion between family members that corresponds to the interplay between emotional and intellectual functioning within individuals. Bowen wrote: ‘There are varying degrees of fusion between emotional and intellectual systems in the human. The greater the fusion between emotion and intellect, the more the individual is fused into people around him ... and the less he is able to consciously control his own life (Bowen 1978:305).’ That said, it is possible for men to discriminate between the emotions and the intellect and to slowly gain more conscious control of emotional functioning (Bowen 1978:105).

With greater differentiation of self, individuals are more separate from others and can better moderate emotional reactivity and interrupt anxious reactions within self. People can recognise more of the choices they have for allocating energy, time and attention. They can define life principles and steer by them. At lower levels of differentiation, individuals are governed more by reactivity in relationships and by reactions to each other. The level of differentiation influences the intensity of anxiety and sensitivity one experiences in reaction to specific stress factors.

In Bowen theory, anxiety is defined as emotional reactivity to threat, real or imagined. Although there may be differences between stress and anxiety, the terms are used interchangeably in this article. When circumstances threaten the stability of the individual, his/her relationships or important others, anxiety reactions shift the available energy to fuel efforts to deal with threats. Anxiety is reflected in physiological and biochemical reactions, shifts in brain activity (i.e., perception, thinking and feeling), behaviours and relationship patterns. Each influences the other in the dynamic of emotional triangles.

Emotional triangles are fundamental to human relationship systems. Reactivity between any two people is regulated in their relationship with a third person. Anxiety reactions cycle and circulate in triangles, producing patterns of closeness and distance, conflict, alliances, focus on problems in another, dependence and functioning for others, and symptoms in an individual.

With the involvement of a third person, the anxiety level decreases. It is as if the anxiety is diluted as it shifts from one to another of the three relationships in a triangle (Bowen 1978:400).

**Physiological Reactivity, Anxiety & Symptom Development**

Physiological reactions are regulated in relationship triangles (Harrison 2014). Anxiety reactions are stirred when relationships are disturbed. In his article ‘Physical Illness and the Emotional Systems’, Michael Kerr wrote: ‘An individual’s adaptive capacity is most strained by events that have the following types of impact: 1) threaten his emotional connections with others; 2) increase the anxious focus of others on himself; 3) increase his dependence on others; 4) increase the dependence on others on him; 5) threaten the functioning of others upon whom he is dependent; or 6) increase his level of responsibility (Kerr 1992:166).’

Steve Porges, Director of University of Illinois Brain Body Center, describes the sequence of reactions to threat based upon the evolutionary lineage of the autonomic nervous systems (ANS). The human ANS incorporates three different physiological pathways that operate somewhat in sequence. The most recently evolved mammalian vagal pathway connects facial and cranial nerves with the heart to facilitate engagement and detachment from the social environment. Initial reactions to threat activate this mammalian vagal circuit built to quickly assess information about relationships as a reference point for stability. This is accompanied by increased corticotrophin-releasing factor (CRF) in the central nervous system. If relationships are absent or anxious, sympathetic nervous system (SNS) activity and increased adrenalin allocate oxygen and energy to fuel flight or flight responses through innervation of hollow vessels throughout the body. Skeletal muscle tension increases. Increasing levels of prolactin, oxytocin, and vasopressin fuel protection reactions. Dopamine may activate the reward system for problem-solving or risk-taking.

When SNS strategies are ineffective and stress is sustained, the hypothalamic–pituitary axis (HPA) is activated, circulating the hormone cortisol throughout the blood stream. Cortisol prepares the organism for ongoing challenge and cycles back to the central nervous system, where it turns off activating hormones. Prolonged stress reactions disturb this homeostatic nature of cortisol (McEwen 2002, Sapolsky 1994, Calogero et al. 1988). Chronic anxiety triggers the ‘old vagal visceral pathway’ between the brain and gut with “freeze or sleep or play dead” reactions that conserve energy and are often experienced as nausea, exhaustion and depression (Porges 2009).

Symptoms reflect the family systems’ efforts to adapt to changes that challenge familiar patterns of relating and reacting. At lower levels of differentiation, emotional fusion between family members magnifies the anxiety experienced by individuals. Health problems, social or behavioural problems, relationship disruption, psychiatric diagnoses, and other symptoms are produced when habits of reacting and patterns of adapting do not stabilise the system.

Biofeedback and neurofeedback instruments are used to measure aspects of anxiety reactions. Electrodermal Response (EDR) measures electrical activity that increased adrenalin, an indicator of SNS activity, produces at the palm. Digital Skin Temperature (DST) measures changes in temperature that occur when SNS activity produces vasconstriction in the little vessels that carry blood and oxygen through the fingertips. Electromyography (EMG) records skeletal muscle activity associated with tension or fatigue. Levels and patterns of physiological reactivity indicate stability, relaxation, excitement and exhaustion associated with acute and chronic anxiety (Amar et al. 1993, Rosenbaum 1989).

Neurofeedback instruments measure electrical activity produced throughout the brain using sensors placed in various locations on the scalp. Patterns of electrical activity are depicted in the strength of signals emitted, indicating the allocation of energy for emotional reactivity (brain stem and limbic system) and for cognitive or intellectual systems in the left and right hemispheres. Left hemisphere activity is associated with the survival of the individual organism, and activity from the right hemisphere is associated with relationship reactions (Zimmer 2005). Neuronal signals that have been recorded indicate what John Allman and other neuroscientists consider bridges, which allow intellectual activity to inform and moderate emotional reactions (Allman 1999, Panksepp 1998). Neurofeedback and biofeedback instruments, used in the context of psychotherapy based in Bowen theory, provide information about activity for the purposes of self-regulation and work on the differentiation of self.
Psychotherapy Based in Bowen Theory
Psychotherapy based in Bowen theory begins with a “survey of family fields” to establish a view of symptoms in the context of facts about the family (Bowen 1978:170-173). Interruption of anxiety begins in the first session as a family member responds to factual questions about the presenting situation and its impact on family members. Biofeedback and neurofeedback instruments make visible to the client reactions that one can begin to recognize and change. Ongoing work on differentiation of self within the familial frame is the basis for sustained change and recovery from symptoms.

A Clinical Example
The woman in this example was seeking therapy to pull herself out of depression. The first session included establishing the following timeline of symptoms, while developing the family diagram and family history. (The names used here are fictional.)

Anna

Anna is the middle of three children. She became her parents’ constant in early life. Both sets of grandparents depended on Anna’s parents for support, comfort, and assistance. This both stabilized the family and served as a stressor with growing age.

Migraine headaches began for Anna when she was sixteen, two years after she began menstruating and the year that her paternal grandfather’s death increased two years after she began menstruating and the year that her husband moved back to South America in July 2009 to live with his family, leaving Enrico’s mother even more dependent on her son. Enrico began to show signs of strain. Anna’s younger brother finished college and moved out of state for work, shifting their parents’ focus onto each other.

In 2010, dementia and physical symptoms required that Anna’s maternal grandparents move closer to her mother. Anna’s mother was occupied with their care when rumours of Anna’s father’s affair began. Anna’s migraines, severe fatigue and pain resounded in 2010, when her parents complained to her about each other and eventually separated. Anna, overwhelmed by her symptoms, depended on her equally overwhelmed husband. The usually supportive marriage became strained. Anna became depressed.

This family history allowed Ms D, to recognize the level of anxiety in her family and patterns of reacting with conflict, distance, and dependence on others. She became aware of how much she took on stress along with responsibility for the problems or happiness of others.

Ms D could see physical reactions associated with anxiety and symptoms using F1000 biofeedback and neurofeedback instruments (Dem 2004). The baseline physiological measures met standard criteria for sustained stress and were consistent with migraine headaches, endometriosis, and ophthalmic disturbance (Amar 1993, Rosenbaum 1989, Harrison 1998). Ms D’s fingertip skin temperature indicated swings between the vagal state of collapse and SNS vasovagal collapse while talking about family history and while sitting quietly. Her skin sweat response (EDR) indicated exhaustion characteristic of chronic stress. Her skeletal muscle tension also indicated swings between overreaction and exhaustion.

Ms D used Zengar Neunotropical instruments to measure electrical activity throughout the brain, using dynamical non-linear mathematics to analyze patterns as they occur (Brown 2012). Information and images from these instruments make visible the patterns of reactivity associated with symptoms and with changes that occur through work on differentiation of self within the family.

The photograph of baseline measures shows strong signals arising from emotional reactivity in the right hemisphere and with activity pattern from the left hemisphere on the ECG. This neural pattern would be consistent with strong reactions to relationships overwhelming the ability to be thoughtful or to allocate energy for stability of an individual’s own metabolism or functioning. Bowen describes and illustrates differentiation of self as the basis for change throughout FAMILY Therapy in Clinical Practice. (Therapy) is designed to help one or more family members to become aware of the part self plays in the automatic emotional responsiveness, to control the part self plays, and to avoid participation in the triangle moves. … Therapy also involves a slow process of differentiation between emotional and intellectual functioning and slowly increasing intellectual control over automatic emotional processes (Bowen 1978:307).

Ms D focused on: developing the ability to see relationship triangles and how everyone was reacting within them, on recognizing and managing her own reactions, on interrupting and reducing anxiety reactions, and on increasing responsibility for herself. She worked on becoming more separate in important relationships and on separating thinking from reacting. She increased contact with her extended family, gathered facts about the history and function of the family from a variety of perspectives, became a better observer, changed automatic patterns of reacting, took responsibility for self instead of relying on others, and defined her life principles and goals. These action plans provided a place within the arena of the family and were the basis for changes that occurred over time.

Within the first few weeks of consultation, Ms D began to take more responsibility for herself. She resumed yoga, exercise, and the running of the household. She made different choices around family visits. At the same time, she began to relinquish responsibility for her parents and problems in their marriage ‘giving them back to each other’ in the context of triangles. Here is one example.

Ms D prepared for a stressful family vacation with her mother and siblings. Ordinarily, Ms D would babysit her sister’s children much of the time while her sister and her husband took time alone. This time, she instead offered to watch the children on only one of the five days. She invited her mother for walks on the beach alone to talk about the troubled marriage in the context of history and the larger family. She wrote pages of ‘who, what, when, where’ questions to ask in these conversations. She admitted her inability to help and encouraged her mother to talk to older and wiser members of the family. Ms D walked on the beach alone each day for time out to think. The family vacation projects went well, and Ms D returned with increased energy and fewer headaches.

Changes in physiological reactions and brain activity accompanying Ms D’s thinking and behaviors.

Measures of brain activity after the family vacation indicated stronger signals in left hemisphere activity involved in allocation of energy toward self and stability. Increased signals from intellectual activity and from the bridge between thinking and reacting at around 14 Hz are associated with increased ability to thoughtfully function for self in the midst of reacting to relationships. Biofeedback measures on the F1000 instrument also indicated decreases in anxiety and exhaustion.

Successful efforts at differentiation of self provoke changes that are challenging to most people. Both Enrico and their son initially reacted to Ms D’s efforts by demanding increased time and attention. She described one situation where both her husband and her son wanted the computer she was using. It was not funny at the time, but she could laugh later at how quickly she was willing to give what she wanted, was able to focus on something else. Of course, that was impossible, and both husband and
and son went away mad at her. One must be prepared for change-back reactions from others and from within self. Sustained change includes practice at not reacting back, increasing the ability to remain separate and steady.

Bowen theory provides a natural systems perspective within which to understand the impact of reactivity to relationships and stresses on health and functioning. This approach to therapy does not render anyone immune to the challenges of life, but it does provide a wider lens that can be used to see the part reactions play in creating symptoms. It allows the person to better manage reactions without sacrificing health and stability, while still being a resource within the family. This approach is also valuable for medical and mental health professionals in their efforts to be resources when symptoms occur.

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Whilst the debate and research continue to provide further understanding of wellbeing, it would behoove mental health professionals to maintain a curiosity about and current knowledge of the scientific study of wellbeing and Positive Psychology more broadly in order to educate clients and provide services that fall under the umbrella of mental health promotion.

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