

Relationship as the Basis for Health—A Position Paper

Despite the intense concentration by the medical community at the height of the “crack” babies scare, none of their interventions seemed to be working. They tried everything—diet, traditional and experimental medicines, high-tech machines designed to stimulate the nervous system, and around the clock monitoring. Researchers poured over data from crack baby clinics looking for any improvement. Finally, in the mid 90s the babies in a clinic in Houston, Texas, began to show unmistakable improvement. Babies gained weight. Reflexes, eye focus, and brain scans were undistinguishable from healthy babies.

There was a mystery in this. The Houston clinic reported the same procedures as other clinics. Moreover, the only babies regaining health were in one section of the ward. The other babies continued to suffer.

Researchers from the Center for Disease Control in Atlanta visited the clinic. They interviewed the nurses from the successful ward and found that one had been born in Sweden. There it is natural to massage babies vigorously and talk with them while doing so. It was the babies under the care of this nurse who had improved so dramatically. When asked why she didn't tell her supervisors of her approach, she expressed amazement that others were not doing it. She thought it was standard operating procedure!

Well, it is now. While crack itself has been discredited as the singular cause of these developmentally delayed babies, the “touch response” has proven effective across many childhood illnesses. As Anne Harding, a science writer for MSNBC says, “As evidence mounts, the medical establishment's acceptance of infant massage is growing. It is becoming standard care in neonatal intensive care units and increasingly being offered as part of childbirth education. State health departments and hospitals are building infant massage into early intervention programs designed to prevent child abuse and neglect.”¹

The bad news is that the medical paradigm had been to treat the patient in isolation, merely trying to alleviate symptoms. The good news is that brain research and social science research are inducing significant changes. Their incontrovertible conclusion is that the effectiveness of any remedy depends as much on the psychological, emotional, and social well-being of the afflicted as it does on the specific medical intervention.

Brain Research

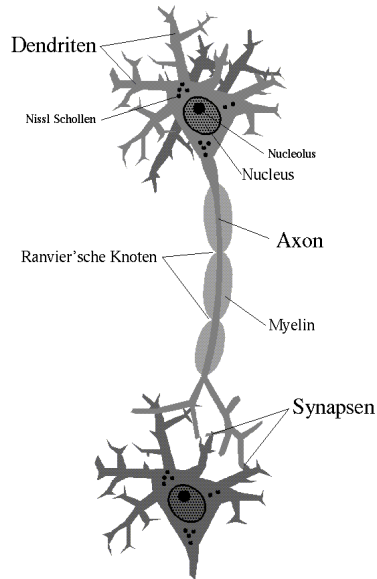
The contributions of brain research are monumental. The neurobiologist Dr. Daniel Siegel of the UCLA School of Medicine, titled his comprehensive study of the brain *The Developing Mind—Toward a Neurobiology of Interpersonal Experience*, to emphasize two realizations about the brain that are now canons of brain research; 1) the brain is plastic—it changes and adapts throughout life; 2) the quality of its adaptations depend upon a person’s interpersonal experience. In the words of Dr. Siegel:

Though relationships early in life shape the structural development of the brain, the mind appears to be open to ways in which interpersonal experience continues to facilitate development throughout the lifespan.²

Brain scientists use a variety of research tools to substantiate their findings. The brain itself feels no pain and so patients undergoing brain surgery report their direct experience when different parts of the brain are stimulated. Comparison of X rays, electroencephalograms and CAT scans between healthy and sick patients yields detailed maps of brain form, function and development. By far the most useful tool is the CAT scan for it gives the most detailed “topographical” map of the brain. There is now a library of CAT scans of healthy people of all ages. It is this research that Dr. Siegel uses to assert that the brain’s health depends upon one’s relationships.

At the most basic level, the brain can be considered as a living system that is open and dynamic. It is an integrated collection of component subsystems that interact together in a patterned and changing way to create an irreducible quality of the system as a whole. A living system must be open to the influences of the environment in order to survive, and the brain is no exception. The system of the brain becomes functionally linked to other systems, especially to other brains. The brain is also dynamic, meaning that it is forever in a state of change. An open, dynamic system is one that is in continual emergence with a changing environment and the changing state of its own activity.³

Generally speaking, a brain is healthy when it has dense neural nets. In order to under a neural net, it is necessary to start with the neuron. (Please forgive the German words in this diagram as it is the best I could find and the words are almost identical to English.)



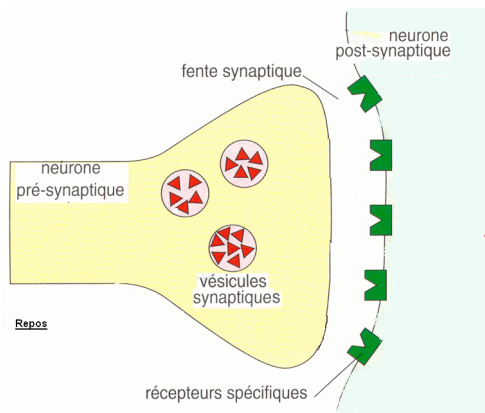
A human brain has countless trillions of neurons, each with many dendrites. Neural nets are activated dendrites linked to one another. Dense neural nets mean physical health and rich intellectual functioning.

Neural nets changes throughout a person's life. Repeated experiments show that people of any age with supportive, engaging interpersonal relationships have denser nets. Dr. Elaine Langer of Harvard, in her now classic book *Mindfulness*, studied elderly people living in nursing homes. She found that brains became healthier just by bringing a pet or a plant into the person's life. The elderly who were regularly visited by friends and family had the healthiest brains of all.⁴ She was even able to demonstrate a correlation between an enriched social life and the reversal of memory loss. Writing in the 1980s, her work led the way to the change to assisted care facilities with scheduled social gatherings, eating together, shopping expeditions, exercise classes, and open visiting hours.

The critical importance of interpersonal relationships holds for children as well. Dr. Siegel considers it so important that his new book, *Parenting from the Inside Out*, is co-authored with a family psychologist. Together, they correlate the developing of the brain in early childhood with the social experiences of the child. This validates and furthers the work of such renowned cognitive psychologists as Margaret Mahler and Daniel Stern. Our perception of ourselves, our abilities to relate to others and our physiological health are an integrally interconnected whole.

Writing the 1987, Dr. Robert Ornstein, Ph.D., professor at the University of California Medical Center in San Francisco and Stanford, and Dr. David Sobel, director of patient education and health promotion for Kaiser Permanente, approached brain research in a unique way. They studied the effect of placebos. It was always part of folk knowledge that if the patient trusted the healer there was a better chance of healing. Drs. Ornstein and Sobel found this to be powerfully true. There were even experiments where symptoms can be induced or reduced based solely on the expectations stated by the doctors. Blood pressure would rise, for instance, if the “patients” were told that the drug had that effect even if the known effect was to make it fall. The brain is so keyed to interpersonal experience that it can literally change the chemical effect of a substance based on its expectations. It is for this reason that medical schools now require doctors to take course in patient relations and hire specialized personnel to explain all procedures to both patient and family.⁵

As curious men of science, Drs. Ornstein and Sobel wanted to know why this happened. They carefully detailed the chemistry of the brain and showed that it is designed for plasticity. Specifically, they studied the dynamics of synapses. (Please forgive the French in the following diagram but it is the best I could find and the English is similar.)



That tiny gap between the two neurons—the synapse—must be bridged for the information to be transmitters. Chemical agents, neurotransmitters, provide the bridge. Thirteen principal agents are involved in a diverse array of “brews”. While much is not understood about the process, it is clear that the brew acts as a gatekeeper and decides which information should pass and which should be eliminated. As the new generation of anti-depressants demonstrates,

changing the brew has powerful results. All of them regulate serotonin, and thus change the individual's subjective reaction to anxiety and stress.

The brew is created in the moment of information transmission. This insures plasticity. It allows response and adaptation that serves the individual's well-being.

There are specific receptor sites on the receiving neuron. Some of these are specifically designed to receive chemical messages which translate as well-being, harmony and alertness. Drs. Ornstein and Sobel clearly demonstrate that the circuit of transmitters and activation of well-being receptor sites occurs when interpersonal experience and relationships are stimulating, supportive, and easily recognized.⁶

Clearly there is one system of body-mind and that it is dependent on high quality interpersonal relationships. To make the point conclusively in terms of the physiology, they point out that neurons exist not only in the nervous system, but in heart, bone marrow, thymus, and endocrine system. Moreover, extensive neural networks exist within all the components of the immune system. Ornstein and Sobel name the specifics:

There are numerous connections between the nervous system and the immune system, making it possible to understand how the mind can influence resistance or susceptibility to disease. For example, extensive networks of nerve ending have been found in the thymus gland, an organ that plays an essential role in the maturation of certain cells in the immune system. Similarly, the spleen, bone marrow, and lymph nodes are richly supplied with nerves supporting a brain-immune system link.

The cells of the immune system appear equipped to respond to chemical signals from the central nervous system. Receptors have been found on the surfaces of lymphocytes for catecholamines, prostaglandins, growth hormone, thyroid hormone, sex hormones, serotonin,, and endorphins. These neuroendocrines, neurotransmitters, and neuropeptides may stimulate the differentiation, migration, and activity of lymphocytes.⁷

In other words, the brain has its agents in every organ of the body. It is truly one system. Every cell and organ in our body is continually adapting to its interpersonal and environmental experiences.

Drs. Ornstein and Sobel then extend their research into studies designed to evaluate the correlations between successful relationships and physical health. They come to the same conclusion that insurance companies have built their fortunes upon—people in stimulating, engaging, and supportive relationships do better in every indicator of physical health. The heart

is particularly susceptible to social breakdowns. We are more open to infections, allergies, and gastro-intestinal maladies. Indeed, death itself is much more likely in socially disconnected people.⁸ Ornstein and Sobel succinctly summarize their findings:

Social connectedness is so basic and vital to human health that it affects blood pressure, the incidence of heart disease, and the intimate workings of the immune system.⁹

Children

It is well established that relationship determines the behavioral health of children. In the landmark study by the National Longitudinal Study of Adolescent Health and the National Institute of Child Health and Human Development of thousands of teenagers over a ten year period, it was found that four interactions with parents a day significantly reduced the risk of depression, suicide, promiscuity, substance abuse, and school absenteeism.¹⁰ The relationship between parent and child has been shown to strongly influence social competence throughout childhood.¹¹ In the last ten years there has been extensive research on children who have survived crippling social events and still led healthy, well balanced lives. This field is called resilience, and the one factor named over and over again that brought restoration of health was an adult who offered personal care and guidance.¹² With that the child's self esteem and sense of place was reestablished. From there, the child could navigate the world.

Attachment parenting derives its name from the breakthrough work of John Bowlby in the 1960s.¹³ Bowlby clearly linked a child's well-being with his or her parental relationships. Recent brain research has shown that well attached children have denser neural nets.¹⁴ The renowned cognitive psychologist Margaret Mahler showed that a child's self perception was tied to the perception of others. She also showed that attachment is an issue throughout early childhood and that teenage problems were directly linked to lack of attachment.¹⁵

Research from child development and neuroscience strongly suggests that attachment can be reestablished throughout childhood. Indeed, from his neurobiological platform, Dr. Siegel insists that even parents can re-attach and has the CAT scans to prove it.

Child developmentalists have successfully linked behavioral problems with health problems and devised successful family-based interventions. The following comments from the insightful article "Working with Families to Promote Healthy Adolescent Development," by John Toumbourou and M. Elizabeth Gregg reveals the convergence of three important

approaches—cognitive psychology, developmental psychology and family dynamics—to supporting well-being in teens.

The importance of strengthening attachments to both parents and other adults has been widely emphasized in the development of interventions. Although infant bonding appears important in explaining aspects of pathology, a considerable body of work suggests that bonding and attachment to the family remain fluid through childhood and adolescence, and are influenced by ongoing relationship experiences.

Attachment processes through adolescence are distinguished by the growth of the child towards cognitive and physical maturity and the re-negotiation of family relationships towards greater reciprocity. Communication processes that enhance attachment through this phase avoid blame and criticism, explore mutual needs, and solve problems constructively. Positive social relationships within the family are considered to increase the parental influence on developing adolescent attitudes and behaviors, and thereby reduce rebellious identification with disaffiliated peer sub-cultures.¹⁶

Highlighting the importance of relationship for health in children and family members, David Popenoe, professor of sociology at Rutgers and co-chair of National Marriage Project, points out how divorce negatively impacts the health of all family members. Debunking the popular myth that children recover quickly from divorce he says:

Divorce increases the risk of interpersonal problems in children. There is evidence, both from small qualitative studies and from large-scale, long-term empirical studies, that many of these problems are long lasting. In fact, they may even become worse in adulthood.

On the issue of whether children who experience divorce are more likely to have stable marriages because they are more cautious, he says:

Marriages of the children of divorce actually have a much higher rate of divorce than the marriages of children from intact families. A major reason for this, according to a recent study, is that children learn about marital commitment or permanence by observing their parents. In the children of divorce, the sense of commitment to a lifelong marriage has been undermined.¹⁷

Child development offers many additional clues for healthy relationships with children. The same principle holds true throughout the life of the child—create relationships that match the child's developmental capacities and well-being flourishes. For instance, as the renowned pediatrician and cognitive psychologist Daniel Stern points out in his book *Diary of a Baby*, young children know their world by its sensory qualities. They are especially sensitive to touch. Even

the attitudes of the people in their world “touch” young children. Current child development research suggests that children predominately perceive the world through sensation until eight years of age. Welcoming, warm sensory relationships tell the child that (s)he belongs, that (s)he is safe and that (s)he is cared for. The child then thrives. Neural nets expand. Intelligence optimizes. Even developmentally delayed children born from substance addicted mothers can easily recover, as the nurse from Sweden demonstrated.

¹ <http://www.msnbc.msn.com/Default.aspx?id=3131070&p1=0>

² Siegel, Daniel J. *The Developing Mind*. The Guildford Press, 1999, 8.

³ *Ibid*, p.p. 16-17

⁴ Langer, Ellen J. *Mindfulness*. Addison-Wesley, 1989, pp. 81-115.

⁵ Ornstein, Robert., and Sobel, David. *The Healing Brain*. Simon and Schuster, 1987, pp. 73-88.

⁶ *Ibid*, pp. 73-105.

⁷ *Ibid*, p. 148

⁸ *Ibid*, pp. 161-190.

⁹ *Ibid*, p. 191.

¹⁰ <http://www.nih.gov/about/almanac/organization/NICHHD.htm>

¹¹ Smart, Diana., and Sanson, Ann. “Children’s Social Competence” in *Family Matters*, no. 59, Australian Institute of Family Studies.

¹² There are many good works on resilience in children. A good place to start an inquiry into resilience is the journal article, “Fostering Resilience in Children” by Bonnie Bernard at <http://resilnet.uiuc.edu/library/benard95.html>

¹³ Bowlby, John. *Attachment*. Basic Books, New York, 1983.

¹⁴ Siegel, pp. 67-120.

¹⁵ Mahler, M. S.. *The Psychological Birth of the Human Infant: Symbiosis and individuation* (First Paperback Edition ed.). New York, NY: Basic Books, 1975.

¹⁶ Toumbourou, John., and Gregg, M. Elizabeth. “Working with Families to Promote Healthy Adolescent Development,” in *Family Matters*, no. 65, Australian Institute of Family Studies.

¹⁷ <http://health.discovery.com/centers/loverelationships/articles/divorce.html>