SEXUAL OFFENDER UPDATE: CONSEQUENCES OF NOTIFICATION AND REGISTRATION LAWS

Jessica L. Desrosiers & Lorraine R. Reitzel

Over the past 10 years, laws have been enacted in an attempt to manage violent and predatory criminals. One example of this effort is sexual offender registration and notification laws, which have been implemented as a proposed method to decrease recidivism, inform the public of the whereabouts of offenders, and enhance community safety. Under the Wetterling Act (1994), sexual offenders were mandated in all states to register with law enforcement agencies and provide updated information about their place of residence and employment, as well as their photograph, vehicle description, telephone number, and HIV status. The Wetterling Act was revised in 2003 to mandate the establishment and maintenance of Internet web sites comprised of registration information for sexual offenders. An additional law, Megan’s Law (1996), mandated states to develop procedures to notify the public of sexual offenders who live in their community. The proposed purpose of this law was to both protect the public and increase the offenders’ awareness of their risk. Common notification procedures included informational mail, press releases, news reports, community meetings, door-to-door contact, and phone calls.

In determining the effectiveness of the registration and notification laws, an assessment of the consequences of these laws becomes integral. One way to conduct such an assessment is to survey the offenders themselves. Research conducted by Levenson and Cotter (2005) surveyed 183 sexual offenders from a sample of outpatient sexual offender counseling centers in Florida. The study addressed a number of factors including offenders’ opinions about the effectiveness of notification on public safety and the accuracy of information provided to the public. Results indicated that less than one third of the offenders perceived that communities would be safer as a result of public notification. Less than one fifth of offenders believed that Internet registry was effective in protecting the public. Although it is unclear why these offenders believed that public safety was not increased as a result of the registration and notification laws, one interpretation of this finding is that the many offenders did not alter their victim seeking behavior as a result of the laws. Another, more positive, interpretation, is that they had no intention to re-offend despite the presence of these laws. An additional finding of the Levenson and Cotter (2005) study was that of the two thirds of the offenders who viewed their Internet registry information, almost half reported that some of their registration information was incorrect. Therefore, due to the incorrect information provided, as well as the offenders’ belief that the registry does not protect the public, this study suggests that the registry might not be effective in promoting increased safety in the community.

Other consequences of sexual offender legislation include the stigmatization, disruption of relationships, loss of employment and housing, and deceased psychological well-being of the offenders (Levenson & Cotter, 2005). For example, Tewksbury (2005) found that more than half of the 121 registered sexual offenders in his sample reported having lost a friend, and over one third reported losing a job and losing or being denied residence as a result of public notification.

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In another study, harassment and rude treatment by the public were not uncommon, and some offenders even reported being the victims of vandalism or assault (Levenson & Cotter, 2005). The psychological effects of these events, as reported by offenders, included distress, shame, hopelessness, and increased isolation (Levenson & Cotter, 2005), any of which could be triggers in a sexual offense cycle. Therefore, it is possible that the public’s response to the sexual offender registration and notification laws might inadvertently serve to increase offenders’ risk of recidivism.

Although stated and potential negative consequences are great in magnitude, Levenson and Cotter (2005) also detailed positive consequences of the sexual offender registry and notification procedures. For example, one third of their sample endorsed increased attention to relapse prevention because of public monitoring in an attempt to prove themselves to others. Other research also supports that, for some offenders, registration may act as a deterrent for recidivism (cf. Tewksbury, 2005). Other positive factors as reported by offenders in the Levenson and Cotter (2005) study included reduction in access to possible victims and the promotion of honesty in relationships. Levenson and Cotter (2005) indicated that this honesty could potentially serve to create more intimacy and support in offender relationships. Research has also suggested that offenders may not be accurate judges of their personal risk to reoffend (Levenson & Cotter, 2005); therefore, registration and notification laws provide external public monitoring, which in turn, may promote offender accountability and responsibility.

As registration and notification laws have only been recently established, there is minimal empirical evidence regarding the laws’ enhancement of community safety or the positive and negative consequences of the registration and notification process for offenders. Not only do these issues need to be researched more in depth, correctional clinicians also need to be cognizant of the need to prepare the incarcerated sexual offender for psychological, financial, and other pertinent consequences associated with public notification prior to his/her release. Reintegration into the community is likely to be difficult for the offender, creating a need for the establishment of psychological services and support networks prior to release. Results from studies similar to those discussed in this brief article can help to inform the correctional clinician about the consequences that offenders might face as a result of notification and registration laws, and can help to guide the process of offender preparation for this process.

REFERENCES


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Recent studies report that one in three American employees described feeling chronically overwhelmed and stressed (Galinsky et al., 2005). The cost to employers is significant. In the United States businesses report more than $150 billion lost each year as a result of employee absenteeism, reduced productivity, and health care costs (Spector, 2002). Stressed employees are more likely to make mistakes, feel angry toward employers, and feel resentment toward co-workers. Chronic stress causes employee health problems as well as mental health problems, like depression.

Correctional officers are in a unique position to experience stress. Occupationally, it is among the most stressful, correlated with high rates of divorce, alcoholism, suicide, and other related emotional and health maladies. Those who enter law enforcement do so for a number of different reasons ranging from helping people, to job security, and anywhere in between.

Research has concluded that increased education and training can reduce workplace related stress. It is generally assumed by our society that a higher level of education will bring greater success and happiness; resulting in more effective strategies for coping with stressful situations. The authors’ research support that assumption; indicating a positive correlation between education and stress reduction in law enforcement. Several studies suggest that increased understanding of legal and social issues, as well as greater understanding of stress directly, account for this result. Clearly, the answer lies in training; however, the research is less clear whether college training is the appropriate answer.

Anderson, Swensen, and Clay (1995) indicate that no matter how hardy or tough people think they are when they join a law enforcement agency, the pain and the suffering they are exposed to, coupled with the administrative hassles, and the hostility of some of the people they are trying to protect will eventually have negative mental and physical effects unless precautions are taken. Selye (1976) first described stress response in the 1950s, and he quickly recognized its dual nature. In the short term, it produces adaptive changes, which are beneficial in stressful situations. Mild stress can be stimulating, motivational, and actually increase productivity (Selye, 1976). In the long term, however, as it becomes more severe, stress can bring unwanted physical, psychological, and behavior changes (Pinel, 2000).

Stress occurs in three stages within the human body: alarm reaction, resistance, and exhaustion. The alarm reaction produces physiological changes, known as “fight or flight” syndrome in response to an emergency. Heart rate, blood pressure, and muscle tone increase, the secretion of adrenaline heightens awareness, a crucial survival factor for correctional officers confronted with life-or-death situations. Prolonged exposure to a stressful situation eventually causes the resistance stage to set in. The resistance phase is characterized by more control and a greater ability to withstand the effects of stress while maintaining performance level.

When the resistance stage persists, exhaustion overcomes an individual’s coping mechanisms. The response initially experienced during the alarm reaction stage may reappear. Physiological and psychological problems, such as chronic fatigue or depression may become present, as well as feelings of alienation and irritability. The body will continue to respond to the “fight or flight” response mechanism, furthering the production of high levels of adrenaline. Subsequently, the heart becomes overworked, blood levels increase and actual tissue damage may occur, producing common illnesses such a heart disease, arthritis and other physiological disorders (Standfest, 1996).

Stress may stem from pressure to perform basic duties and job functions, to coping with institutional demands. There are two categories of stress related...
to correctional work, which have been identified in a 1999 study conducted by Kop, Euwema, and Schaufeli. Their study focused on issues such as staff shortages, overcoming budget constraints, inadequate resources, time pressures, lack of communication, and work overload. It was concluded from their study that the highest levels of stress were related to threats of danger and organizational factors.

Occupational stress occurs when officers perceive physical threats, dealing with inmates on a daily basis, injured inmates, or even witnessing violence to fellow correctional officers. Most stressful is the prolonged exposure to danger. The second greatest stressor is organizational demands which ranked the highest in their study. The majority of the existing literature indicates that correctional officers view organizational factors rather than occupational factors as more stressful. As previously noted, there is a growing body of evidence suggesting that more psychological stress stems from the issues surrounding the organizational structure than the daily tasks performed by correctional officers. Studies have found that correctional officers perceived less stress from factors intrinsic to the job and greater stress from the structural design and organizational processes of their department.

Working as a correctional officer involves a certain amount of risk and those involved in such work are likely to accept and/or be attracted to risk. Homant, Kennedy, and Howton (1994) tested the hypothesis that risk taking, sensation seeking, and the associated stressors are positively correlated with the employment decisions of law enforcement officers. Studies have found that correctional officers perceived less stress from factors intrinsic to the job and greater stress from the structural design and organizational processes of their department.

Newell’s (2000) study involving levels of stress and anxiety experienced by police officers from interdepartmental issues, rules, and regulations found no significant results. Nonetheless, trends illustrated that officers who never attended college reported less stress involving internal departmental issues. Additionally, Dantzker’s 1999 study concerning the effect of education on police performance and stress identified the “roller-coaster effect.” He found that the associate degree police officer functions better in terms of policing and should perceive stress at a lower level than the high school educated police officer. Moreover, according to Dantzker’s research, the officer with a bachelor’s degree actually reported a higher level of perceived stress. The results demonstrated that the officer with a master’s degree perceived a lower level of stress, thus completing the “roller-coaster effect.”

A notable study comparing college educated officers to those without a college education reported that officers with a college education are better equipped to grasp legal issues and social issues (Lynch, 1990). This same study cited 1973 research of the Rand Corporation study of the New York Police Department involving college-educated officers versus officers with no college education. That study revealed that police officers with no college education were three times likely to have complaints filed against them for excessive force, abuse, and racial discrimination.

Since 2000, the authors of this article have researched the relationship between educational levels and stress among law enforcement officials. What the research has discovered can be extrapolated to the field of correctional officers who engage in similar, but slightly different stressful and challenging situations on the job. The major difference between law enforcement and correctional responsibilities lies in the constant stress experienced by correctional officers from the moment they enter the facility to the time that they leave. Conversely, in law enforcement, there are periods of high stress and low stress throughout the day. This difference may affect the type of training that would benefit correctional officers.

According to Gaines, Kappeler, and Vaughn (1994) there are three reasons why some departments choose not to require a college education to be on the police force. These reasons include: 1) there is perceived shortage of college-educated applicants, 2) minorities may be discriminated against, and 3) police departments might overlook solid applicants because they have not received a college education. Gaines asserts that the first two reasons can be overcome by aggressive recruiting by the police department. He also indicates that the likelihood that

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the overall quality of personnel will substantially increase as a result of requiring college credit should sufficiently overcome any reservations associated with missing any otherwise well-qualified person.

It is naturally assumed in our society that a higher level of education will mean that one will be more successful in their chosen occupation. This assumption includes law enforcement officials. Will education help the officers learn how to be more efficient problem-solver and teach them how to deal more effectively in stressful situations?

Although a college education may provide the necessary analytical tools to better grasp complex situations, is it the best method to train correctional officers for the decision making and associated stress that accompanies correctional work? It is undeniable that the modern correctional officer encounters an increasing amount of stress and social pressures. Confronting this issue is paramount, however, the manner in which to combat this conundrum is perplexing. One suggestion may be to mimic the educational structure of some European law enforcement academies. In Denmark, officers spend five years in a combination of work experience and class preparation before being considered fully trained. England has six regional training centers that are enormously well staffed and equipped. These centers are a testament to their country’s commitment to the importance of adequately training law enforcement officials. The American Bar Association points out that there is a need in this country for similar commitment to the importance of training, to be reflected in the form of vastly increased monetary support for facilities, staff, and equipment and especially for the time spent by officers in attendance at training programs. Allowing potential officers to receive additional training following their education may enable officers to receive supplementary experience enabling younger law enforcement officers to be better prepared to handle stressful situations that accompany correctional work.

The authors of this article continue their research in an attempt to accurately correlate educational attainment and stress among law enforcement officers. Despite many research attempts to prove more college training equates to better law enforcement officers, clearly the results are not definitive. Moreover the methods of training and educating incoming correctional officers through training academies designed specifically to the job duties and related functions of the position have great potential. No matter how the training is accomplished, clearly it must include efforts to reduce stress and stress related maladies affecting correctional officers on the job.

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STRESS ON THE JOB: NO EASY TRAINING SOLUTIONS (Continued from page 6)

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BOOK REVIEW


Reviewed by Ron Bonner, Psy.D.

Dr. Stanton E. Samenow recently updated and revised his classic 1984 work of Inside the Criminal Mind. Once again, he richly described the disturbing thinking patterns of criminal personalities, which have now become the foundation of many contemporary criminal habilitation programs. According to Samenow, career criminals seek excitement, rationally calculate how to get over and victimize others, lie and manipulate, and seek to dominate others for their own gratification. Samenow also described criminals as having inflated egos with a strong sense of entitlement, who strike out with violence when anyone gets in their way of ego gratification. They blame others, rationalize their criminal behavior, and accept no responsibility for their actions. Such thinking patterns were thought to start in childhood, developed through adolescence, and became crystalized by adulthood. Samenow’s intriguing insights are grounded in his life-long career of working with criminals and his study under the eminent forensic psychiatrist, Dr. Samuel Yochelson, whose research has become the cornerstone of criminal personality theory.

Samenow in this work reviewed the traditional sociological, psychological, and biological theories of criminal behavior. He convincingly showed how many of these theories have not been supported, but in fact have provided excuses for criminals to justify their behaviors, often giving them an out from the consequences of their behavior. The one area which was particularly striking was Samenow’s discussion of parenting and criminal behavior. He exposed the widely held myth that criminals often come from parents who are abusive or neglectful, which he cited research showing a very weak relationship. He sensitively spoke about the devastating tragedy such ideas have had on parents, who are usually victimized by their criminal children and re-victimized by society for their children’s criminal actions. His empathy and poignant insights for parents of criminals were touching and in my opinion would call for Samenow to consider writing a book for the parents of criminals, victims to whom virtually no outreach or understanding has been provided.

Samenow applied his ideas on criminal thinking to contemporary criminals whose unique actions were not considered in his first edition. Samenow addressed, for example, the terrorists, hate crime perpetrators, pedophiles, the catholic priesthood, and the perpetrators of the Columbine High School massacre. In each case, he demonstrated how many of the traditional theories of criminal behavior continue to surface, mis-attributing responsibility to various external and internal factors, rather than on the perpetrator and his or her thinking. Samenow contended that these new crimes are not unique from other criminal actions, and that the underlying criminal mind is the same, regardless of the behavior.

Samenow devoted two chapters of the present work on targeting criminal thinking for change. His basic approach, like that of Yochelson as presented in a case summary, was one of an instructor who educates and confronts the criminal about his or her thinking. Once a criminal has learned how to think about his or her thinking, Samenow suggested the instructor must teach the criminal consequential thinking, guilt and fear intensification, social problem solving and specifically the generation of alternative behaviors, responsibility and choice, and conducting a daily moral inventory.

In Samenow’s writing, he seemed somewhat disappointed about the current state of criminal change programs and lack of emphasis on criminal thinking. It has been this author’s experience working with offenders for the past 18 years that thinking and cognition are widely accepted as the primary intervention targets for criminal behavior. Criminal lifestyle programs, Axis II programs, value programs, pro-social skill programs, victim impact

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REQUEST FOR AUTHORS

Doctors Cacono and Evans are editing a handbook for forensic Rorschach psychology. Psychologists who use the Rorschach in forensic practice and who may be interested in writing a chapter, please contact Dr. Gacono at DrCarl14@aol.com. While many authors have committed to writing chapters, we want to ensure there are no essential topics that have not been covered. Please feel free to contact Dr. Gacono with your ideas.

Chapters so far include:
Chapter 1-Rorschach Testimony
Chapter 2--Scientific Status of the Rorschach
Chapter 3-Admissibility of the Rorschach
Chapter 4-Malingering & Deception
Chapter 5-Presenting and Defending Rorschach Testimony
Chapter 6--Competency
Chapter 7-Insanity
Chapter 8--Risk Assessment
Chapter 9--Sexual Offenders

Chapter 10--Death Penalty & Mitigation
Chapter 11-Rorschach/Treatment Planning for Offenders
Chapter 12--Custody Evaluations
Chapter 13-Personal Injury, Psychological Trauma
Chapter 14-Employment Discrimination & Wrongful Dismissal
Chapter 15--Fitness for Duty
Chapter 16--ASPD/Psychopathy & the Rorschach
Chapter 17-Female ASPD/Psychopathy & the Rorschach
Chapter 18--Inpatient Forensic Psychiatric Patients
Chapter 19--Outpatient Forensic Psychiatric Patients
Chapter 20--Normative Data for Custody
Chapter 21-Battered Women's Syndrome
Chapter 22--Immigration
Chapter 23--Impaired Professionals
Chapter 24--Integration of Rorschach with Other Methods

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programs, and criminal rational behavior therapy programs are now some of the common labels applied to offender habilitation programming. In one way or another, all of these programs focus on the offender’s criminal thinking, teaching the offender how to think about his or her thinking, and then teaching the offender how to think differently by consequences, choices, morals, and the impact on others. Samenow should take great pride that his ground-breaking work has been the source from which these cognitive change programs have developed. Doctor Samenow’s Inside the Criminal Mind is vitally important reading for the helpers in the trenches. It will renew their energy and commitment to changing the mind of a criminal and build pride in this critical work, which ultimately saves others from the ravages of the criminal mind.

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The Quantitative Electroencephalograph (QEEG) is a modified EEG brain imaging assessment tool that allows greater precision in Bandwidths. Neurofeedback Therapy (NT) is a treatment paradigm that integrates QEEG and biofeedback allowing the patient to modify levels of activity in specific regions of his/her brain. These adjustments in cortical functioning can produce long-term positive changes in neuronal performance and human behavior.

The approach has proven successful with free-world patients diagnosed with a variety of mental and personality disorders found also in offender populations. Because of this and cost effectiveness considerations, applicability to inmate mental health and personality disordered populations seems reasonable.

QEEG and NT in the Correctional Setting

The traditional role of prisons has changed dramatically over the past 30 years. To a large extent, the prison of the past provided the single function of holding violent and antisocial individuals. To that mandate has been added responsibility for assessing and providing mental health treatment to inmates with a vast array of mental disorders. It would not be an overstatement to suggest most free-world Axis I or Axis II disorders can now be found within prison populations. Nor would it be surprising to discover Correctional Psychologists are confronted, proportionally, with greater numbers of personality Not Otherwise Specified (NOS) diagnosed patients than free-world psychologists.

Mental and personality disorders are etiologically linked via a bi-furcated model of pathology to the interactions of psychological/environmental and organic/genetic factors. Examples of environmental variables that contribute to criminal behavior include childhood abuse/neglect, psychological and moral impoverishment (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002), adolescent gang and peer influence (Battin, Hill, Abbott, Catalano, & Hawkin, 1998) and the correctional system itself (Irwin & Austin, 1994).

In addition to environmental factors, evidence continues to mount from brain-imaging, genetics, and neurotransmitter research that disruptions in cortical function also contribute to criminal behavior and/or predisposition (Fishbein, 2000). For instance Ridenour (2000) reviewed studies of monozyotic twins reared apart and found strong support for a genetic contribution e.g. dizygotic twins (reared apart) had similar scores on the MMPI-II’s Psychopathic Deviate Scale. Genetic predisposition also plays a part in substance abuse/dependence (Johnson, Golub, & Fagan, 1995).

In addition, relationships between neurotransmitter dysfunction and criminal behavior have been identified. “One of the most reproduced findings in neuropsychiatry is that indicators of serotonin activity are lowered in humans characterized as impulsive and violent toward themselves and others” (Goldman & Fishbein, 2000, p. 9).

Finally, hormonal disruptions, e.g., testosterone, can contribute to violent behavior. Hormones, chemicals released by glands, include prolactin, estrogen, testosterone and adrenaline. Virkkunen & Linnoila (1990) found higher CSF (cerebrospinal fluid) testosterone levels in antisocial, impulsive, violent offenders but not in two other groups, impulsive who were non-antisocial and in predators, non-impulsive violent offenders. The above short review suggests criminal behavior is far more complex than single factor explanations, e.g., dysfunctional family relationships, the theory that individuals are simply good or bad. Brain-imaging technologies, including QEEG, are providing new insights into criminal thinking, decision-making and behaviors.

While QEEG research with inmate populations is in its infancy, two studies can give a sense of how important QEEG assessments and NT can be. Evans and Park (1997) examined death row inmates for cortical damage. Medical records and social interviews revealed histories of head trauma and/or chronic substance abuse in each of the 20 death row inmates that made up their sample. The QEEG (Continued on page 14)
assessments revealed 17 of the 20 subjects were found to have, on average, over 21 cortical abnormalities. Most abnormalities occurred in the frontal cortexes (executive functioning) and right temporal lobes (emotions).

Cortical dysfunctions also have been identified with non-death row Antisocial Personality Disordered inmates. These brain-imaged profiles revealed decreased functioning in the pre-frontal lobes and excessive activity in right temporal lobes.

Quirk (1995) identified inmates whose violent behavior was secondary to deep-brain complex seizures (atypical seizures) using a simple paper pencil test. Neurofeedback Therapy results demonstrated a near-linear relationship between number of NT treatments and reductions in recidivism rates. The greater the number of treatments the inmate received the less likely he was to recidivate. These and other studies will be more fully developed below. Historically, treatment of these varied disorders has been limited to reducing symptoms pharmacologically. Neurofeedback Therapy offers the possibility of an additional non-pharmacologically treatment protocol that focuses on changing how the cortex functions.

**Benefits of Using QEEG & NT**

As noted above, QEEG and NT offer the possibility of new paradigms for assessment and treatment. There are a number of reasons for considering them as treatments that support traditional psychological interventions.

First, QEEG, like other brain-imaging techniques, can provide improved diagnostic and evaluative capability. Second, NT, because it directly influences cortical functioning, can produce long-term changes in inmate thinking patterns, decision making processes and behaviors. Third, NT is not a substitute for conventional therapy. While NT may be helpful as a stand-alone treatment, early research suggests its therapeutic effectiveness is enhanced when used in combination with psychotherapy and/or pharmacological treatments (Peniston & Koulkoski, 1989; Bodenhammer-Davis & Callaway, deBeus, 2002).

A fourth reason for considering QEEG & NT is cost effectiveness. Compared to comparable brain imaging and treatment techniques, the cost outlays for purchasing QEEG equipment is minimal. Also, the cost of training a psychologist in the use of these technologies is reasonable by comparison. Fifth, QEEG and NT provide assessment and treatment.

**QEEG: The Biofeedback/EEG Paradigm**

Beginning in the late 1960s (Kamiya, 1968) a significant integration evolved combining biofeedback and electroencephalograph readings (Brickford, Fleming, & Billinger, 1971). Four bandwidths were established by early researchers: Delta 0-4 Hz, Theta 4-8 Hz, Alpha 8-13 Hz and Beta 13-35 Hz. They provide a typology for measuring cortical functioning at site specific areas of the brain using the 10-20 International System of Electrode Placements (Jasper, 1958). Intra-subject recorded brain activity could then be compared, as well as comparisons with normal subject and DSM IV diagnoses subject databases.

Initial therapeutic work focused on teaching patients to increase Alpha (8 to 13 Hz) production. The end result was a significant non-pharmacological treatment for anxiety. Today data garnered from the patient’s QEEG, which identifies dysfunctions in the cortex is frequently required before deciding which Neurofeedback treatment to implement. These assessment and therapeutic protocols rely on systematic placement of sensors on the scalp to collect data EEG readings. The number of sensors used by these two modalities varies. The QEEG frequently employs “19 (electrodes)...used for scalp site recordings, (while) two are typically placed on the earlobes as reference electrodes.” (Cantor, 1999, pp. 8-9).

Using the same international system for sensor placement, neurofeedback therapists utilize one or two sensors, not counting references, for the treatment process. Readings are transferred from sensors to a monitor that provides the patient with visual feedback regarding changes he is creating in his brain. This, in turn, guides his future efforts at changing dysfunctional cortical firing patterns.

The QEEG measures electrical activity of the cortex, in 1 second epochs, between 0 and 125 Hz, although 98% of the brain’s cortical activity takes place at 30 Hz or below (Thatcher, 1999). As noted above, data from the readings are converted into...
QEEG and Neurofeedback Therapy (Continued from page 14)

During any measured epoch, the total spectrum of bandwidths is present and active on any scalp site but dominance depends on the amplitude of each bandwidth. That is, depending on the subject’s internal and external activities (sleeping, problem solving, talking, & remembering) different bandwidths will dominate in various areas of the cortex.

For example, during deep sleep Delta waves tend to dominate while Theta waves are generally most active in hypnogogic revelries and early stages of sleep. Alpha, on the other hand, dominates when the individual is in a physically rested but mentally alert state. Beta, the most active bandwidth, is strongest during waking activities such as communicating with others, reading, working math problems, etc. Beta also dominates during REM sleep. During any particular brain related task, two issues are important in determining brain functioning: specific brain site(s) and dominant bandwidth(s). From a QEEG recording emerges a brain-map.

Brain-mapping is perhaps the most important QEEG capability. At the most basic level, a brain-map reveals relationships between site specific cortical activity on left vs. right hemispheres and anterior vs. posterior locations on the four lobes of the brain: frontal, temporal, parietal, and occipital lobes.

An individual’s NT treatment plan can then be initiated based on the patient’s brain-map data when compared to normative data. In addition to the identification of site specific dysfunctional brain locations, the QEEG brain-map also addresses directionality, which is whether a patient needs to increase or decrease a particular bandwidth at a given site. For example, if ADHD symptoms are secondary to low Beta, that is low brain functioning, then a Beta-up protocol should be considered. Conversely, if the patient’s behavior was driven by excessive Beta then a Beta-down protocol may be the treatment of choice.

In this section a brief sketch of the variables involved in providing QEEG assessments and NT has been reviewed. Of course, all of the above would be irrelevant if it were not for brain plasticity.

Treatment is the Interaction of Operant/Classical Conditioning and Brain Plasticity

Two of the more important principles underlying Neurofeedback treatment are neural plasticity and the principles of classical and operant conditioning. Neural or brain reactivity following successive stimulations is known as brain plasticity. (Othmer, Othmer, & Kaiser, 1999; Trudeau, 2001). The brain is constantly changing itself physically, as a result of both new information, or in juxtaposition, degradations in the neuron’s axon and dendrites due to inactivity or trauma. The enormous magnitude of a brain’s potential for change is made possible by the very number of synaptic connections per neuron and its ability to add and prune these connections. There are “anywhere from hundreds of synaptic connections to over 100,000 connections per neuron” (Hedaya, 1996, p. 94) To put that in perspective, the brain has around 100 billion neurons (Cellini, 2004) which perform at least one quadrillion operations per second (Horgan, 2004). Remarkably, advances in measurement technology now permit accurate assessments of axonal and dendrite growth rates as new skills are acquired (Colicos, Boyce, Sailor, & Goda, 2001). Second, changes in the brain, whether dysfunctional or functional, are products of cortical reactions to external and internal stimuli and these changes are shaped and to a large extent following principles of classical and operant conditioning.

The Treatment Process

A typical session of NT begins with a sensor secured to a specific location on the patient’s scalp. There are two references, one attached to each ear lobe. The scalp sensor feeds data to an EEG unit with a computer programmed to perform analogue or digital transformations (Cantor, 1999) of the patient’s readings. These are then transferred to a software program which presents results on a television type monitor that the patient is watching. The patient’s observations form the final step in the circuit. Generally, what the patient sees is a video game. For example, the monitor may present a space alien game in which alien spaceships are shot down when the desired cortical bandwidth is produced by the patient. An interesting anomaly in this process is that the patient doesn’t work consciously to bring about

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change in his/her cortical functioning. Instead, the patient relaxes and watches successes as they occur on the monitor. All the while unconscious processes respond to the feedback from the monitor and create the desired cortical changes.

Studies with QEEG and NT

Evans and Park (1997) addressed the issue of inmate violence and cortical dysfunction. The QEEG assessments were completed on 20 men convicted of murder. While the number of cortical abnormalities varied between subjects, dysfunctions were found in all of them. The frequencies of brain abnormalities ranged from 10 to 131 with a mean of 58.5 cortical abnormalities. In 17 of the 20 inmates, the frequency of abnormalities was greater than 21. As the authors noted, “Such impairments perhaps in conjunction with adverse environmental events, are suggested as placing one at risk for violent behavior.” (Evans & Park, 1997, p. 27). Common to most QEEG studies of violent individuals are bilateral dysfunctions in the frontal lobes and the right temporal /parietal lobes.

One function of the right temporal lobe is to deal with the expression of affect while frontal lobes, and prefrontal cortex (orbital-frontal) in particular, moderate executive functioning. Executive function permits one to make appropriate decisions such as “self-monitoring, advance planning, and control of impulses and emotional responsivity” (Evans & Claycomb, 1999, p. 21). Clearly this type damage could predispose an individual toward violent behavior in stressful situations. These research efforts provided support for earlier work by Lewis, Pincus, Feldman, Jackson, and Bard (1986). In their study which did not include QEEG assessments, fifteen death row inmates (including two females) were assessed psychiatrically, neurologically, and psychologically. All inmates were found to have histories of severe head trauma. Eight were diagnosed with major psychiatric disorders and 12 of the 15 had significant neurological impairments. Despite the limited research on QEEG and violent behavior, the studies that do exist consistently demonstrate important relationships between brain dysfunction and violent behavior. These dysfunctions may impact an individual’s episteme in ways that can lead at stress filled times to poor decisions, weakened volition, and violent behaviors. Stressors such as acute anxiety, secondary to a poor relationship, anniversaries of traumatic events, physical exhaustion, moments of rage while driving a car, and drug use/abuse could be the trigger mechanisms for violent behavior.

Treatment with Addictive Disorders

The QEEG and NT have made initial contributions to free-world patients with addictive disorders, another problem commonly found in inmate populations. While there is not a single etiological factor driving alcoholism, repeated studies have demonstrated that the largest group of alcoholics tend to produce high Beta during the eye closed resting state, instead of high Alpha and/or Theta.

A seminal study by Peniston and Kulkosky (1989) of the Veterans Administration (VA), addressed the above issue. Twenty subjects (veterans) diagnosed alcohol dependent with four or more hospitalizations for alcohol treatment and whose medical records revealed at least 20 years of chronic alcoholism were randomly selected for the experiment. They were divided into two groups. One group received the traditional inpatient treatment for alcoholism, traditional group (TG). The second group received the same traditional treatment plus NT. A third group was composed of non-alcoholic patients who had other DSM IV diagnoses. All groups received pre-post QEEG assessments, the Beck Depression Inventory, and blood sample measures of Beta-endorphin levels which are high when a patient is under stress.

Results included a 13-month follow-up. At follow-up, eight of the 10 NT patients were found to have remained alcohol free. One of the remaining two relapsed patients had returned to the VA for booster sessions. Another positive indicator was that neither of the relapsed patients was binge drinking. Also, seven of the eight non-drinking patients were, for the first time in years, moving forward with their lives by attending junior or community college, nurses training, or training as a certified alcohol counselor.

Eight of the 10 TG patients had been re-hospitalized for alcohol dependence treatment. The two who had not been re-hospitalized were binge
drinking.
This research has been replicated and extended by Bodnhammer-Davis, Callaway, Davis, and deBeus, (2004). They treated 21 chemically dependent subjects using the Peniston protocol. Ten had been identified by their probation officers as being at high-risk for re-offending. At follow-up, 74 to 98 months later, 81% were abstinent. Also, re-arrest rates were lower for the high-risk treatment group compared to a control group, 40% to 79.15%.

**Meta-Analysis**
Finally, a large study provided substantial support for the efficacy of this new paradigm. Kaiser and Othmer (2000) studied the effect of Sensory Motor Region (SMR) Beta training on 1,000 ADHD subjects from 32 clinics. The SMR-Beta training improved Ss’ attention skills and their ability to control impulses. In addition, it increased the response variability in 85% of the tested population. While these represent only a few of the QEEG & NT studies that could relate to inmate populations they suggest its potential efficacy for assessment and treatment.

**Summary**
As noted above this paper reviews only a few QEEG & NT articles practitioners have published demonstrating their effectiveness assisting patients with numerous DSM IV disorders including alcohol and drug dependence, traumatic brain injury, ADHD, depression, anxiety, and early childhood abuse, to name but a few. Most of these disorders are also found in prison populations. The QEEG and NT should be applied to establish its efficacy in treating inmate populations. Not only are QEEG and NT cost effective compared to other brain imaging techniques but work space requirements are minimal and the training of a staff psychologist is reasonable. Other potential savings should result as reductions in the negative behavior of violent inmates are noted. Finally, if inmates can cope better in the prison environment generalization effects could occur and there may well be reductions in recidivism.

**REFERENCES**

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**QEEG AND NEUROFEEDBACK THERAPY** (Continued from page 17)


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**JAIL SCREENING ASSESSMENT TOOL NOW AVAILABLE**

The Jail Screening Assessment Tool (JSAT) (Nicholls, Roesch, Olley, Ogloff, & Hemphill, 2005) has just been published. The JSAT is designed to identify mental health problems and risk for suicide, self-harm, violence, and victimization among new admissions to jails and pretrial facilities. The brief semi-structured interview includes questions to evaluate demographic characteristics; current charges/legal status, criminal history; social circumstances (e.g., family support, housing, & finances); past and present substance use and treatment; past and present mental health status/treatment; suicide, violence, and self-harm history as well as current ideation and intent. The JSAT is based on our research and experience over the past 10 years with over 50,000 inmates. Copies are available at a cost of $40 (inclusive of taxes and shipping). For more information or to order copies, contact roesch@sfu.ca.
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