Journal of College & Character VOLUME VII, NO. 6, July 2006

Moral Imperviousness and the *Tabula Rasa* Fallacy: A Contribution from the Neurosciences

Proceedings from the 2006 Institute on College Student Values

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Abstract

Conventional wisdom generally holds that infants are born into the world with a *tabula rasa*, a blank slate, with respect to moral development and that it is the social environment that determines their receptiveness to moral teachings and role modeling. The argument advanced here is that infants are born with an infinite number of imprints on their slates that directly and indirectly affect their moral development, and the environment modifies these imprints to one degree or another. These imprints come from three sources: hereditary predispositions, the prenatal environment, and the perinatal environment. These imprints affect moral development by causing the child, adolescent, and adult to be impervious to moral teachings and to fail to develop the psychosocial competencies required to think, feel, and act in morally adaptive ways. This explains to a large degree how children and adolescents can be reared in psychologically and morally sound environments yet develop a morally maladaptive lifestyle. These individuals are likely to develop psychopathic personalities, the behavioral ramifications of which are discussed in some detail.

Introduction

Conventional wisdom generally holds that infants are born into the world with a blank slate (*tabula rasa*), at least in the area of moral development, if not in other areas of development (Pinker 2002). This belief profoundly affects moral education in that the environment is seen as totally responsible for the moral development of children, adolescents, and young adults. When young people develop in a positive moral direction, the environment is perceived as having done a good job, and when this fails to occur, the environment is to blame.

This situation is reminiscent of the misunderstanding of autism which existed in the 1950s and 1960s when autism was perceived to be the result of failed parenting (Bettelheim, 1967). Mothers and fathers of autistic children were characterized as cold and aloof perfectionists. These parents were chastised for being unloving and rejecting parents and were dragged into counseling to for help in overcoming their alleged deficiencies. Later research demonstrated that the parents of autistic children are not substantially different from those of non-autistic children and that autism is clearly related to heredity and brain damage and not to family dynamics. (Koegel, Schreibman, O'Neill, & Burke, 1983).

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Tabula Rasa Fallacy

The position taken here is that infants do not enter the world with a blank slate with regard to moral development, but one that has a virtually limitless number of imprints on it. These imprints result from three sources: genetic predisposition, the prenatal environment, and the perinatal environment (which includes factors that occur immediately prior to, during, and following delivery). This imprinting can have a profound influence on moral development, which the social environment, in contrast to the prenatal and perinatal environments, may modify in a positive or negative direction and to a greater or lesser degree. Interestingly, it is not difficult to convince people that a blank slate does not exist in other dimensions of human development; for example, people are described as "natural athletes" and "born leaders." However, when it comes to moral development, people tend to believe that nurture trumps nature; transcendence trumps empiricism, and metaphysics trumps biophysics.

Theoretical Basis

The central purpose of this paper is to address the question: Why do some children, adolescents, and young adults who are reared in psychologically and morally sound environments (homes, schools, churches, neighborhoods) develop marked tendencies to behave in morally maladaptive ways that hurt themselves and others, including the people who love them the most? In other words, the problem is not that these individuals are taught antisocial behavior and learn it well, but that they are taught moral behavior and learn it poorly.

The theory advanced to address this question holds that some infants enter the world with behavioral predispositions (temperaments, personalities) that cause them to be cognitively, affectively, and behaviorally impervious to moral teachings and modeling, causing them to be prone to morally maladaptive behavior as they progress through childhood and adolescence.

A theory developed by behavioral geneticists that appears to be similar to the theory presented here differentiates between shared and nonshared environments. The shared (common) environment is that to which all children in the family are exposed. It is comprised of the parents' personalities, socioeconomic status, ethnic background, religious orientation, and neighborhood. The nonshared environment is different for each child in the family. It is the personal, unique relationship each child has with parents, siblings, friends, peers, teachers, ministers, and so on (Feinberg & Heatherington, 2001; Plomin, Ashbury, & Dunn, 2001).

The theory of shared and nonshared environments can explain how sons and daughters reared in conflicted and/or morally harsh shared family environments can dissociate themselves from their families, gravitate toward likeminded youth, and adopt a morally maladaptive lifestyle. However, this concept differs from the theory advanced here which seeks to explain how sons and daughters who are reared in psychologically healthy and morally sound shared and nonshared environments can choose to remain in these environments and internalize many of the values of these environments with the exception of moral values. The shared/nonshared theory does not address this situation and is alluded to only for purposes of clarification.

The Neurosciences

Recently, the neurosciences (neuroanatomy, neurobiology, neuropsychology) have taken an increased interest in the relationship between the brain and moral behavior (Greene, 2003; Greene & Haidt, 2002; Singer, Kiebel, Winston, Dolan, & Frith, 2004).

The neurosciences speak to many levels of moral education. The relationship between the brain and moral behavior is not simply a theoretical issue because when the social environment is believed to be the sole determinant of moral behavior, unfortunate consequences are likely to follow. For example, when children and adolescents (and adults) behave immorally, the social environment (parents, peers, teachers, clergy) and/or the devil are often blamed. As a result, an animus surrounds the people involved, often precluding them from addressing the offending person constructively.

For the purposes of this paper, moral behavior is viewed as socially adaptive; it is behavior whose purpose is to help human beings not only survive but also live in harmony and actualize their full potential. Moral behavior is empathic, just, honest, altruistic, and responsible, while immoral behavior is the opposite: impervious, unfair, dishonest, selfish, and irresponsible.

The scientific theory and research that indicate infants do not enter the world with blank slates are neither foreign nor inimical to moral education. For example, Kohlberg's theory of moral reasoning is based on cognitive development which is directly related to the brain (Kohlberg, 1986). Individuals with damage to specific areas in the brain would likely be fixated at the pre-conventional level of moral reasoning, meaning that their moral thinking and behavior is shaped solely by rewards and punishments.

Moreover, the relatively new field of neurotheology is based on the same neurobiological principles that apply to the present discussion (Joseph, 2003). For example, Ashbrook (1988), discussing the brain and religious belief, states: "In my view, distortions of human values arise from genetic predispositions and their resulting neuropsychological consequences" (p. 58). Bruce (2002), addressing religious educators, states: "Brain research is about making discoveries. It is about learning how this most amazing organism works and how it influences every aspect of your life. As a religious educator, you need to know how the brain functions and how to translate that information into better, more usable lessons to help students continue… on their journey of faith" (p. 13).

The focus of this paper is solely on the relationship between the brain and moral behavior. It does not address the issue of free will or moral or legal culpability related to immoral behavior. Those issues lie beyond the scope of this paper but are addressed elsewhere (Libet, Freeman, & Sutherland, 2004; Greene & Cohen, 2004).

Psychopathic Behavior

The type of morally maladaptive behavior discussed here is psychopathic behavior, which is manifested by a chronic and subtle or blatant disregard for society's conventions, sensibilities, and laws. Psychopathic behavior is typically manifested by habitual lying, cheating, stealing, assaulting, abusing alcohol and other drugs, and other forms of destructive and reckless behavior that can lead to serious interpersonal, employment, and legal problems (Cleckley, 1976; Hare, 1970; Pitchford, 2001; Merikangas, 2000).

It should be noted that throughout the history of psychology, many terms have been used to describe individuals who habitually violate the written and unwritten laws of society, feel no distress or remorse, and cause great harm to themselves, others, and society at large. In the recent past, terms such as "psychopathic," "sociopathic," and "antisocial" have been used to describe and diagnose this behavior. There is ongoing debate as to what traits and behaviors are included in each diagnosis and how much overlap, if any, occurs among the three concepts. The term "psychopathic personality disorder" will be used here because it is broadest in scope, is well-received historically, and is the term most used in the research that is cited.

Psychopathic behavior can be manifested in mild, moderate, or severe impairment and can vacillate between these levels as the individual develops through the lifespan. Mild impairment

can be the most insidious because it is often perceived by parents, teachers, coaches, ministers, and even some counselors as ‘’developmentally expected,” especially in boys—the “boys will be boys” justification for clear and consistently antisocial behavior. Adolescents and college age individuals who behave antisocially, especially if they are attractive, personable, intelligent, and talented in ways that are prized by society, are likely to escape facing the appropriate consequences of their behavior. Their misbehavior will be perceived as a moral lapse, a misunderstanding, or a poor decision, rather than as a manifestation of a personality disorder that is serious, chronic, and difficult, but not always impossible, to treat.

The question then arises: Where does the imprinting on the infant’s slate come from that sends the child into the world frontloaded for both the non-reception of moral teachings and the tendency toward morally maladaptive behavior?

Sources of Imprinting

There are three sources of imprinting on the slate: heredity, prenatal environment, and the perinatal environment.

Hereditary and environmental influences. With respect to the influences of heredity on behavioral predispositions, the question no longer is whether psychological traits are influenced by heredity, but how much they are influenced. It is well-accepted in the neurosciences today that genetic factors play a substantial role in normal and abnormal psychological traits (Pinker, 2002). Even common observation suggests that children enter the world predisposed to behave in certain ways. For example, people often remark about an infant’s disposition, temperament, or personality even in the first days and weeks after birth, well before behaviors are learned.

The field of behavioral genetics studies the relationship between hereditary and environmental influences on specific personality traits and behaviors. By using family, twin, and adoption studies, it is possible to arrive at an estimate of the relative contributions of heredity and environment to specific traits.

As early as 1990, Waller et al. studied the relationship between heredity and environment on the development of religious attitudes and found that heredity has a significant influence on the development of religious interests and values, as does the social environment. Waller et al. state: “Social scientists will have to discard the prime assumption that individual differences in religious and other social attitudes are solely influenced by environmental factors” (p. 141). Although religious development and moral development are not synonymous, there generally is a sufficiently strong relationship between them so that these findings have at least some applicability to moral development and a receptiveness or non-receptiveness to moral teachings.

With respect to the heritability of antisocial behavior, research suggests a significant hereditary influence on antisocial behavior, as well as a significant social environmental influence (Bouchard, 2004). These findings indicate that some people are genetically predisposed to have antisocial traits; whether this predisposition is activated will depend on the relevant strengths of the predisposition and the environment. For example, if an infant enters the world with a very strong genetic predisposition toward moral imperviousness and is reared in an environment that is only moderately religious, the environment is not likely to modify the predisposition to any significant degree.

It may well be that many of the same traits that combine to make-up an psychopathic personality are the same as those of an individual who is not predisposed to religiousness, for example, tendencies toward concrete thinking, impulsivity, imperviousness, narcissism, and an inability to bond emotionally with people, including moral models.

In the case of a genetic predisposition toward developing a psychopathic personality, there is not an “immoral” or “psychopathic” gene, anymore than there is a schizophrenic or bipolar gene. There may well be, however, a combination of genes that moves infants in the direction of

seeking excitement, adventure, novelty, independence, pleasure, and control, and away from cooperation, concentration, industriousness, responsibility, discomfort, altruism, and constraints (Moffit, 2005; Carey, 2003).

In combination, these traits would be inimical to principles of moral education and behavior, causing children, adolescents, and young adults to be impervious or even antagonistic toward moral sentiments and, perhaps, even toward those who offer them as a condition of their approval or love.

Prenatal influences. With respect to situations that can develop during pregnancy, several exposures can negatively impact brain development. This impact may be seen in gross deformities obvious at birth, or incipient and mild damage that may not become manifest in behavior until middle childhood or later. Behavioral teratologists, scientists who study how toxic agents cause defects in embryos and fetuses, have found that the following exposures are examples of teratogens that may cause latent or obvious neurobiological deficits:

▪ Exposure to chemicals and radiation found in the home, neighborhood, and workplace

▪ Exposure to drugs, including those that are prescribed, illicit, and over-the-counter, as well as alcohol. A pregnant woman who drinks even one-half ounce of alcohol each day creates an environment that is consistently related to neurological defects in her infant (Jacobson & Jacobson, 2000).

▪ Exposure to cortisol. Cortisol is a hormone released by the adrenal cortex which is elevated in pregnant women who are depressed or under inordinate stress (Jacobson & Jacobson, 2000).

▪ Exposure to cigarette smoke. Studies have found that the more a pregnant woman smokes, the more likely her son will be arrested for criminal activity in adolescence or young adulthood (Brennan, Grekin, & Mednick, 1999; Fergusson, Woodward, & Horwood, 1998). Passive smoking, a pregnant woman breathing another person's cigarette smoke, is also related to neurological defects in her fetus (Dejin-Karlsson, Hanson, Estergren, Sjoeberg, & Marsal, 1998).

▪ Exposure to caffeine. Pregnant women who drink two to three cups of coffee a day or an equal amount of caffeinated colas can give birth to infants with neurological deficits (Fernandes, et al., 1998).

▪ Exposure to viral and bacterial infections, including sexually transmitted diseases, as well as high fevers can cause brain damage.

▪ Endocrine dysfunction. Pregnant women who have hypothyroidism are at risk to have infants with a maldeveloped brain.

These and other prenatal events may have long-term consequences that are all but impossible to counteract in later life. In essence, the more prenatal environment matters, the less postnatal environment can matter (Ridley, 2003).

Perinatal influences. A number of factors in the perinatal environment may be related to brain dysfunction and/or damage. Among them are cerebral trauma, cerebral infarction, and oxygen deprivation that can be caused by the fetus having difficulty passing through the birth canal or by the umbilical cord wrapping around the fetus's neck. These events can impact the fetus' brain in a way that causes brain damage and/or brain dysfunction that can be mild, moderate, severe, or fatal.

Brain Damage and Dysfunction

When problems occur in hereditary predisposition, the prenatal environment, and/or the perinatal environment, brain damage, and/or brain dysfunction related to morally impaired judgment and its resultant behavior can occur.

It is important to understand the difference between brain damage and brain dysfunction. Brain damage means there is a lesion (injury, mass, disease) in the brain that occasionally or

regularly negatively impacts the behavior controlled by the section of the brain where the lesion resides. Brain dysfunction means that, while the structure of the brain may not be damaged, functional anomalies exist in the brain mechanisms and circuitry responsible for the coordination of cognitive and affective processes. When these anomalies are present, behavior will be negatively impacted to a lesser or greater extent.

Brain damage seems to affect moral development in two ways. It may create a "teflon neurology," meaning that the brain is not receptive to the kinds of input involved in moral teaching and role modeling, for example, certain kinds of abstract thinking. In other words, the thrust of the cognitive and affective moral teachings simply rolls off the individual's brain, leaving only trace evidence that they were ever present. The second way brain damage can cause impairment in the moral realm is that, even if the brain is capable of intellectually receiving moral teachings, it cannot internalize them on the affective level, thus precluding moral action. Analogously, if an automobile fuel tank is closed, it cannot receive fuel and, therefore, cannot move; if the gas tank is full, but the fuel fails to reach the engine, the automobile also cannot move.

While neuroimaging techniques can detect many types of brain damage, they cannot detect all types. Lesions may be so microscopic or hidden beneath and between layers of gray matter that they are undetectable by current neuroimaging techniques. For example, the brain damage and/or dysfunction of some of the major psychological disorders, such as bipolar disorder, cannot be detected (Pincus, 2001). It is possible, if not likely, that the kinds of brain damage hypothesized in individuals with psychopathy would be largely undetectable at this point in time. Therefore, it would be possible for an individual to get a clean bill of health from clinicians, yet have a brain dysfunction or lesion that is directly impairing behavior related to moral action.

The damage which can occur in various parts of the brain will have a direct or indirect effect on moral behavior. The four sections of the brain most associated with morally and socially adaptive behavior are the frontal lobes, the amygdala, the hypothalamus, and the hippocampus.

The frontal lobes lie in the portion of the brain behind the forehead and in front of the ears. Comprising approximately one-third of the brain, they fulfill the executive function of the brain, organizing and managing the transactions between different parts of the body and between the body and the environment and making decisions based on these transactions. The frontal lobes are the last part of the brain to mature fully, which generally occurs between 20 and 25 years of age (Pincus, 2001).

The following structures are parts of the limbic system in the brain:

- The amygdala is an almond-shaped structure located in the temporal lobe. It plays an important role in emotions, especially aggression, fear, anxiety, sex, and how these emotions affect learning and whether they are expressed constructively or destructively.
- The hypothalamus lies just below the thalamus and is a major control center for behaviors, such as aggression, sex, pleasure, rage, fear, and predatory behavior.
- The hippocampus is a large structure between the thalamus and the cerebral cortex and is involved with memory and learning.

Brain dysfunction can cause, and be caused by, problems with chemical neurotransmitters which are chemical agents manufactured inside neurons and carry messages across ten billion brain cells. An individual's genetic make-up is responsible for a low, high, or balanced level of neurotransmitters at birth. However, the level of neurotransmitters is not permanent but can change due to factors in the social environment, for example, high levels of stress. Behavioral problems can occur when there is an oversupply or undersupply of certain neurotransmitters at synapses between neurons.

The neurotransmitter serotonin seems to be especially linked to psychopathic behavior. Depleted serotonin levels can create a dangerous combination of behaviors: poor impulse control, aggressive and sexual behavior, a need to seek pleasure and avoid the punishments attached to those pleasures, acting destructively despite the threat of punishment, an appetite for alcohol and drugs, fearlessness in the face of threat, and the inability to stop destructive but pleasurable behavior once it has begun (Pihl & Peterson, 1993).

The following is a sample of how problems in brain anatomy and physiology can be manifested in real life situations in which moral issues arise. Before considering these examples of morally impaired behavior, however, it is important to keep in mind that these behaviors, when occasional, may be in the normal range and simply represent human imperfections which are evenly distributed across the population. The prospect of brain damage and/or dysfunction enters the picture under two conditions: The behavior is dispositional, meaning that it is part of an individual's disposition as manifested by its early onset and chronicity, and the individual was reared in a normal or healthy moral and social environment but was incapable of adequately internalizing moral and social principles and behaving accordingly. Individuals reared in amoral or immoral environments who behave in psychopathic ways may simply be "good learners" and not neurobiologically impaired, though they could be both. Analogously, it is the difference between brain damage causing mental retardation in a child reared in an intellectually stimulating environment, and a child with a normal brain functioning on a retarded level due to an intellectually impoverished environment. There is an important difference between these two situations.

Behavioral Impairments

Damage to the frontal lobes and limbic system have been linked to the following behavioral impairments that have real consequences on a daily basis.(Blair & Cipolotti, 2000; Greene, Sommerville, Nystrom, Darley, and Cohen, 2001; Bechara, Damasio, and Damasio, 2000).

1. The inability to learn from past experiences so as not to repeat the same mistakes again and again.

Individuals with cognitive impairments tend not to learn from aversive and instrumental conditioning. In other words, they fail to learn from being punished in the past, even repeatedly punished, and thus continually repeat the same maladaptive behavior. In contrast, individuals with healthy brains tend to remember being punished for past infractions, and this memory helps them resist the temptation to repeat the same act in the same circumstances. For example, it is not rare that the individuals get caught and punished for the same offenses over and over again, causing parents and teachers to lament: "When will they ever learn?'' Unfortunately, the answer is often never, especially when the punishments are so lenient as to fail to gain the individual's attention.

2. The inability to perceive the behaviors of others accurately so that responses to them are inappropriate and damaging.

Individuals who have impairments in their perception-action processes, meaning that they do not perceive accurately what people are thinking and feeling, will often react inappropriately. For example, they may not accurately interpret a person's behavioral cues that communicate clear signs of distress. Consequently, they are precluded from helping the person and, moreover, may even add to the distress by not responding to it appropriately.

A variation of this inability is that they may accurately perceive another's distress but lack any realization that *they* are the cause of the discomfort, which further adds to the other person's distress. An especially important element in cue-misreading is that these individuals fail to heed "stop signs," such as "No means no." They either fail to perceive the cues or interpret them as

meaning the opposite of what they actually mean ("She was saying 'no,' but it was obvious by the way she said it that she meant 'yes'.").

3. The inability to recognize the relationship between one's behavior and how it directly and indirectly affects others.

These individuals tend to have difficulty regulating their behavior so that it causes them to place themselves and others in harm's way. They experience disinhibition, meaning that they often are unable to control their aggressive and sexual drives adequately because they have not been processed through the individual's reasoning (censoring, inhibiting, moderating) process before being expressed.

They may interpret another person's behavioral cue as an offense when, in reality, it was not, or they may interpret a cue as a major offense when, in reality, it was a minor offense. In either case, the individual's angry reaction will be disproportionate to the offense and will ignite a physical and/or psychological assault on the other person, which will damage the individual, the other person, and the relationship.

In effect, these individuals resemble drivers of automobiles without brakes, who run over innocent people, then blame them for being in the way.

4. The inability to behave responsibly and assume responsibility for one's behavior.

These individuals often lack the capacity to grasp the moral requirements in situations, which causes them to damage themselves and others. They fail to understand that each of the following situations represents a moral choice rather than a simple matter of personal preference.

- Making promises to assume certain responsibilities and failing to keep them because to do so would be inconvenient
- Lying to others who have the right to the truth, thus leading others to assume things that are not true
- Drinking excessively (or using illicit drugs) in situations that place them and others in harm's way
- Participating in at-risk sexual behavior, taking the chance of spreading or contracting sexually transmitted diseases or producing an unwanted pregnancy

These individuals are morally tone deaf and unable to hear the legitimate admonitions of those who care about them.

5. The inability to delay gratification and consider the long-term consequences of current decisions.

These individuals tend to be myopic, seeing only the immediate present when it comes to decision-making. They see an opportunity to gratify a need and take immediate steps to get the need met, without considering the ramifications of their decision. They lack the capacity to delay gratification. Their existence lies in the present. As a result, they can make decisions that are at least regrettable, if not disastrous for them and others. For example, a young woman decides to drive her friends home after a night of excessive drinking. When she makes the decision, which is impaired by both her predisposition to make poor decisions and the alcohol she ingested, she does not consider the domino-effect of the unintended consequences of her decision, from losing her license, to crashing her car, to having a felony on her record, to derailing a career, to injuring her friends.

These individuals often perceive themselves as unlucky rather than unthinking.

6. The inability to have a genuine concern for others and to empathize with what they are experiencing.

These individuals are empathy-impaired and are largely incapable of experiencing true emotions, in contrast to superficial or feigned feelings of happiness, hurt, love, sorrow, shame, fear, guilt, joy, and loss. They cannot comprehend how anyone else could have these feelings

because they have never experienced them. When a person attempts to share feelings with them, it is as if they are hearing a foreign language.

As a result of being incapable of experiencing empathy to any meaningful degree, these individuals often relate to others in damaging ways because they are impervious to the other person's pain. Although their behavior causes fear, shame, anger, hurt, confusion, and despair in others, they move on as if nothing happened. They do not care because they cannot care.

7. The inability to experience meaningful emotions.

There are two kinds of emotions: life-giving and live-saving. Life-giving emotions are those that give human beings a meaning in life—that make life purposeful, worth living, worth sharing, worth the struggle. They are the feelings of joy, excitement, intimacy, love, and peace; of being accepted, affirmed, valued, appreciated, needed, respected, worthwhile, and blessed.

The closest these individuals come to feeling meaningful emotions is when they experience pleasure—pleasure derived from eating, drinking, playing, and having sexual relations; from gaining power, prestige, and/or possessions; and from controlling others. These needs are as likely to get met destructively as constructively.

Life-saving emotions provide people with guideposts and stop signs, so they do not propel themselves into physically and/or psychologically dangerous and potentially fatal situations. These emotions include fear, anxiety, worry, hurt, shame, doubt, insecurity, guilt, pain, embarrassment, and confusion. Individuals with blunted emotions are dauntless and rarely experience these feelings to any meaningful degree and hence find themselves rushing headlong in whatever direction their impulses drive them.

Practical Considerations

Although the nature of this article is meant to be primarily theoretical and empirical, some practical ramifications can be touched upon briefly.

1. It is important to distinguish between the nature of genetic predispositions, brain dysfunction, and brain damage as they affect moral development. In general, moral impairments caused by genetic predispositions have the best prognosis. By definition, they are predispositions, which means they have not yet become actualized and, hence, real. In other words, if the genetic predisposition toward morally maladaptive behavior is weak and the various environments (home, neighborhood, school) in which the child lives are psychologically healthy and morally sound, the child's (adolescent's) genetic predisposition to act in morally maladaptive ways may be gradually extinguished and replaced by learned dispositions to act in morally adaptive ways. However, if the social environments are dysfunctional and the moral tone authoritarian, it is likely that these influences will activate rather than extinguish the individual's predisposition to behave in morally maladaptive ways.

Brain dysfunction generally occurs when neurotransmitters are overshooting or undershooting their target neurons. When this seems to be related to behavioral impairments in the moral realm, the prognosis is generally guarded. The reason for this is that while psychoactive drugs, counseling, and/or spiritual direction can be helpful in some cases, the success of any intervention depends on the individual seeking it. Unfortunately, it is not rare that children, adolescents, and adults who seek treatment for their morally maladaptive behavior lack the insight into their behavior, the motivation to change it, and the commitment to remain in treatment, all of which are required for it to be successful.

Brain damage related to morally maladaptive behavior can be mild, moderate, or severe. However, even mild brain damage is likely to have significant and chronic consequences, even though it may not be detected by neuroimaging techniques. The prognosis in these cases is poor because the brain damage is likely to be irreversible; however, it is possible that a combination of

psychoactive medications and behavior therapy could at least reduce the frequency and/or severity of the morally maladaptive behavior.

2. There is no certain way to determine if a child was born with predispositions toward morally maladaptive behavior or simply learned the behavior after birth. However, if a child manifests "from the crib" an apparent inability to grasp intellectually and emotionally internalize teachings about right and wrong behavior and is impervious to the admonitions, needs, feelings, and rights of others, it can be reasonably assumed that the morally maladaptive behavior was predisposed at birth. Of course, it must be kept in mind that a child's behavior must be judged against what is normal behavior at the child's developmental stage. For example, the typical behavior of an adult psychopath is considered normal for a two or three year old child.

3. Individuals with psychopathic tendencies are often intelligent, attractive, socially engaging, and successful in their jobs, despite their morally maladaptive behavior. In fact, their behavior may even be an advantage in certain relationships and occupations. In other words, it is important to understand that, in reality, people with psychopathic personalities can run the gamut from being respected community leaders to gang members.

4. Most people's idea of a brain disorder is one that has easily recognizable signs and causes gross mental and/or physical impairments. While this can be the case in some circumstances, the types of brain disorders and maladaptive behavior discussed here are latent, mild, and insidious. Consequently, parents and teachers may gloss over or rationalize these maladaptive behaviors that would be sources of concern to mental health professionals familiar with this area of behavior.

Summary

Infants are not born with a blank slate with respect to moral development. They enter the world with an endless number of moral imprints that can create predispositions to be receptive or unreceptive to moral teachings from the social environment. For this reason, it is possible for children and adolescents to be reared in psychologically and morally healthy environments but, because of a moral imperviousness caused by neurobiological factors, they develop a psychopathic personality which is immune to positive moral influences. As a result of these neurobiological factors, these individuals typically manifest a constellation of personality traits that cause them personal, interpersonal, occupational, and legal problems and also negatively impact the lives of those around them. While these individuals sometimes can benefit from psychological treatment, the prognosis for successful treatment is generally poor to guarded.

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