Preventing Antisocial Personality Disorder through Clinical Therapy During the Formative Years of the Limbic System: A Review of Current Literature

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Abstract

As is the case with other severe and persistent mental illnesses, Antisocial Personality Disorder, or ASPD, is caused by a complicated combination of genetic, biological, and environmental causes (Benning, Hicks, Blonigen, & Krueger, 2003; Black, 2013). The following sections of this paper will explore these contributing factors. This paper will also aim to answer the question of what can be done during the formative years of the limbic system to potentially offset the symptoms of Antisocial Personality Disorder and foster pro-social behaviors and attitudes; allowing at risk individuals to live fully functioning lives in which they feel a sense of belonging, significance, and security. The targeted population in this paper is American males between the ages of 18 and 25 years old. The goal of this research will be to answer the question of whether or not therapy is an effective form of treatment and what makes that therapy more or less successful in comparison to other forms of treatment.
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Preventing Antisocial Personality Disorder through Clinical Therapy during the Formative Years of the Limbic System: A Review of Current Literature

Antisocial personality disorder is a diagnosis that carries more biases and negative connotations than any other in the Diagnostic Statistical Manual of Mental Illness. Even the most educated and knowledgeable professionals often associate the term with violence, danger, and resistance to treatment. While this population rightfully warrants feelings of apprehension amongst clinicians, it is vitally important to study. Antisocial personality disorder, or ASPD, is as common as obsessive-compulsive disorder, panic disorder, and attention deficit hyperactivity disorder (American Psychiatric Association, 2000). Unlike those frequently diagnosed with these common disorders, individuals with ASPD burden society economically, socially, and emotionally (Cooke, Forth, & Hare, 1998; Harris, Rice, & Cormier, 1991; Black, 2013). Dr. Black, a professor of psychiatry at the University of Iowa, says that “just about any bad thing in our society from domestic violence to murder” can be traced back to ASPD. The cost of prosecuting and incarcerating psychopaths amounts to a staggering $250 billion to $400 billion each year in the United States (Caldwell, Vitacco, & Van Rybroek, 2006). The clinical diagnostic criteria for Antisocial Personality Disorder include: pervasive and recurrent behaviors that violate social norms in all areas of life and continue throughout adulthood.

The most problematic symptoms of ASPD begin to strike individuals during late adolescence and early adulthood. Unfortunately, choices and behaviors made during this stage of life have lifelong consequences (Caspi, Elder, & Bem, 1987; Farrington & West,
Individuals with ASPD frequently fall behind and are never able to catch up to their peers as they struggle to complete their education, begin careers, and establish relationships that will help them fulfill social roles in a positive manner. Early identification and intervention during early adulthood may be able to help individuals stay on task and out of the criminal justice system later in life. Furthermore, treatment during this time may help to reduce the emotional and economic toll ASPD takes on society by minimizing the incidences of victimization caused by the behaviors these individuals direct against society.

Statement of the Problem

In the United States, adulthood officially begins at age 18. However, the human brain continues to grow, change, and mature significantly after age 18. The period of human development between adolescence and adulthood is very important. Trauma and change during this time can have lifelong implications to the Prefrontal Cortices; impacting the ability of the individual to modulate emotions. Research has recently focused on the relationship between what is happening in the lives of the average 18 year old and the changes occurring in the emerging adult brain (Baird & Bennett, 2006). According to Abigail Baird (2006), Assistant Professor of Psychological and Brain Sciences at Dartmouth University, young people rapidly begin to experience many new things during adolescence, a time that Western society has named the beginning of adulthood. This time of new experiences brings cognitive, social, and emotional challenges. The new challenges and experiences create significant changes in the regions of the brain known to integrate emotion and cognition in individuals ages 18 to 25 (Baird & Bennett, 2006).
Trauma and stress to the brain during this time can have lifelong implications (Jacobus, Thayer, Trim, Bava, Frank, & Tapert, 2013). The issue of how to nurture, protect, and encourage individuals during this critical stage of development is important to consider. This stage of rapid neurological change, accompanied by the new independence of legal adulthood could potentially be a critical time to offset the formation of severe and persistent mental illness, specifically illnesses that offset the direction of young people’s lives in catastrophic ways.

**Significance and Purpose of the Study**

The symptoms of personality disorders begin to present themselves long before age 25, age 18, and even before adolescence (Moffitt & Silva, 1988; Sampson Laub, 1990; Moffitt, 1990; Scott, Briskman, & O’Connor, 2014). Hard wired, genetically prescribed, character traits often mimic the behaviors that raise red flags to mental health professionals. These traits have usually been present throughout the duration of their lives. Negative patterns of thinking, feeling, and behaving seem natural to these individuals. Individuals who meet the clinical criteria for a personality disorder seldom recognize that there may be anything wrong with their mental health. Understandably, they usually blame extrinsic variables or other people for challenges they may encounter in life. Issues arise when the said challenges begin to out number those that mentally healthy people encounter on a general basis. Personality disorders cause people to struggle when trying to relate to situations and to other people. The degree of suffering correlates directly to the amount of impairment the symptoms have caused in relationships, social roles, work, school, and other life tasks (Sampson & Laub, 1990; Riser & Kosson, 2013).
Definition of Terms

Clinical definition of antisocial personality disorder. As is the case with all personality disorders, people with Antisocial Personality Disorder often have a rigid and unhealthy pattern of thinking and behaving. Their core character traits lie outside of what is considered normal for the majority of the population. These character traits fall into one of three sub groups: affective features, interpersonal features, and behavior patterns. The affective features present in those with Antisocial Personality Disorder (ASPD) refer to the absence of guilt and empathy (Black, 2013). The interpersonal features are narcissism and superficial charm. Typical behaviors of someone with ASPD include dishonesty, manipulativeness, and reckless risk-taking (Hare, 1993). Western culture has used the word “Psychopath” to refer to what the Diagnostic Statistical Manual of Mental Disorders calls Antisocial Personality Disorder. Psychopaths are characterized by an absence of empathy and poor impulse control; with a total lack of conscience (Hare, 1993). About 1% of the total population can be defined as psychopathic, according to a detailed psychological profile checklist (Cooke, 1998).

Although the DSM-V (American Psychiatric Association, 2013) states that ASPD is “also known as psychopathy” (p. 645), ASPD diagnostic criteria focus primarily on behavioral deviance, whereas psychopathy encompasses a wide range of affective, interpersonal, and behavioral disturbances. The ASPD criteria do not include many of these interpersonal and affective features. Nevertheless, it is very difficult to find a true distinction between ASPD and psychopathy without getting frustrated with the blurred lines. Many professionals use the two terms interchangeably (Lewis, 1991; Kirkman, 2008; Gurley, 2009). Chronic antisocial behavior is referred to as psychopathy in the
preventing antisocial personality disorder (American Psychiatric Association, 2013). Psychopathy and ASPD are highly comorbid within criminal populations (Coid, 2002; Hare, 2003). Furthermore, both are associated with substance abuse, (Messina, Wish, Hoffman, & Nemes, 2001; Smith & Newman, 1990) predict treatment failure, (Bucholz, Hesselbrock, Health, Kramer, & Schuckit, 2000; Cunningham & Reidy, 1998; Hare, Clark, Grann, & Thornton, 2000) and recidivism (Harris, Rice, & Cormier, 1991; Serin & Amos, 1995). These important similarities suggest that the pathophysiology of the underlying disorders may be the same (Riser & Kosson, 2013). For the purpose of this paper, the terms ASPD, sociopath, and psychopathy will be used interchangeably to describe the same set of behaviors and symptoms.

**Goals of clinical therapy.** Like other disorders, ASPD lies on a continuum of severity (Black, 2013; Riser & Kosson, 2013). Serial killers lie at one end while mildly affected individuals who commit bad acts from time to time lie at the other end. The targeted population this literature review aims to research lie in the middle of the spectrum; the symptoms of the disorder affect their lives enough to impact their functioning in at least one of the five life tasks. While many with ASPD do not report psychological suffering the same way others would, the suffering that can be prevented by treating ASPD is that of the victims. Furthermore, many argue that if individuals are able to remain law abiding, they will be happier in their lives (Krampen & von Eye, 2006; diZerega & Verdone, 2011; Datchi & Thomas, 2013). This assumption would support the idea that treatment can, in fact, improve the lives of individuals by helping
them to remain law abiding and hence decreasing the degree to which they suffer from symptoms of the disorder.

**Limbic system.** The complex of the brain primarily responsible for the emotional lives of humans is called the limbic system. There are three areas of the limbic system that function abnormally in the brain of a sociopath: the orbital cortex, the amygdala, and the narrow strip of limbic cortices that connect the orbital cortex with the amygdala (Fowles & Dindo, 2006). The orbital cortex is the area of the brain just about the eyes. It is responsible for the coding of ethics, conscience, and impulse control. The amygdala is located in the anterior part of the temporal cortex (Gregg & Siegel, 2001). It is one of the most primitive parts of the human brain, responsible for processing emotion. Lastly, the limbic cortices that connect the orbital cortex with the amygdala include: a) the cingulate cortex, which codes for social cues, b) the hippocampal area, which codes for emotional memories, and c) the insula, which processes empathy and intuition (Harris, Rice, & Cormier, 1991; Mawson, 1999; Gregg & Siegel, 2001; Fowles & Dindo, 2006). When the areas of the limbic system are underactive or inactive, a person will feel driven to compensate for the dulled emotional reactivity by repeatedly pursuing extreme activities simply to feel satisfied (Mawson, 1999; Baird, Bennett, & Craig, 2006).

**Literature Review**

**Developmental Trajectories**

There are three developmental trajectories of ASPD (Loeber & Stouthamer-Loeber, 1998; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003). They each lead to a different level of criminal involvement and delinquency, or severity of the disorder. The three pathways are: 1) overt, or life-course persistent (i.e., high levels of aggression in
childhood and violence in adolescence and adulthood). 2) Covert, or limited-duration (i.e., antisocial acts in childhood and nonviolent crimes later in development), and 3) authority conflict, or late-onset offenders (i.e., a progression from stubborn behavior, deviance, and authority avoidance to later status offending).

The age of onset of aggressive behaviors with comorbid ADHD is believed to significantly impact the degree and severity of ASPD (Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003). Early and persistent aggression (during preschool) is likely to be related to a biological or genetic vulnerability that is exacerbated by poor parenting and early school failure (Patterson et al, 1989; Moffitt, 1993; Loeber & Stouthamer-Loeber, 1998; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003). Children with a middle-childhood onset of aggression without ADHD have been found to respond more positively to treatment than those with an early onset of aggression and with ADHD (Tinsley & Parke, 1983; Loeber & Stouthamer-Loeber, 1998; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003; Scott, Briskman, & O’Connor, 2014).

**Biological and Neuropsychological Contributing Factors of Antisocial Personality Disorder**

**Genetics.** Psychological traits and characteristics are affected by genes. At least a dozen specific genes have been identified as high-risk, violence-related genes (Mednick, Gabrielli, & Hutchings, 1984; Fallon, 2006; McDermott et al., 2009). Individuals with the so-called “warrior gene” display higher levels of aggression in response to provocation compared to individuals without the warrior gene (McDermott et al., 2009). Monoamine oxidase A (MAOA) is an enzyme that breaks down important neurotransmitters in the brain, including dopamine, norepinephrine, and serotonin.
MAOA influences aggressive behavior with potentially important implications for interpersonal aggression, violence, political decision-making, and crime (McDermott et al., 2009). MAOA earned the nickname “warrior gene” after researchers theorized that the original purpose of this inherited gene once served the purpose of allowing early humans to defend themselves against aggressive attackers. Darwinism would suggest that only the most aggressive humans survived in times of conflict and war. Today, humans have various forms of the gene, resulting in different levels of enzymatic activity. People with the low-activity form (MAOA-L) produce less of the enzyme, while the high-activity form (MAOA-H) produces more of the enzyme (McDermott et al., 2009).

Only about a third of people in Western populations have the low-activity form of MAOA. Ironically, low-activity MAOA is much more common in some populations that have a history of warfare. MAOA is less associated with aggression when the degree of provocation is low in comparison to high-provocation situations where MAOA significantly predicted aggression (McDermott et al., 2009).

The effects of the MAOA gene express themselves differently in men and women. Because the gene is found on the X chromosome, females receive either two normally functioning forms of the gene, or at least one normally functional MAOA variant that offsets the potentially dangerous implication of the “warrior” form of the gene. Males, however, only receive one X chromosome. If that one chromosome contains the “warrior” version of the MAOA gene, there will be no other forms to even out its effects. This helps to explain why boys and men are much more likely to be very aggressive or possess more psychopathic traits (Fallon, 2006).
**Hormones.** Hormones and neurotransmitters also play a vital role in supporting the biological connection with ASPD. Those with symptoms of impulsivity and aggression have naturally lower levels of adrenaline in their blood at baseline, and also when they are excited, irritated, or angry (Hostinar & Gunnar, 2013). The lack of stimulation resulting from an insufficient amount of adrenaline might cause those with ASPD to become easily bored. In order to obtain arousal and excitement, these individuals are more likely to attempt to seek thrills by more dangerous and extreme measures. A lower concentration of adrenaline also supports the idea that someone with ASPD is prone to exhibit dangerous behaviors unlike someone who normally experiences fear and anxiety during dangerous situations. Individuals with ASPD feel less aversion to initiating and participating in dangerous situation partially because their brains do not release an adequate amount of adrenaline (Hostinar & Gunnar, 2013).

Neurotransmitters such as serotonin have been targeted in connection with ASPD (Virkkunen, Goldman, Nielsen, & Linnoila, 1995). Newborns with a family history of antisocial personality disorder have lower levels of serotonin in the brain at birth than infants without a family history of the disorder (Constantino, Morris, & Murphy, 1997).

The reduced empathy seen in psychopathy may be associated with the influence of low acting genes related to the hormones oxytocin and vasopressin (Fallon, 2006). Oxytocin is a neuropeptide that affects our everyday social interactions and our ability to behave altruistically and cooperatively; or in opposite ways of which a psychopath behaves. Oxytocin is also responsible for a variety of virtuous behaviors in humans such as empathy, generosity and trust (Zak, Kurzban, & Matzner, 2004). The neurotransmitter, vasopressin, also plays a role in human aggression. Several animal studies have linked
high vasopressin levels to increases in aggressive behavior (Coccaro, Kavoussi, Hauger, Cooper, & Ferris, 1998).

About five percent of the population does not release oxytocin in the same way as their peers. The background (character traits, previous behaviors, history of violence) for individuals who do not release Oxytocin is similar to the population diagnosed with ASPD (Fallon, 2006). The rest of the population is biologically wired to cooperate and trust one another. Without oxytocin, there would be no intrinsic intuition telling us whom we can and cannot trust (Zak, 2005; Beitchman, Zai, Muir, Berall, Nowrouzi, Choi, & Kennedy, 2012). One of the most dangerous traits of sociopaths is that they lack empathy. Empathy allows us to understand another’s state of mind. It motivates others to help those who are in need. Empathy is the basis of morality and social interest. In one recent study (Barraza & Zak, 2009) participants who showed more empathic concern (sympathy and compassion) after watching an emotional video had higher levels of oxytocin than their counterparts. Because oxytocin is related to the pillars of social interest: generosity, trust, and empathy, it could potentially play a critical role in the future treatment of ASPD (Beitchman, et al., 2012).

Neuropsychological dysfunctions. Two sorts of neuropsychological deficits are empirically associated with antisocial behavior: verbal and executive functions. Children who have verbal neuropsychological deficits exhibit difficulty with listening, reading, problem solving, expressive speech, writing, and memory (Mednick, Gabrielli, & Hutchings, 1984; Moffitt & Silva, 1988b; Fallon, 2006; McDermott et al., 2009). These difficulties are pervasive. When coupled with the executive neuropsychological deficits, which symptoms include inattention and impulsivity, a compartmental learning disability
is produced (Price, Daffner, Stowe, & Mesulam, 1990). Boys with learning disabilities who score low on tests of language and self-control are more likely than their peers to exhibit aggressive antisocial behavior (Moffitt, 1990; Moffitt & Henry, 1989; Moffitt & Silva, 1988).

When a child with neuropsychological deficits feels that he or she does not belong, or as though he or she is inferior to his or her peers, the child will misbehave as a way to gain social status. When gaining attention does not work, the child will move to the next goal: to gain power and control. When the child’s efforts to feel better about him or herself by gaining power over others are not successful, the child will retaliate out of anger; hence resorting to what Dreikurs (1964) called the third goal of revenge.

Finally, when all else has failed and the child is left feeling insignificant, insecure, and as though he or she does not belong in his or her community (family, school, neighborhood, etc.), the child feels defeated. This is when antisocial behaviors become persistent enough to define the child. The antisocial behaviors are intertwined with the child’s sense of self and the child is propelled into a life of persistently antisocial behavior (Dreikurs, 1964; Moffitt, 1990b; Moffitt & Henry, 1991).

What causes these neuropsychological deficits warrants discussion and investigation, as they have serious implications for future behavior and may also render young people more vulnerable to criminogenic environments (Moffitt, 1990b; Lynam, Moffitt, & Stouthamer-Loeber, 1993).

Environmental Contributing Factors of Antisocial Personality Disorder

While there are clear patterns in both the brains and genetics of psychopaths, these biological markers alone are not enough to create a psychopath or warrant a
diagnosis of Antisocial Personality Disorder. There is a third ingredient involved in the activation of these abnormalities, or the hindrance of growth in the neurological development during the formative years in young adulthood. The environment determines whether or not violence-related genes and certain brain processes are triggered towards psychopathic behavior (Fallon, 2006; Craig, Catani, Deeley, Latham, Daly, Kanaan, Picchioni, McGuire, Fahy, & Murphy, 2009).

**Trauma, abuse, and neglect.** Trauma affects adjustment and may result in serious personality psychopathology (Tarter, Hegedus, Winsten, & Alterman, 1984; Milner & McCanne, 1991; Bleiberg, 2002). Trauma is clinically defined as an experience in the life of an individual that is characterized by its intensity, the incapacity of that person to react to or cope with it adequately, and the confusion, shock, and long-lasting pathogenetic influence on the psychic organization (Laplanche & Pontalis, 1992).

Severe abuse (sexual, physical, or emotional) during early childhood is instrumental in the stunting of healthy neurological development. The timing of when various factors come into play is critically important in determining what type of psychopathological behavior is exhibited (Tarter, Hegedus, Winsten, & Alterman, 1984; Fallon, 2006; Milner & McCanne, 1991).

**Secure attachment.** When children are deprived of support at home, antisocial behavior will subsequently develop (Winnicott, 1953). The optimal relationship between and infant and caregiver involves a protective and secure environment as well as titration of gratification and frustration. Right away, an infant should receive undue attention from his or her caregivers, so that every need is adequately met. The attention and adaptation of the care giver to the child’s needs provides the child with a sense of control,
omnipotence, and the comfort of being connected with the caregiver, thus establishing a safe environment and a secure attachment. As the child grows, the caregivers should gradually adapt less and less, according to the infant’s ability to tolerate frustration and “inconvenience.” When a parent or caregiver does not adapt to every need of the child, this helps him or her to adapt to external realities appropriately, as his or her awareness of personal needs grows concurrently (Winnicott, 1953).

However, if the primary caregiver becomes too distant or too unresponsive, the child will suffer from early emotional deprivation; a problem that lies at the root of many psychological issues, including antisocial behavior (Winnicott, 1953; Bandura, 1977; Dogan, Conger, Kim, & Masyn, 2007). When children experience separations from parents, and when parents threaten abandonment, children feel intense anger (Bowlby, 1973). When prolonged separations are paired with frightening threats, children are likely to feel a dysfunctional level of anger toward the parents that often involves intense hate (Dozier, Stovall, & Albus, 1999). The anger is often repressed and directed toward others because directing anger toward a parent with antisocial traits and behaviors is too threatening to the relationship between the child and his or her parent (Bowlby, 1973).

Almost 90% of adults with ASPD have experienced prolonged separations from a caregiver at some point during their childhood (Zaraini, Gunderson, Marino, Schwartz, & Frankenberg, 1989). The prolonged separations said to be most indicative of future maladaptive behavior are from divorce or incarceration of a parent, but not as a result of death. Parental neglect, lack of warmth, and the deterioration of attachment are most likely to predicted criminal behavior in studies of secure attachment (Dozier, Stovall, & Albus, 1999).


**Evocative interactions and parental relationships.** During infancy, neural
development is obstructed by poor nutrition, a lack of stimulation, and a lack of affection
(Cravioto & Arrieta, 1983; Meany, Aitken, van Berkel, Bhatnagar, & Sapolsky, 1988).
Children with neuropsychological problems evoke a challenge to even the most
resourceful, loving, and patient caregivers. One example of this is seen in studies of low-
birth-weight, premature infants. The complications that accompany premature infants
negatively influence the behavior of their caretakers; they arrive before parents are
prepared, their crying patterns are rated as more disturbing and irritating, and parents
report that they are less satisfying to feed, less pleasant to hold, and more demanding to
care for than healthy babies. Even these early negative experiences contribute to later
dysfunctional parent–child relationships, as the challenge of coping with difficult
behaviors evokes a chain of failed parent-child encounters (Sameroff & Chandler, 1975;
and subsequently reduce their efforts to actively parent their children and direct their
behavior. They become increasingly less involved in the teaching and parenting process.
Caspi, Elder, & Bem, 1987).

Evocative interaction occurs when a child's behavior evokes distinctive responses
from others (Maccoby, & Jacklin, 1983; Caspi et al., 1987). Evocative interaction plays
an important role both in promoting antisocial behaviors when the evoked responses from
the interpersonal social environment exacerbate the child’s tendencies (Goldsmith,
Bradshaw, & Rieser-Danner, 1986; Lytton, 1990). This pattern is often maintained
throughout the life of someone who exhibits antisocial behaviors in early childhood
(Caspi, Elder, & Bem, 1987; Moffitt, 1993). In other words, when children “step off on the wrong foot,” the path remains treacherous at home, as they enter school, and then as they enter into adulthood. Quay (1987) summarized this pattern by stating: “this youth is likely to be at odds with everyone in the environment, and most particularly with those who must interact with him on a daily basis to raise, educate, or otherwise control him…. This pattern is the most troublesome to society, seems least amenable to change, and has the most pessimistic prognosis for adult adjustment” (p. 121).

**Paternal antisocial behavior, family dysfunction, and parental inconsistency.**

The behaviors associated with ASPD are socially maladaptive and harmful. Parents with an antisocial personality structure pose an especially injurious threat to their children. The pathology of antisocial behavior implies traits such as deceitfulness, irresponsibility, unreliability, and an incapability to feel guilt, remorse, or even love. This is damaging to a child’s emotional, cognitive, and social development (Torry & Billick, 2001).

Children with a genetic predisposition to ASPD who are bring raised with a parental style that triggers the genetic liability are at a clinically significant greater risk for developing the disorder themselves (Weisz, Sandler, Durlak, & Anton, 2005). A parent who is impulsive, irritable, and has little concern for their responsibilities is likely to discipline erratically, be neglectful, and have little to no desire to seek help to improve his or her parenting styles (Tarter, Hegedus, Winsten, & Alterman, 1984; Weisz, Sandler, Durlak, & Anton, 2005; Ronis & Borduin, 2007; Torry & Billick, 2011).

**ADHD and peer rejection.** Boys with chronic aggression have a higher risk for concentration problems than nonaggressive boys (Patterson, Reid, & Dishion, 1992; Crijnen, Feehan, & Kellam, 1998). They are also more likely than their nonaggressive
counterparts to experience peer rejection (Coie, Terry, Lenox, & Lochman, 1995; Bagwell, Coie, Terry, & Lochman, 2000; Deater-Deckard, 2001). These differences present themselves as early as the fall semester of first grade. The subsequent patterns of negative interactions with peers and teachers promote the persistence of aggressive and disruptive behavior over time and heighten the risk of later antisocial behavior in adolescence and adulthood (Bagwell, Coie, Terry, & Lochman, 2000). The data from studies on the connections between early aggression, attention, and peer relationships is consistent with the idea that the aggression exhibited by boys with a chronic high trajectory may be linked to neuropsychological deficits that are also associated with ADHD (Patterson, Reid, & Dishion, 1992; Moffitt, 1993; Coie, Terry, Lenox, & Lochman, 1995; Jensen et al., 1997). Teacher ratings of youths' concentration problems at school entry may be an important tool for more precisely identifying which children would benefit most from preventive interventions (Patterson, Reid, & Dishion, 1992).

The Formative Years as a Window of Opportunity for Change

It is not abnormal for teenagers to misbehave or even exhibit antisocial behaviors. However it is normal for these behaviors to decline after graduating from high school and entering into adulthood (Elliott & Voss, 1974; Moffitt, 1993). Life changing milestones that symbolize a coming of age such as: joining the army (Elder, 1986; Mattick, 1960), getting married (Sampson & Laub, 1990), going to college, or starting a full-time job, are thought to all be opportunities for young people to gain a sense of significance and security in their life tasks (West, 1982; Sampson & Laub, 1990; Moffitt, 1993).

Young adults who are able to decrease and eventually stop antisocial behaviors have had more opportunities to gain confidence and encouragement in their abilities to
behave in a prosocial manner and succeed academically, in comparison to young adults who meet the clinical criteria for Antisocial Personality Disorder during young adulthood. Young adults who are vulnerable to being diagnosed with ASPD lack the social skills and academic achievements that allow their peers to continue on to postsecondary education, healthy marriages, and desirable careers. These differences are highlighted during young adulthood, hence threatening the ego, evoking defensive behaviors, and allowing more opportunities for disadvantaged young people to feel even further discouraged and inadequate. They often believe that they have less available alternatives to crime than their peers (Sampson & Laub, 1990; Baird, Bennett, & Craig, 2006; Scott, Briskman, & O’Connor, 2014).

By the end of early adulthood (age 25), the brain is done growing and behavior modification becomes increasingly difficult. At this time, the neurological damage that has occurred in the brain of an individual with Antisocial Personality Disorder is likely to be permanent for the duration of that individual’s life (Gregg & Siegel, 2001; Baird, Bennett, & Craig, 2006).

The abnormalities in the brain of an adult with ASPD are all found in the limbic regions. These abnormalities include: 1) A lack of activity in the orbital cortex: the circuit coding for ethics, conscience and impulse control. 2) A lack of activity in the anterior part of the temporal cortex, where the amygdala is located: a structure responsible for the processing of emotion. 3) Under functioning in the narrow strip of limbic cortices that connect the orbital cortex with the amygdala, namely: the cingulate cortex, which codes for social cues; the hippocampal area, which codes for emotional memories; and the insula, which processes empathy and “gut feelings” (Gregg & Siegel,
2001; Craig, Catani, Deeley, Latham, Daly, Kanaan, Picchioni, McGuire, Fahy, & Murphy, 2009; Fallon, 2006).

The effects of the underactive limbic regions present themselves during aversive learning, correlating with insensitivity to negative reinforcement (Craig, et al, 2009). The two defining characteristics of psychopaths, blunted emotional response to negative stimuli, coupled with poor impulse control, have been measured in psychological and neuroimaging experiments (Craig, et al, 2009). Several studies have found decreased responsiveness of the amygdala to fearful or other negative stimuli in psychopaths (Patrick, Bradley, & Lang, 1993; Zuckerman, 1994; Baird, Bennett, & Craig, 2006; Craig, et al, 2009).

The poor impulse control observed in psychopaths is correlated to their inability to control aggressive behaviors. Aggression is typically divided into two categories: reactive aggression (reacting to a threat), and instrumental (using aggression for a personal goal). The areas of the brain involved when reacting to a threat either reactively or instrumentally include the amygdala, the hypothalamus, and the dorsal half of the periaqueductal gray (PAG) (Gregg & Siegel, 2001).

When one experiences threatening stimuli, the body begins to prepare to defend itself. Activity is increased in the hypothalamus after the said stimulus has activated the sympathetic nervous system - awareness becomes heightened and blood pressure is raised. According to evolutionary theory, this response patterns helps humans remember significant events and aids in the process of learning from past experience, a necessary tool for survival (Craig, et al, 2009). Individuals with ASPD do not react the same way to threatening stimuli as the rest of the population. Even when their safety is at risk, their
most primal instincts do not kick in and they do not respond to or experience fear in the same way someone with a functional amygdale would. These changes have been observed through studies focused on: aversive conditioning (Craig, et al, 2009); passive avoidance learning (Moll, et al, 2005); augmentation of the startle reflex (Patrick, et al, 1993); and fearful face recognition (Zuckerman, 1994; Blair, 2010).

There is a significant difference in cortical thickness between psychopaths and nonpsychopaths in the precentral gyrus bilaterally (Ly, Motzkin, Philippi, Kirk, Newman, Kiehl, & Koenigs, 2012). Although the precentral gyrus is primarily known as an area for motor planning and execution—and thus is not typically theorized to have any meaningful role in psychopathy—there is mounting evidence that it may indeed impact functions relevant to psychopathy. Individuals with psychopathic characteristics, such as violence, are more likely to have a clinically significant amount of thinning in the precentral gyrus (Narayan, Narr, Kumari, Woods, Thompson, Toga, & Sharma, 2007; Yang, Raine, Colletti, Toga, & Narr, 2009).

Recent studies have associated precentral gyrus activity with impulsivity in juvenile offenders (Shannon, Raichle, Snyder, Fair, Mills, Zhang, Bache, Calhoun, Nigg, Nagel, Stevens, & Kiehl, 2011), abstract emotional meaning (Moseley, Carota, Hauk, Mohr, & Pulvermuller, 2012), empathy for pain (Fecteau, Pascual-Leone, & Theoret, 2008), and value signals during decision making (Sul, Jo, Lee, & Jung, 2011).

Growing evidence suggests a role for the inferior frontal gyrus in social cognition and its potential to serve as a neural substrate underlying empathy (Rizzolatti, Fadiga, Gallese, & Fogassi, 1996; Iacoboni, 2009). Studies aimed at gaining a better understanding of Autism (Dapretto, Davies, Pfeifer, Scott, Sigman, Bookheimer, &
Iacoboni, 2006; Hadjikhani, Joseph, Snyder, & Tager-Flusberg, 2006; Yamasaki, Yamasue, Abe, Suga, Yamada, Inoue, & Kasai, 2010) have shown that a lack of “mirror” activity and a thinning in the inferior frontal gyrus are strongly connected with deficient empathy and impoverished interpersonal affection; which are also hallmark traits of ASPD (Kiehl, Smith, Mendrek, Forster, Hare & Liddle, 2004; Shannon, et al., 2011).

**Goals and Objectives for Treatment Planning**

Because many people who suffer from this disorder will be mandated to therapy, sometimes in a forensic or jail setting, a client who seems motivated to participate in therapy is seldom seen. Therapy should focus on life issues that the client is already interested in changing, such as goals relating to housing, finances, or employment; improvement in social or family relationships; learning new coping skills, etc. The therapist must also be sure to discuss the client’s antisocial behavior and feelings (or lack thereof). A lack of connections between feelings and behaviors is a common sign of ASPD. Helping the client draw those lines between the two should be included in almost all treatment plans for clients with ASPD (Black, 2013).

Rather than rationalizing the purpose of therapy by threatening to report noncompliance to the court or probation officers, a therapist can motivate clients by helping them find good reasons that they may want to work on this problem further. For instance, ensuring that they not come into contact with the court system again, be incarcerated, have to submit themselves to additional psychological examinations, etc.

The symptoms that warrant attention in a treatment plan for someone with ASPD include: repeated illegal activity (Aos, Phipps, Barnoski, & Lieb, 2001); lying and deceitfulness; impulsivity; irritability and aggression; disregard for safety of oneself or
others; irresponsibility regarding work, family, or finances; lack of guilt, remorse, or empathy for others; lack of concern for consequences of behavior; inability to learn from experience or change behavior based on past outcomes or predicted future outcomes; bullying or cruelty to animals and/or other humans; and destruction of property (Benning, Hicks, Blonigen, & Krueger, 2003; Hare, 2003; Caldwell, Vitacco, & Van Rybroek, 2006; American Psychiatric Association, 2013; Black, 2013).

**Identifying defense mechanisms.** Many professional theorists and clinicians argue that all symptoms serve a purpose, and that all behavior is purposeful. The underlying purpose of almost all maladaptive behavior is to essentially defend the psyche. Freud would refer to this as the ego, whereas Adler would argue that it is the need to belong and feel significant and secure that is being defended. Just like everyone else, even those with Antisocial Personality Disorder need to protect their egos and feel a sense of belonging, significance, and security. By studying what defense mechanisms those with ASPD are most likely to use, therapists can gain a more clear understanding of the motivations behind their clients’ behaviors and thus be better equipped to impact change.

Omnipotence, denial, devaluation, splitting, dissociation, projection, rationalization, and projective identification are positively associated with ASPD as the most common defense mechanisms. Repression is negatively associated with ASPD, meaning it is seldom seen by treatment providers and assessors (Perry, Presniak, & Olson, 2013). The defense mechanisms used by individuals with ASPD can be categorized into two groups: image-distorting defenses (i.e., omnipotence, devaluation,
and idealization) and disavowal defenses (i.e., denial, rationalization, and projection) (Draughon, 1977).

Concurrent with the clinical criteria required for a diagnosis of ASPD, the distorted view of themselves and others is maintained by disavowal and image-distortion directed at anything that threatens their omnipotent self-view (Draughon, 1977; Hare, 2003; Hemphää & Hodgins, 2014).

Individuals with ASPD intrinsically deny themselves a negative self-image, resulting in what is referred to as a split-off self-image (Gacono, Meloy, & Berg, 1992). To many people, self-worth is contingent upon many external factors – intelligence, monetary earning potential, physical attractiveness, charitable activity. Individuals with ASPD have already been receiving numerous messages throughout their lives indicating that they are not capable of being considered a worthwhile human. By early adulthood, these individuals have successfully managed to perfect defense mechanisms that will protect them from truly feelings worthless as a human being. They no longer need to adequately fulfil all social roles in order to feel valuable and worthwhile. The use of denial and omnipotence/grandiosity as a barrier between them and self-awareness excuses them from the pressures others feel from the perception of social inadequacy. Any negative experience that threatens their ego is disavowed by denying the effects of their behaviors on others, rationalizing their criminal and/or aggressive actions, and projecting their negative experiences onto others (Gacono et al., 1992; Presniak et al. 2010).

**Ability to fulfil social roles.** It is common for young men with sociopathic traits to depend on relatives for assistance with basic needs such as housing, employment, and
health care (diZerega & Verdone, 2011). Looking beyond the bottom rungs of Maslow’s hierarchy of needs, close and supportive family relationships are an essential component to the mental health and rehabilitation of young people predisposed to ASPD.

According to recent research on the role of the family and the treatment of ASPD, the degree of family involvement was indicative of the recidivism rate of male offenders released from prison (LaVigne & Visher, 2009). Family involvement, specifically the amount of time spent involved in the daily activities of children, has been associated with better treatment outcomes for young male offenders who once presented with ASPD traits (Finney Hairston, 2002; Naser & Visher, 2006).

If the family is able to offer a context in which someone with ASPD traits has the opportunity to fulfill social roles, relate to others, and feel a sense of purpose, it will serve as an entry point for minimizing individual and contextual risk factors.

Family therapy for these subjects and those closest to them should aim at increasing the individuals’ understanding of the family’s experience, resolve conflict in expectations, and build effective strategies for enhanced family support (Shollenberger, 2009). Addressing problematic family transactions is crucial to strengthening relationships and increasing the positive influence of family support on young men with sociopathic traits. This treatment component will help to offset the disorder if utilized during the formative years of early adulthood (Tarter, Hegedus, Winsten, & Alterman, 1984).

**Emotion regulation and emotional intelligence.** Emotion regulation is the manipulation of the presence and/or intensity of the psychological and physical components of an emotional response. Emotion regulation pertains to both subjective
experience and physiological activity (Gross & Thompson, 2007). The ability to regulate emotions in response to stimuli is essential in the development and maintenance of mental health (Frazer, Galinsky, Smokowski, Day, Terzian, Rose, & Guo, 2005; Gross & Muñoz, 2006). Effective treatment plans of psychopathy should always include the goal of improving emotion regulation ability.

There are two elements to consider when teaching someone to regulate his or her emotions. The first component focuses on strategies that occur prior to the emotion generative response. For example, someone with ASPD might actively avoid talking with an estranged parent to avoid feeling shame or rejection. The second is response-focused emotion regulation. These behaviors occur after an emotional activation and involve direct inflection of one or more of the behavioral, physiological, or subjective response components. An example of this would be practicing relaxation techniques while anxious or angry to decrease the intensity of physical sensations accompanied by the emotion (Gross & Muñoz, 1995; Gross & Levenson, 1997).

At some time before adulthood these individuals learned that their initial responses to emotion triggering stimuli were ineffective. They learned to suppress their emotions and rely on rigid strategies. These strategies are often inconsistent with long-term goals. For example, one who is seeking security and belonging through friendship may reach out to his or her peers by initiating conversation. If for some unforeseen circumstance his or her attempts are met with hostility, this experience would likely evoke feelings of rejection, embarrassment, shame, or discouragement. Western culture often encourages maladaptive behaviors. The pattern of expressing maladaptive emotion regulating behaviors is rewarded every day when young boys are told to “man up.” The
feedback boys receive when they express sadness, fear, or loss implies that their emotional regulation skills are inherently not only inadequate, but also offensive to the male population. Young men in particular are taught to cope with feelings of rejection, embarrassment, shame, and discouragement by dismissing them all together and expressing only one secondary emotion that accompanies all others: anger. Young men are encouraged to express their anger. They are frequently given messages that they are not only entitled to feel anger, but also entitled to express their anger. “You’re not going to take that from ‘him’, are you?” Is a rhetorical question associated with a tone implying that something should be done to teach ‘him’ a lesson (Fraser, et al, 2005; Werner & Gross, 2010).

Young adults with ASPD traits have emotion regulation skills even more maladaptive than what is normal for young men in Western culture (Benning et al., 2003). Emotion regulation deficits are associated with psychopathic personality traits (Gratz & Roemer, 2004). Someone with ASPD traits would likely exhibit specific behaviors in response to emotional distress. These behaviors include inability to accept the initial emotion associated with pain (usually rejection, fear, or shame); problems inhibiting impulsive, goal-directed behavior; and limited perceived access to emotion regulation strategies (Benning et al., 2003; Patrick et al., 1993). The dual process model of psychopathy (Fowles & Dindo, 2006) hypothesizes that there are two separate etiological processes involved in a learned pattern of emotional and behavioral dysregulation: low-fear temperament and cognitive processing deficits.
Clinically Effective Treatment Models

The most effective strategy currently available to adequately prevent a diagnosis of antisocial personality disorder is early intervention and the elimination of childhood abuse. Underdeveloped regions of the prefrontal areas of the brain are most often the result of abuse during early childhood, before kindergarten. If a child biologically and genetically predisposed to ASPD remains in an unhealthy environment throughout childhood and adolescents, maladaptive behaviors are only exacerbated and reinforced by the already overwhelmed public school system and juvenile justice system (Zuckerman, 1994; Riser & Kosson, 2013).

By the end of adolescents, around age 25, the brain has stopped developing and neurological impairments become permanent. The developmental pathways have been formed and the brain is no longer malleable. All change becomes increasingly difficult after this window of opportunity has closed (Pemment, 2012).

Due to the lack of empathy exhibited by those diagnosed with ASPD, it can be argued that they are not feeling as though they are suffering from a mental illness. Thus they are left with no motivation to take responsibility for their behaviors or insight into a need to change their behavior. Therefore, no one with ASPD is likely to volunteer or seek treatment. The only treatment would have to be court ordered (Caldwell, Vitacco, & Van Rybroek, 2006; Pemment, 2012; Black, 2013).

More than any other group of individuals diagnosed with mental illness, those with ASPD have contact with multiple agencies such as probation officers, social workers, therapists, etcetera (Duggan, 2009; Black, 2013). A common entry point to link
all these agencies together is essential to ensure the continuity of care and the accountability of the client – two critical criteria for the optimization of services.

**Family therapy.** Children begin to understand the concept of empathy first at home, by learning to see the world through another person’s perspective. A key part of the multifactorial process involved in the development of empathy is responsive parenting and parental modeling of caring and empathetic behavior (Bandura, 1977; Dogan, Conger, Kim, & Masyn, 2007).

There is significant stability in antisocial behavior across generations. First-degree relatives of males with ASPD are five times more likely to have the disorder than the general population, and first-degree relatives of females are ten times more likely to have the disorder (Baker, Mack, Moffitt, & Mednick, 1989; Dogan, et al., 2007).

During early interventions aimed to redirect antisocial behavior, therapists can facilitate change by helping parents and caregivers identify ways they can model caring and empathetic behavior at home. A second goal of family therapy should be to introduce or increase positive reinforcement to link misbehavior to appropriate consequences while simultaneously decreasing yelling, threatening, and punishing. Consequences resulting from the parent’s anger and frustration such as yelling and threatening do not teach children self-control (Bandura, 1977).

There are two routes of transmission of antisocial behavior from parents to adolescents: adolescents’ perceptions of parents’ activities, and inept parenting practices (Dogan, et al., 2007). Both pose unique challenges that warrant clinical intervention. Awareness of parental deviance often provides a child with “permission” to engage in similar behaviors (Melby, Conger, Conger, & Lorenz, 1993; Conger & Rueter, 1996).
Children with sociopathic parents will interpret antisocial behaviors as more acceptable than children with parents who are not sociopathic because the behaviors of parents’ serve not only as a model but also a mediator of transmission of behavior (Patterson & Capaldi, 1991; Lipsey & Derzon, 1998). Children’s perceptions and interpretations of parents’ behaviors will introduce a cognitive process that will guide future interactions. The antisocial behaviors in which parents engage are a crucial risk factor for similar behaviors in their children (Patterson & Forgatch, 1989; Patterson & Capaldi, 1991; Lipsey & Derzon, 1998; Dogan, et al., 2007).

Facilitating family therapy with a parent who has ASPD is an especially challenging task for any therapist. Because antisocial personality traits are pervasive and biologically transmitted, simply having knowledge of how antisocial behaviors are learned and transmitted will not necessarily alter the behaviors or attitudes of antisocial parents. Parents with ASPD are likely to minimize the consequences and evidence of their antisocial behaviors. A lack of remorse, a disregard for others, and the ability to accept responsibility are all an inherent hallmarks of their personality makeups and of the disorder. These traits lessen the chance that a parent will be motivated to modify his or her behavior. The notion that the child is modeling his or her behavior after him or herself satisfies the narcissistic nature of a parent with ASPD and fulfills the need of feeling significant and secure in the life task of being a parent. Unless this need for significance, security, and belonging is addressed creatively through therapeutic interventions, the antisocial parent will be left with a sense of pride and revel in the transmission of these personality traits.
The idea of a less difficult child or fewer calls from teachers or social workers may be enough to entice a parent with ASPD to participate in family therapy. Even parents with antisocial traits can be taught how to respond to challenging children in constructive ways. Behavior management skills such as positive discipline, appropriate supervision, family problem solving, positive reinforcement, and parental involvement are all ways to engage parents and modify the coercive behaviors of both parents and children (Patterson, 1982; Lipsey & Derzon, 1998; Dogan, Conger, Kim, & Masyn, 2007).

**Long-term integrative psychotherapy.** Long-term integrative psychotherapy oriented at the general psychological therapeutic approach in males with symptoms of acting out and violence against others has been shown to yield positive long-term outcomes (Krampen, 2002; Grawe, 2004). Individuals receiving long-term integrative psychotherapy showed significant symptom reductions and only a few relapses of violent behaviors. The majority were able to meet their goals of obtaining and/or maintaining occupations and feel a sense of fulfillment in their social lives.

The key concepts of integrative psychotherapy include an adaptive, flexible set of psychotherapeutic methods and techniques designed to meet treatment objectives (Castonguay, 2000; Krampen, 2009). The keys to success in integrative psychotherapy are: a) structured, plain, and unambiguous objectives that are realistic and relevant to the present day, b) high frequency of sessions in the initial and major stage of therapy, c) a clearly defined therapeutic relationship that includes professional distancing of the therapist as well as systematic alternations of therapists, and d) the therapeutic involvement of a peer (Krampen, 2009).
The treatment objectives of Integrative Psychotherapy should be to:

1) Enhance social skills and emotional regulation skills, empathy, and morality by modeling, operant conditioning techniques, role playing, therapeutic homework, moral dilemma techniques, mirroring, free association, and guided imagery.

2) To reduce psychophysiological arousal by improving impulse control and mastery (this can be done by using relaxation therapy, self-control techniques, distraction techniques, thought stop, and delayed negative feedback techniques) (Krampen & von Eye, 2006)

3) To develop adaptive self-statements by cognitive restructuring of self-defeating thought patterns and social-cognitive biases that misinterprets the ambiguous behaviors of others (Draughon, 1977).

4) To reconstruct and improve attachment abilities, trust, and social relationships by behavior analyses, biographical analyses, development of life projects (narrative therapy), role playing, and therapeutic homework.

5) To reduce deviant peer influences and improve nondeviant peer relations including social support and supervision by peers, therapeutic involvement, and modeling (Krampen, 2009).

The outcomes of treatment were assessed by post session questionnaires designed to measure clients’ and therapists’ perceptions of psychotherapeutic processes with reference to progress, stagnation, and backward steps in resource perspective, problem solving, consciousness, and insight and future outlook of the patient (Krampen, 2002; Grawe, 2004)
Modified therapeutic community treatment. Modified Therapeutic Community (MTC) treatment can be effective for individuals diagnosed with ASPD (McKendrick, Sullivan, Banks, & Sacks, 2006). Results of a recent study (Sacks & Stommel, 2003) aimed to compare MTC with other mental health treatment showed significantly lower re-incarceration rates at one-year follow-up for those who received MTC treatment. This study was preformed within the walls of a prison, with the MTC program taking place in a special secluded unit. The MTC program was different than the standard approach to mental health treatment in that it: a) reduced the intensity of interpersonal interactions, b) individualized treatment planning, and c) increased the flexibility of treatment programming by including psycho-education classes, cognitive-behavioral protocols, medication interventions, conflict resolution groups, dual recovery groups, and a variety of other therapeutic techniques tailored to each individual. The overall goals of MTC were to change the attitudes, behaviors, and lifestyles in the areas of mental illness, criminal behavior, and substance abuse. The results of the said study indicated a positive outcome for those diagnosed with ASPD (Sacks & Stommel, 2003).

Multisystemic therapy. Multisystemic Therapy (MST) can successfully reduce criminal activity in juvenile offenders at high risk of committing additional serious crimes (Borduin, Schaeffer, & Heiblum, 2009). Many studies (Aos, Phipps, Barnoski, & Lieb, 2001; Curtis, Ronan, & Borduin, 2004; Weisz, Sandler, Durlak, & Anton, 2005) have found that family- and community-based interventions, especially those with an already established evidence base in treating adolescent antisocial behavior, hold considerable promise in meeting the clinical needs of even particularly challenging juvenile sexual and violent offenders.
MST targets and responds with individualized interventions to a comprehensive set of identified risk factors including: individual, family, peer, school, and neighborhood domains. Clinical services are most effective when provided in home, school, and/or neighborhood settings at times that are most convenient to the individual or the family (Borduin, Letourneau, Henggeler, & Swenson, 2003). MST designs interventions that integrate empirically based clinical techniques that focus on social ecology and then eventually into a broad-based ecological framework. Behavioral, cognitive-behavioral, and structural family therapy currently offer the most empirical evidence to show the effectiveness of MST (Burns & Hoagwood, 2002; Borduin, Letourneau, Henggeler, & Swenson, 2003). Multisystem individual interventions are used with the clients and their closest family members to modify the individual's social perspectives, belief systems, private logic, and attitudes that contribute to antisocial behaviors (Henggeler & Borduin, 1990; Borduin, Schaeffer, & Heiblum, 2009).

The goals of MST when working with the families of an individual are to: (a) reduce parent and youth denial about the behaviors, offences, and the subsequent consequences, (b) remove barriers to effective parenting, (c) enhance parenting knowledge, and (d) promote affection and communication among family members (Henggeler & Borduin, 1990).

Another goal of MST is to address social skills and problem-solving difficulties in effort to promote the development of friendships and establish a sense of competency integrating with peers. Therapists help parents facilitate these interventions which should consist of active support and encouragement of relationship skills, associations with non-problem peers, as well as discouragement of associations with deviant peers (Ronis &
Borduin, 2007). MST is unique in the support it provides to caregivers and family members of individuals. MST clinicians help parents develop strategies to monitor and promote the youth's school performance; interventions in this domain typically focus on improving communication between parents and teachers and on restructuring after-school hours to promote academic efforts (Snell-Johns, Mendez, & Smith, 2004).

MST has been clinically effective in helping individuals meet specific treatment objectives. These objectives include: a) increased cohesion and adaptability amongst family relations, b) increased emotional bonding and social maturity with decreased aggression in effort to strengthen peer relations, and improving academic performance by raising grades. MST has also resulted in decreased behavior problems and decreased symptoms of depression (Borduin, Schaeffer, & Heiblum, 2009).

**Pharmacological intervention.** The complex psychosocial-biological markers of Antisocial Personality Disorder may be a symptom constellation amenable to medical intervention and drug treatment (Senninger & Laxenaire, 1995; Dinkelacker, Dietl, & Widman, 2003; Wick, 2013). While there are not currently any medications designed or intended to specifically treat ASPD, there are several drugs on the market that have been shown to reduce aggression and other symptoms of the disorder (Crawford, Kakad, Rendel, Mansour, Crugel, Liu, & Barnes, 2011).

Medications that have typically been known to cause aggression in the majority of the population can have a paradoxical effect when aiming to target disinhibition and aggression in young adults with symptoms of ASPD. These medications include benzodiazepines, some anticonvulsants (Phenytoin, or Dilantin), atypical antipsychotics, and some antidepressants (Senninger & Laxenaire, 1995; Dinkelacker, Dietl, & Widman,
Lithium Carbonate is currently the most effective medication for reducing anger and combativeness. It is commonly used among prisoners in correctional facilities and also in children who are prone to aggressive outbursts (Khanzode, Saxena, Kraemer, Chang, & Steiner, 2006). Carbamazepine or valproate, can also help to stabilize moods and may lessen antisocial behavior as well. While antipsychotics may reduce aggression, they are more likely than mood stabilizers to have irreversible side effects (Tyrer & Bateman, 2004; Livesley, 2005; Baker-Glenn, Steels, & Evans, 2010).

Although highly addictive, stimulants such as Adderall and Ritalin are often prescribed to individuals with ASPD because of the high rate of comorbidity with attention deficit disorder. While they are effective in treating the aggression and impulsivity that accompany both ASPD and ADD/ADHD, the level of risk is astronomically high when prescribing a dangerous and addictive drug to a population with high rates of illegal behavior (Wilens, Biederman, & Spencer, 1998; Crawford, Sahib, Bratton, Tyrer, & Davidson, 2009).

Individuals who have a history of dangerous sexual behavior can be treated with injections of medroxyprogesterone acetate, a synthetic hormone that reduces testosterone levels. Injectable forms of medications are most useful for individuals under civil commitments, parole, or probation (Crawford, et al., 2009; Wick, 2013).

An interesting idea for the treatment of ASPD is the concept of a drug aimed to stop arginine vasopressin (AVP) from binding to neurological receptors. This concept has been tested in hamsters, with results proving the hypothesis of the researchers (Curraco, 1998). Injection of the hormone AVP into the hypothalamus increases the number of biting attacks on intruders. Administration of a drug that stops AVP from
binding to receptors in the brain, conversely, inhibits aggression. The relationship between aggression and AVP levels was much stronger in males than in females. Serotonin reuptake inhibitors such as Prozac have anti-aggressive effects. It is speculated that this is due to serotonin’s effect on central AVP (Curraco, 1998).

While Prozac and other SSRIs may treat aggression in patients with ASPD, the symptoms of depression are not as easily treated in this population. Mood disorders are among the most commonly dually-diagnosed disorders in clients with ASPD (Livesley, 2005; Black, 2006; Newton-Howes, Tyrer, & Johnson, 2006). However, while mood disorders are typically easily treated with medications in the general population without co-occurring personality disorders, depressed patients with personality disorders tend to not respond as well to antidepressant medications. The details explaining this discrepancy remain unknown (Newton-Howes, Tyrer, & Johnson, 2006; Wick, 2013).

An artificial increase in levels of the hormone oxytocin has been shown to increase trusting behavior in humans (Kosfeld 2005). In comparison with a placebo, participants in a study designed to measure oxytocin’s effect on an individual’s ability to trust strangers and act altruistically were better at interpreting subtle social cues and were able to overcome their avoidance of betrayal and take more social risks. Oxytocin may be a potential key to treating ASP through neuroleptic medications (Kosfeld, 2005; Domes, 2007; Beitchman, et al., 2012).

Other drugs such as: carbamazepine, valproate, propranolol, buspirone and trazodone have been successful when used to treat aggression in brain-injured or developentally delayed patients (Livesley, 2005; Wick, 2013).
Summary, Conclusions, and Recommendations

Restatement of the Problem

The time between adolescence and adulthood is essentially the last chance to clinically prevent the diagnosis of antisocial personality disorder from having lifelong effects on the limbic system of the emerging adult brain. If the ability to integrate emotion and cognition remains intact before age 25, there is a greater chance that therapeutic interventions can potentially offset the diagnosis of ASPD.

Explanation of the Literature

There are clear patterns in both the brains and genetics of psychopaths (Fallon, 2006). Psychopaths have a clinically significant loss of function in the orbital cortex, anterior temporal lobes and the strip of limbic cortices connecting the two. Psychopaths also have one or more several high-risk, violence-related genes, specifically the MAOA “Warrior Gene.”

At the crossroads of young adulthood, the discrepancy between adolescents who meet the criteria for antisocial personality disorder and those who are mentally stable starts to impact all areas of life and have major consequences for the rest of an individual’s adult life. The developmental histories and personal traits of adolescence that are able to abstain from deviant behaviors allow them the option of exploring new life pathways. The histories and traits of life-course-persistent antisocial adolescents have foreclosed their options, entrenching them in the antisocial path (Pemment, 2012; Riser & Kosson, 2013).

The majority of treatment services offered to mentally ill adults meeting the criteria for a diagnosis of ASPD are related to vocational training, educational services,
substance abuse education, and group-based cognitive–behavioral interventions designed to change criminal thinking, improve moral reasoning, and develop social and problem-solving skills (Datchi & Thomas, 2013). While cognitive–behavioral programs are effective and easily executed, they do not directly target the environments in which these individuals will be expected to obtain their goals. Family relationships constitute a source of social support and play a critical role in keeping young adults with ASPD traits out of prison (diZerega & Shapiro, 2007). For this reason, family therapy is a critical key to offsetting the diagnosis of Antisocial Personality Disorder.

There has not yet been any published evaluation of a family therapy program with the adult offender population, and little is known about the possible impact of family therapy on the rehabilitation process and the prevention of adult criminal behaviors. However, family therapy has long been the treatment of choice for youth violence and substance abuse (Datchi & Thomas, 2013).

Emotion dysregulation warrants continued inquiry in the context of treatment targets for psychopathy. The majority of empirical investigations into emotion dysregulation have been conducted in relation to mood and anxiety disorders. Additional support for the notion that emotion dysregulation is an essential goal of treatment for antisocial personality disorder would be clinically beneficial.

**Recommendations for Future Research Directions and Therapeutic Implications**

As is the case with essentially all treatments of any disorder or illness, early intervention is always the optimal choice. Brief strategic family therapy, functional family therapy or multisystemic family therapy have been shown to yield the most effective and long lasting treatment outcomes for children presenting antisocial behaviors
between the ages of eight and eighteen (Duggan, 2009). Clinical trials designed to examine the moderating effects of various treatment outcomes are needed to improve interventions to meet the needs of youth presenting with various forms of antisocial behaviors. Such studies would be able to help clinicians gain insight into commonly observed trajectories. For example, boys presenting with aggressive behaviors that gradually increase over time might benefit from parent training or self-control training programs, whereas boys with a chronic high aggression pattern might require more intensive interventions such as multisystemic therapy (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998).

The goal of social services, educators, parents, and public policy makers should be to have the infrastructure and resources available to screen children for a predisposition to psychopathy at an early age. Interventions should be made available to those identified as at-risk with the goal of preventing or managing the development of violent or antisocial behaviors. Although further research is needed to more specifically identify the types of measures that bring about the healthiest outcomes for such individuals and their caregivers, the available evidence today supports the idea that young children need an abundant amount of love, support, care, and encouragement in order to grow into healthy members of society (Fallon, 2006, Scott & O’Connor, 2014).

Schools are the primary setting in which preventive interventions occur (Jensen, Martin, & Cantwell, 1997). Exploring risk factors that could be assessed within the school setting is an essential goal for successful early intervention. Identifying risk factors before first grade can be a cost-effective and efficient way of proving early intervention to at-risk children and their families. Once identified, youths progressing
along a high-risk trajectory could be targeted to receive the limited prevention resources available (Attar, Guerra, & Tolan, 1994; Jensen, Martin, & Cantwell, 1997; Haselager, Van Lieshout, Riksen-Walraven, Cillessen, & Hartup, 2002; Broidy, Nagin, Tremblay, Bates, Brame, Dodge, 2003).

Having an antisocial parent or parents is one of the strongest predictors of violent behavior or serious delinquency in adolescence and young adulthood (Lipsey & Derzon, 1998; Eddy & Reid, 2001). Early intervention programs aimed to identify high-risk children and strengthen connections to the school and improve relationships with teachers encourage cognitive development and foster the acquisition of social skills (Fraser, Galinsky, Smokowski, Day, Terzian, Rose, & Guo, 2005; Ronis & Borduin, 2007; Scott, et al., 2014). Programs with these goals, such as Interpersonal Cognitive Problem Solving (ICPS) (1988) and Providing Alternative Thinking Strategies (PATHS) (2002), improve school achievement by strengthening social reinforcements, and in turn, improving the self-esteem of the children identified as high-risk (Shure & Spivack, 1988; Shure, 1999; Gottfredson, Wilson, & Najaka, 2002).

Programs designed to include the family in the treatment plan of the high risk child, such as the Perry Preschool Program (1993) and the Syracuse Family Development Research Project (1988), feature in-home services, parent training, child cognitive development activities, and social support and services (Ronald, Mangione, & Honig, 1988; Schweinhart, Barnes, & Weikart, 1993; Barnett, 1996; Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005).

Rather than threaten attachment and risk the issues that accompany the perceived abandonment of a parent, it is preferable to include parents with ASPD in the
multisystemic treatment plan and supplement the lacking positive role model with a mentoring program. Programs such as The Big Brothers Big Sisters program aim to reduce violent behavior among youth, and have demonstrated positive evidence in support of the idea that children at risk of developing ASPD benefit from have a mentor (Grossman & Tierney, 1998).

Further Questions

People with antisocial personality disorder tend to gradually improve over time. A certain percentage of those diagnosed with ASPD as young adults will not meet the clinical criteria later in life (Black, 2013). It is unknown to professionals why symptoms seem to improve over time. This is a topic that warrants further research.

Conclusion

The integrative psychotherapeutic approach includes multiple treatment objectives designed to encourage mastery, resource activation, and consciousness-creation through therapeutic interventions. It is the most promising form of treatment for offsetting the full effects of ASPD during the formative years of the limbic system between ages 18 and 25. Although integrative psychotherapy has been shown to produce positive outcomes in long-term follow-up studies (Grawe, 2004; Krampen, 2002), it must be noted that there is no reliable psychometric data on treatment outcomes and the effectiveness of psychological therapeutic intervention. All data at this time has been found to have strong response biases in participants, or the results have not been able to be replicated in controlled studies because of internal validity deficiencies.

Unfortunately, there is not enough evidence at this time to prove with concreate data that any clinical therapy during the formative years of the limbic system can redirect
the behavior of someone who has been exhibiting the signs and symptoms of antisocial personality disorder and offset the diagnosis and implications for consequences later on.

Early neuropsychological deficits that cause negative evocative interactions with caregivers create a discouraging environment first at home and then in school (Caspi, Elder, & Bem, 1987; Meany, Aitken, van Berkel, Bhatnagar, & Sapolsky, 1988; Moffitt, 1990). Children genetically predisposed to antisocial personality disorder who have also suffered neuropsychological damage early in life are especially at odds with their environments (Tarter, Hegedus, Winsten, & Alterman, 1984; Milner & McCanne, 1991).

The reviewed literature supports the statement that early childhood is the best time to intervene with the intention of preventing antisocial personality disorder (Moffitt & Henry, 1991; Scott, Briskman, & O’Connor, 2014). The formative years after adolescence are only a last chance for skilled therapists to potentially encourage change before the limbic regions have finished growing.

An encouraging conclusion that can be drawn from the literature is that there is substantial evidence supporting the idea that therapeutic services can be offered to parents with ASPD to prevent the next generation from following in similar developmental trajectories as their parents. Early intervention, social skills training, cognitive development, family therapy, and mentoring programs encourage social interest in young people and offset the biological and environmental risk factors of antisocial personality disorder (Patterson, DeBaryshe, & Ramsey, 1989; Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005; Dogan, Conger, Kim, & Masyn, 2007).
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