



Antisocial Personality Disorder – A Review

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Abstract: The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) lists ten distinct kinds of personality disorders, with antisocial personality disorder (ASPD) being one of them. DSM-5 describes ASPD as “a pattern of disregard for, and violation of, the rights of others”. ASPD has a number of negative effects, including interprofessional, psychological, and legal conflicts. It is frequently associated with BPD, substance abuse, depressive disorders, and high suicide risk. The majority of research estimates that between 2% and 3% of the general population has ASPD and that these people are liable for an imbalanced proportion of crime, violence, and social hardship. There is a reported 3:1 ratio of males to women, with prevalence rates in men being significantly greater than in women. Therefore, for a better understanding of this stigmatized condition that is socially constructed, this review provides an entire, complete overview of antisocial personality disorder.

Keywords: *Antisocial personality disorder, ASPD, ICD, DSM*

I. INTRODUCTION

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) lists ten distinct kinds of personality disorders, with antisocial personality disorder (ASPD) being one of them(1). When left untreated, ASPD places a huge strain on society, notably on the medical, mental health, and criminal justice systems. A lack of research on psychosocial treatments for ASPD and the lack of an empirically supported treatment have been noted despite the disorder's significant effects on society and individuals (2). ASPD has a number of negative effects, including interprofessional, psychological, and legal conflicts. Adults with a psychopathic personality tend to engage more frequently in alcohol and drug use experience relationship difficulties, have a harder time maintaining employment, and are more likely to commit crimes than those without a psychopathic personality. This suggests that a psychopathic personality can result in significant harm to both the individual and society(3). According to some academics, the issue of whether the idea of ASPD is relevant as a psychiatric diagnosis should be distinguished from the issue of whether those with ASPD should be absolved of the moral and legal penalties of their conduct. According to Eramo (1997), individuals with ASPD are morally sound, aware of what they are engaging in, and aware that their actions are wrong, yet still choose to carry them out. 90% of those who have used it had a serious mental disease diagnosis, and it is utilized just under one percent of the time with just a 26% achievement rate (4). Therefore, for a better understanding of this stigmatized condition that is socially constructed, this review provides an entire, complete overview of antisocial personality disorder.

2) HISTORY OF ANTISOCIAL PERSONALITY DISORDER

Antisocial personality disorder was initially categorized as sociopathy and psychopathy before gaining its current designation(5). The American Psychiatric Association (APA), a professional organization, first used the acronym ASPD in 1980. Many labels, including "moral insanity," "psychopathy," and "sociopathy," have been used by scholars and doctors to define ASPD during the last century(6). Since the 1930s, the word "psychopath" has been used to refer to individuals with antisocial personalities. Prior to that, it was also a broad term for several pathologies that were believed to be caused by a single, underlying weakness in the human constitution (7). Pritchard argued more than 150 years ago that certain antisocial people exhibited their conduct due to constitutional deficiencies, but other people simply exhibited antisocial behavior in reaction to brief stress. This idea has come up again in the psychoanalytic interpretation of antisocial conduct and personality (7). Agronin and Maletta show how the Diagnostic and Statistical Manual of Mental Disorders (DSM) PDs underwent a nosological evolution starting with the DSM-I published in 1952, which included antisocial reaction under the heading of sociopathic personality disturbance along with dissociative reaction, sexual deviation, and addiction. Antisocial reaction became antisocial personality in the 1968 DSM-II(8). One of the 14 mental disorders for which diagnosis requirements were developed by Robins and his associates at Washington University School of Medicine 1972(5) was antisocial personality disorder. Some people considered that the DSM-II criteria for antisocial personality were inconsistent and inferential, thus alternative, and presumably more trustworthy operationalizations that emphasized persistent antisocial conduct were developed (9). The DSM-III, published in 1980, was the first to group the PDs into the three categories that are currently used in the current DSM; ASPD was placed in Cluster B in addition to the other PDs known as borderline, histrionic, and narcissistic PD(8). The DSM-I and DSM-II, the two of which were based on psychoanalytic understanding, both outlined the criteria for antisocial personality disorder. The clearest example of this point of view may be found in perhaps Cleckley's most important work (10). Cleckley focused on dynamic traits when characterizing a psychopathic personality type, including the inability to feel worried, guilt, or loyalty; the incapacity to build meaningful, long-lasting relationships; and the manipulation of others to further one's own goals. Cleckley and other psychoanalytic writers underlined that some psychopathic people exhibit their traits without violating the law(7). The diagnostic criteria for ASPD in DSM-III were later impacted by the work of other researchers(11). Spitzer and his coworkers set out to update the DSM-III three years after its release. More features of psychopathy were incorporated into the DSM-III R's diagnostic standards for antisocial personality disorder, while they are still not acknowledged as a distinct identity(5). Both the DSM-III and DSM-III-R adopt criteria based on behavior, requiring the presence of multiple antisocial behaviors to become apparent prior to reaching the age of 15, for an individual to qualify for an adult diagnosis of antisocial personality disorder. As a result, to receive a diagnosis of antisocial personality disorder, a person must satisfy a minimum of four adult criteria (such as inconsistent employment history, chronic falsehoods, aggression, and involvement in criminal activities), along with a minimum of three out of the twelve specific antisocial criteria (including truancy, chronic falsehoods, aggression, and criminal behavior), all occurring before the age of 12. Individuals displaying significant levels of adult antisocial behavior (even those who meet the adult criteria for antisocial personality disorder) would not receive the diagnosis due to the requirement for early onset(12). The interpersonal/affective symptoms that were identified by the prototype analysis are disregarded by DSM-IV criteria (10). A change toward a more behavior-based framework was proclaimed by the description of ASPD in the DSM-III (APA, 1980) and DSM-III-R (APA, 1987) manuals as being characterized by a history of irresponsible and delinquent behaviors (before age 15) that persist into adulthood (Lilienfeld, 1994). The behavioral focus of the DSM-IV criteria for ASPD is comparable to that of the DSM-III and DSM-III-R criteria(9). Even if certain antisocial behaviors may be a result of the substance-related disorder, the DSM-IV mandates a diagnosis of "both a Substance-Related Disorder and Antisocial Personality Disorder in situations where criteria for both are met." (10). The APA Board of Trustees presently recognizes the DSM-IV TR framework, which is included in Section II within DSM-5 and uses a categorical strategy to define and diagnose personality disorders as separate clinical syndromes, for use in clinical practice for the identification of personality disorders(5). The diagnostic requirements for ASPD are present in the newly published DSM revision, the DSM-V, akin to their inclusion in their previous edition. These standards encompass behaviors such as habitual untruthfulness, involvement in physical conflicts or confrontations, neglect of the well-being of oneself or others, inability to sustain a steady work commitment, and ill-treatment of fellow individuals. The diagnostic benchmarks for personality disorders stem from the most up-to-date research, which also introduced an alternative framework for personality disorders that exhibited distinct variations from the retained criteria. The DSM-5 includes this suggested model in Section III, which is designated for novel measurements and models(13).

3) DIAGNOSIS

APD diagnosis has been characterized by substantial professional uncertainty and drastically shifting criteria. (10).

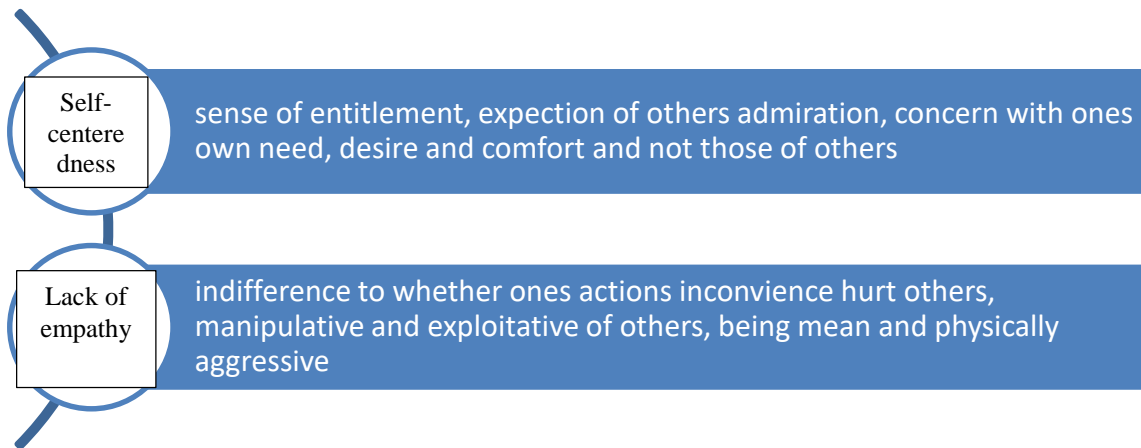
A) *Diagnosis and Statistical Manual of Mental Disorders - DSM-5*

The DSM diagnostic system is subjective, or a descriptive description of symptoms with a single etiological cause, according to this definition (10). Ten personality disorders are divided into three clusters in the DSM-5, which maintains the category approach to personality disorders used in earlier editions. ASPD, which is characterized as "a pervasive pattern of disregard for and violation of the rights of others, occurring since the age of fifteen," is a component of Cluster B(8). The DSM-5 states that to get an ASPD diagnosis, a person must meet both the basic and specific requirements for personality disorder(14). Deceitfulness, manipulativeness, impulsivity, anger, risk-taking, irresponsibility, and callousness belong to the suggested DSM 5 characteristic descriptions(14). Comparatively fewer people aged 65 and more than those between the ages of 18 and 64 reported any ASPD criteria(4). The DSM-IV defines conduct disorder as a "repetitive and persistent pattern of behavior" that is "often" shown, and it is an obligatory requirement for the diagnosis of ASPD in adults(10). The Diagnosis and Statistical Manual of Mental Disorders (DSM-IV) lists seven criteria for the diagnosis, including lack of remorse, lying, impulsivity, irritability, and aggression, reckless disregard for safety, and consistent irresponsibility(8). A diagnosis of ASPD cannot be made based on a single, isolated occurrence or a sudden abrupt offense. Application of these diagnoses demands thorough, in-depth verification that a widespread pattern has persisted since childhood(10). People with ASPD lack any remorse or guilt when they execute antisocial activities, have no fear of impending repercussions lack the ability to learn from their mistakes, and are impulsive and aggressive(15). The diagnosis of ASPD may go unnoticed since these people are frequently skilled and experienced liars who can effortlessly fake remorse, fear, sentiments, and loyalty(4). Although there is a significant positive association between criminal behavior and ASPD, executing crimes is not a requirement for the illness, and many people with the diagnosis have no history of arrests(15). Even though there is evidence that ASPD is connected with a higher risk of suicide, the diagnosis of ASPD is frequently used as a criterion for exclusion from mental healthcare, and a few individuals believe that hospital care is not recommended for those with ASPD(2). They face the danger of abusing drugs, committing suicide, being locked up, committing crimes, and dying a violent death(4). The stigma associated with ASPD, which is founded on false assumptions, disinformation, and misconceptions regarding the illness, worsens this issue(2). Although further study is required, it is ironically hindered by a lack of agreement over the definition and naming of the concept(4).

B) *International Classification of Diseases – ICD*

	<i>ICD -10</i>
<i>a)</i>	callous unconcern for the feelings of others;
<i>b)</i>	gross and persistent attitude of irresponsibility and disregard for social norms, rules, and obligations;
<i>c)</i>	incapacity to maintain enduring relationships, though having no difficulty in establishing them;
<i>d)</i>	very low tolerance to frustration and a low threshold for discharge of aggression, including violence;
<i>e)</i>	incapacity to experience guilt or to profit from experience, particularly punishment;
<i>f)</i>	marked proneness to blame others, or to offer plausible rationalizations, for the behaviour that has brought the patient into conflict with society.

ICD-11



4) ASPD SYMPTOMATOLOGY

DSM-5 describes ASPD as “a pattern of disregard for, and violation of, the rights of others”. DSM-5 also states, in reference to the traits of ASPD, that “this pattern has also been referred to as psychopathy, sociopathy or dissocial personality disorder”(14). ASPD is characterized by a pattern of showing no regard for and violating someone else's rights. It is frequently associated with BPD, substance abuse, depressive disorders, and high suicide risk. Furthermore, ASPD sufferers frequently use simple coping mechanisms that are primarily action-oriented and expressive of their inability to control impulses(4). Failure to comply with the law, failure to maintain steady employment, manipulation of others for personal gain using plans like deception, angry words or actions, disruption of the course of treatment, covert aggression, loss of value, intimidation, demands, ultimatums, remarks, clinginess, exaggeration, and secretiveness, many of whom use suicidal threats as a way to get what they want, deception of others, and failure to establish stable interpersonal relationships are symptoms.(11)(16)They also have an impulse to hurt oneself. Cutting, burning, and scratching are examples of self-harming practices (16). In general, it is advised to evaluate "Abnormally early or aggressive sexual behaviour" based on the sexual conventions of the person's network of friends rather than exclusively relying on the assessment team. Additionally, the type of sexual behaviour being discussed frequently entails conspicuous promiscuity (having sex with a lot of partners, sometimes dozens, in a year), a lack of strong emotional ties with any of these partners, and recurrent cases of STDs. the persistent absence of personal eye sensibility sometimes referred to as egotism or a lack of empathy. People are merely instruments in the eyes of a sociopath, to be utilized for his own enjoyment. This is accompanied by an inability to delay gratification to a normal degree, which, of course, the rest of us constantly have to do (4). According to some researchers, the risk factor may be congenital rather than genetic: a mother who has an antisocial personality disorder herself would be less able to take reasonable care of herself during pregnancy, placing the fetus at an increased risk of sustaining (possibly neurologic) intrauterine damage. Those who had a psychopathic mindset, whether men or women, were equally likely to be violent, angry, and susceptible to rage. They were also simultaneously likely to take drugs, break regulations, show signs of ADHD, struggle with embracing problems, and have been mistreated. In adults with a psychopathic personality, however, some gender differences were seen. Physical aggression was lower in psychopathic females than in psychopathic males, but relational aggression, anxiety, and PTSD symptoms were higher. This implies that women with psychopathy exhibit greater aggressiveness in household environments and display higher emotional volatility, or at the very least, portray themselves as having more emotional issues, compared to their male counterparts with psychopathy(3).

5) PREVALENCE

The majority of research estimates that between 2% and 3% of the general population has ASPD and that these people are liable for an imbalanced proportion of crime, violence, and social hardship. Every race, culture, and ethnic group is affected by ASPD(4).Based on estimates, ASPD can occur in up to 70% of forensic samples (14). Nearly 80% of those with ASPD experienced their first indicators by the age of 11.6 Girls may not experience symptoms until puberty, whereas boys do(11). Most estimates of the lifetime prevalence of ASPD vary between 0.8% and 2.5% for women and 4.5% to 6.5% for males (17). There is a

reported 3:1 ratio of males to women, with prevalence rates in men being significantly greater than in women. Additionally, it has been hypothesized that there are sex differences, with women being less likely to have ASPD than males. The frequency of ASPD among male prisoners is 47%, making prison inmates nearly 10 times more likely to have ASPD than the general population. ASPD is particularly prevalent in prison environments. According to statistics, there are 63% of male remand inmates, 49% of male sentenced prisoners, and 31% of female prisoners have ASPD in the UK prison population(1). There was also evidence of a high occurrence of ASPD in various illnesses. A higher proportion of people with antisocial personality disorder (APD) have a history of alcohol and substance misuse;(18). A lifetime history of drug misuse or dependence is reported by 84% of people with ASPD. An average prevalence rate of roughly 40% has been reported for ASPD in drug users when the DSM-III (or DSM-III-R) criteria is applied, with a range of 35% to a high of 54% (5). The prevalence of antisocial personality disorder among methadone users ranges from 38% to 65%. The likelihood of developing alcoholism increases by a factor of 21 in the presence of ASPD, the highest increase of any mental illness(19). Alcohol addiction or dependency is diagnosed in 64% to 90% of APD patients(18). When compared to others of the same age and sex, those with ASPD are prone to have an inaccurate home address and phone number, making it difficult for loved ones to get in touch. As a result, it is likely that the prevalence rates of ASPD found in population samples are underestimates of the condition's true prevalence (17).

6) ETIOLOGY

Reading several articles revealed that the main root cause of ASPD comes about as a result of complex interactions between biological (genetic/physiological/neurobiological) and environmental elements. Several research have advanced our understanding of this topic during the past few years. These kinds of behaviours are influenced by biological and psychological predispositions as well as social risk and risk factors that exist at the individual, family, school, community, and peer levels(20)(13). Conclusions concerning the genetic, metabolic, or electrophysiological components of antisocial conduct cannot be made conclusively since the operational criteria used in published studies are inconsistent(4). Poor academic performance and peer rejection, which may otherwise lead to chronic rebellion, may be mitigated if risk factors are identified early through initiatives to provide specialised tutoring and instruction in social abilities, including the management of anger(21).

A) BIOLOGICAL FACTORS

Personality is a solid trait that begins to emerge at a young age and is heavily inherited. In order to investigate the genetic underpinnings of complex mental diseases, personality characteristics are also being explored as potentially valuable endophenotypes. One of the personality theories that uses temperament and character notions is Cloninger's psychobiological model, which shows significant heredity(22). Numerous studies have demonstrated that around half of the diversity in antisocial conduct is explained by hereditary variables. Adolescence-limited offenders are those who only display behavioral issues throughout adolescence (13). Contrarily, life-course-persistent criminals show antisocial behaviour that starts at an early age and whose issues linger all through maturity. Researchers have employed behavioural genetic studies to assess the heritability of these illnesses in order to explore the etiology of ASPD. Behavioural genetics modeling, which is frequently drawn from family and twin data, enables predictions of the genetic impacts on a particular trait(23). In a study of sibling pairs, Barnes, Beaver, and Boutwell found that genetic factors explained a higher proportion of the discrepancy in being classified as a life-course persistent offender than an adolescent-restricted offender(8). Studies on the heredity of ASP condition are somewhat uncommon. Fu and colleagues used the male-only Vietnam Era Twin Registry sample to carry out one of the few studies. They discovered that there was no evidence for a common environmental impact and that 69% and 31% of the variance in ASPD was attributable to genetic and person-specific environmental variables, respectively(23). Understanding whether particular genes transmit risk is a crucial next step because there is a large genetic component to antisocial conduct. In a recent study, Basoglu et al.(17) looked at two forms of the gene encoding synaptosome-associated protein 25 (SNAP25), which has been linked to cognitive function and attention-deficit hyperactivity disorder (ADHD) and may also affect how some neurotransmitters operate. Identifying genes that impart risk might advance the discovery of treatment options that may be customised to a patient's specific risk factors, even though single genes only account for a small portion of the total diversity in antisocial conduct (21). Moreover, it could deepen our comprehension of the molecular processes that underlie antisocial conduct (13). When raised in a supportive environment, those who hold a susceptibility mutation of a gene display little antisocial conduct, but those who experience initial hardships exhibit significant levels of antisocial behaviour. Due to the tendency of antisocial women to mate with antisocial males, the level of the link between parental and offspring antisocial conduct is increased (17). Reid et al.

observed that more monozygotic twins than dizygotic twins displayed greater levels of antisocial conduct, showing the heritability of such characteristics(21).

B) PERINATAL FACTORS

Perinatal factors have been extensively investigated as potential risk factors for the emergence of antisocial conduct. According to Raine et al., there is a considerably higher chance that male children will grow up to be antisocial if they experience delivery difficulties and mother rejection before becoming one year old. The impact of a mother smoking on fetal fate is yet another fresh illustration of perinatal danger. Additionally, studies demonstrate that moms who have severe nutritional deficiencies in the first or second trimester of pregnancy considerably increase the likelihood that their kids will be diagnosed with antisocial personality disorder. According to these genetic and biological risk studies' findings, antisocial conduct may emerge even before birth (24). It has been discovered that prenatal usage of alcohol and other substances is also associated with the emergence of hyperactivity and attention deficit disorders(21).

C) ENVIRONMENTAL FACTORS

Adolescents are heavily influenced by their surroundings and their external circumstances, which makes them particularly susceptible to social constraints and inclined to take considerable risks like engaging in drug usage and antisocial behaviour (20). Even if genes may account for 50% of the variable in antisocial behaviour, environmental factors still account for a significant percentage of the variance (13). These aspects include peer relationships, socioeconomic position, marital status, undesired pregnancies, mother's age, parenting style, father engagement, and marital instability (24). There is mounting evidence that the use of substances like nicotine, alcohol, and/or marijuana at a young age (early puberty) is strongly linked to higher rates of criminality and high-risk action(4). Arousal, rage, and psychosis can be brought on by stimulants like cocaine and amphetamines. Both phencyclidine and marijuana are known to promote extravagant behaviour and perceptual imperfections. According to research, the immediate consequences of abusing drugs impact how the brain functions, which results in changes in personality, conduct, mental abilities, and emotionality(7). A kid who has an antisocial parent is possibly inclined to suffer abuse or witness domestic violence. According to data from an epidemiologic study, being exposed to intimate relationship violence as a kid raises the likelihood of becoming an intimate partner abuser as an adult. In a recent study, Berg- Nielsen and Wichström (4) looked on how personality disorders in parents affected problems in preschool-aged kids. They found that parental personality disorder signs (antisocial, borderline, or narcissistic) explained 13.2% of the variance in children's behavioural signs, which is consistent with earlier research showing that parent antisociality increases the probability of older kids and teens developing a range of externalising and internalising issues(26). The impact of environmental factors along with having an antisocial parent cannot be fully determined (13). When moms' severe punishment methods are assessed when their kids are 5 years old, it is predicted that the kids would have externalizing behavioural issues when assessed 4 years later. Furthermore, young children with externalizing behavioural issues are more likely to experience peer rejection. This increases the child's susceptibility and might have an impact on how they interact with others(24).

Specifically in the domains of emotional instability and impulsivity, Borderline personality disorder significantly co-aggregates with other cluster B personality disorders, as well as with affective illnesses and substance use disorders, according to Zanarini et al. (2009)., pointing to possible shared family causes(22). According to a number of scientists, both hereditary and environmental variables should be taken into account when determining the causes of these illnesses(7).

7) NEUROBIOLOGICAL AND NEUROCHEMICAL FACTORS IN ASPD

Although the exact explanation of APD is unidentified, studies indicate that abnormalities in the brain may be its root cause. Head injuries, neurotransmitter imbalances, hypoglycemia, environmental pollutants like lead, birth-related issues, and maternal drug use during pregnancy are only a few of the causes of brain abnormalities(25). According to biological theory, impulsive and aggressive conduct may be caused by brain malfunction or damage brought on by diseases, toxic chemicals, head injuries, low serotonin levels, or poor thresholds for limbic activation. In recent research, ASPD has been connected to serotonergic dysfunction, localized lesions or injuries of the temporal lobe, and trace elements in hair(4).

A) Role of frontal lobe and associated tracts

Three key theories, including frontal lobe dysfunction, the Integrated Emotional Systems (IES) theory, and variations in how the autonomic nervous system functions, are the focus of conducting research on the neuropsychology of ASPD. The frontal lobe dysfunction idea is the first of the previously mentioned models of the neuropsychology of APD. Injuries to the frontal lobes, which are linked to executive functions, including scheduling and dealing with emotions, might result in impulsivity. The traits of people with APD, such as distractibility, lack of remorse, recurrent mood disorders, and higher susceptibility to alcohol, have

also been linked to frontal lobe dysfunction. According to some studies, ASPD may be viewed as a dysfunction of the frontal systems' substrates, thereby controlling emotions, attention, cognition, and goal-directedness, throughout development. Lack of these substrates can result in conduct that is seen to be antisocial. The IES model is the subsequent neuropsychological hypothesis for APD. This more recent hypothesis emphasizes the ventrolateral orbital frontal cortex and amygdala in APD. According to this concept, a person who struggles in these areas is unable to connect a stimulus with reinforcement, especially when it comes to punishment, which can seriously hinder one's socialization. For instance, individuals with lesions in the ventrolateral orbital frontal cortex, which is crucial for behavioural modification in response to reinforcement contingencies and is linked to a higher risk of violent behaviour when frustrated, exhibit intact stimulus reinforcement learning until the contingency changes. The autonomic nerve system's influence on psychopaths' frontal lobe function has been studied in the next APD model. The distinctions between unsuccessful (i.e., arrested and convicted) and successful psychopaths are now being studied by researchers. In circumstances when emotional stresses are anticipated, those who are considered unsuccessful have much lower cardiovascular reactivity, lower skin conductance conditioning, and poorer avoidance learning. More autonomic reactivity and improved executive functioning were seen in the successful group compared to the control and failure groups(25).

There are definite correlations between the emergence of antisocial behaviour and a pseudo-psychopathic appearance, according to case reports of prefrontal brain damage(25). The idea of "acquired sociopathy," often called "pseudo-psychopathy," was proposed as the outcome of case studies like Phineas Gage's, which indicated the start of "psychopathic-like behaviour" following frontal brain damage. These studies demonstrate aggressive and socially inappropriate behaviour following frontal brain lesions. Reactive aggressiveness in acquired sociopaths is thought to be accompanied by injury to the lateral orbitofrontal cortex (BA 47), which is thought to regulate the fundamental brain-stream mechanisms mediating the fight-or-flight response to danger(27). The threat becomes more real, which activates this system. This mechanism, which is controlled by the hypothalamus and periaqueductal grey (PAG), triggers a freeze-like reaction in the presence of mild signs of danger. The system will start trying to take off if the threat comes closer. In the event that flying is not possible, the system will finally start acting aggressively. Human reactive aggressiveness can be thought of as a system-mediated response to a perceived threat. This flight-fight response system receives feedback from the amygdala about the level of danger currently present in the environment, which helps to decide whether to respond with flight or fight(27).

According to new neuroimaging research by Meyer-Lindenberg and colleagues, structural brain defects are associated with the X-linked monoaminooxidase A (MAO-A) gene. Impulsive aggressiveness is linked to the MAO-A, a crucial enzyme in the catabolism of monoamines, particularly serotonin. The researchers found that the lack of expression of the MAO-A (MAOA-L) type, which has been linked to an increased risk of spontaneously aggressive conduct, was linked to a significant reduction in the grey matter volume that includes the cingulate gyrus and the amygdala bilaterally, with a maximum volume reduction in the anterior cingulate cortex(26).

Recent neuroimaging research indicates that DSM-IV ASPDs have less prefrontal grey matter than healthy controls(25). The prefrontal area of the brain controls executive processes as well as abstract reasoning, focusing, recall of information, integration across space and time, nervousness, and planning, among other tasks(28). The DLPFC, which regulates executive processes including the capacity to plan, watch, and inhibit pre-programmed activity, is located on the dorsolateral prefrontal cortex. The capacity to figure out how to stop behaviours that are no longer favorably rewarding, or to turn around behavioural patterns that have switched from positively to negatively rewarded, is notably linked to the ventromedial cortex (VMPFC), which is also engaged in inhibitory control(28).

According to the latest research, gender disparities in antisocial behaviour may be partially attributed to variations in the prefrontal cortex's structural organization. Men and women have different amounts of grey matter in the orbitofrontal and middle frontal areas of the prefrontal cortex, according to research by Raine et al. By addressing these brain disparities, the gender gap in antisocial personality was decreased by 77.3%.(13).

B) Role of neurotransmitters

The orbital cortex controls instinctive responses like aggressiveness, sex desire, and other intense emotions that the amygdala activates. Equilibrium and proper modulation are crucial. Here, the role of neurochemistry is important. The levels of dopamine (DA), serotonin (5-HT), and norepinephrine (NE) will undoubtedly be impacted by this interaction occurring in the brain. Serotonin and norepinephrine levels are often lower in antisocial people than in normies(28). Decreased levels of serotonin and its metabolite 5-hydroxyindoleacetic acid (5-HIAA) have been linked to specific types of aggressive behaviour in early mammals. The regulation of violent impulses was significantly impaired in individuals with artificially reduced central nervous system

5-HIAA levels, according to subsequent studies of a similar kind. Similar to animal studies, 5-HIAA levels in cerebrospinal fluid have been found to be adversely connected with impulsive physical aggression in humans, including violent suicide(29). Chemicals called neurotransmitters are used by the brain to break down data and conduct electrical impulses. In the central nervous system and higher levels of cognitive function, neurotransmitters are primarily active. As the autonomic nervous system's regulatory functions are mostly controlled by hormones, these substances are not necessarily directly engaged in those functions. When neurotransmitter levels are out of balance, which may happen as a result of these chemical and hormonal impacts on the brain, neuroscientists are most concerned. Numerous psychiatric, pathological, and personality diseases, including antisocial personality disorder, seem to be impacted by this imbalance(28).

8) COMORBIDITIES

The meaning of the word "comorbidity" is in change right now. The original purpose of the word was to denote a person having several illnesses or disorders at the same time. It has become obvious that it may be challenging to distinguish between two concurrent diagnoses that point to the existence of two distinct clinical entities or several presentations of the same entity(22). It is feasible that one condition affects the other when two disorders are unquestionably significantly and continuously connected, but that is not the sole possibility (30). Adults with ASPD frequently have comorbid conditions such as anxiety, depression, ADHD, drug addiction, and borderline personality disorder. The co-occurrence of both diseases indicates that ASPD and psychopathy are disorders that lie at different ends of the same spectrum (23). The grey and white matter of the brain exhibit anomalies in each of these illnesses. Only a small number of research have considered CD/ASPD while examining the brain's architecture and functioning in people with these diseases (31). Comorbidity may alternatively be defined as an individual's having one ailment while having a higher chance of developing another illness(22). In terms of primary prevention and secondary prevention of comorbid illness, knowledge about trends in comorbidity can assist in discovering shared and particular risk and protective variables for mental disorders(32). Informing treatment for individuals may benefit from ongoing research on the subtypes of people with ASPD and its comorbidity with other psychopathologies (8).

A) ADHD/CD

With CD, approximately between 8.7% to 45.4% of boys and 1.2% to 61.4% of females also have ADHD. Compared to CD alone, the presence of CD and ADHD is linked to higher peer issues, violent behaviour, persistent antisocial behaviour during young adulthood, and worse linguistic and social-cognitive ability. According to studies, CD combined with ADHD is linked to persistent antisocial behaviour and crime. However, Growing up or adolescent ADHD itself is not associated with later antisocial conduct(17). The later onset of CD and APD is significantly influenced by the hyperactive aspect of ADHD(21). Comorbid conditions which are more prevalent in CD-affected kids than in ASPD-affected adults, are more likely to affect women than men. Large parts of the time, comorbid problems in adults have existed from childhood (17). Children who both have CD and ADHD are far more likely to continue to exhibit antisocial behaviour as adults (21).

B) ANXIETY AND MOOD DISORDERS

According to epidemiological research (Robins et al., 1991), people with ASPD experience depression at a rate that is over three times greater than that of the overall population. Recent research found that 9.1% of people with ASPD had severe depression and 27.7% matched the standards for any mood disorder in the research of a US population sample of 5,692 people(17). The likelihood of aggressive behaviour was nearly four times higher in those with anxiety disorders than in people without a psychiatric diagnosis (33). The relationship between psychopathy and ASPD and mood and anxiety disorders has sparked discussion since many specialists associate these diseases with exceptionally low levels of fear and hopelessness.(23). Anxiety disorders such as social anxiety and PTSD adjusted for variations in sociodemographic traits and related mental illnesses, increased the chance of having ASPD. People with ASPD and anxiety had higher rates of suicidal thoughts and attempts than people with either one condition alone or neither disorder(33).

Impulsive behaviours and drug use disorders, which commonly result in legal issues and suicidal behaviour, are characteristics of both ASPD and BD(34). Personality abnormalities may alter the course of bipolar disorder (22). In a study of 34,653 US individuals from a population sample, BD was also present in 18% of the men and 29% of the women who had ASPD (Grant et al., 2008). While these two diseases share certain symptoms, there is evidence to imply that ASPD and BD are separate disorders, with the latter being largely marked by mental turbulence (17). Anti-Social Personality problem (ASPD) was a predictor of a severe course of the disease, the existence of a drug use problem, and suicidal behaviour in bipolar disorder (22). Patients with coexisting bipolar disorder also exhibit more mixed characteristics, episodes of depression, and suicide attempts(22). It was discovered that these people who co-occurred ASPD and anxiety disorders were more

likely to have significant depression, drug abuse, and suicidal thoughts and attempts(23). Comorbid personality disorder and bipolar illness have a worse prognosis, which might worsen psychosocial adjustment and increase the frequency of emotional episodes(22).

According to the WHO (1992), impulsivity, a weak or lost sense of control over one and an unstable and quickly shifting mood are all hallmarks of borderline personality disorder (BPD). These features are also present in bipolar disorder. Given the high frequency of both diseases, some have suggested that borderline personality disorder be seen as a component of the emotional range(22). The capacity of established therapies for bipolar spectrum disorders to be successful may be compromised by borderline personality disorder, which appears to entail emotional lability. Deltito et al. (2001) discovered that co-occurring bipolar affective illness was present in 45% of BPD patients(22).

C) SUBSTANCE ABUSE

A rising trend that has an impact on societal advancement and is connected to social maladjustments is the usage of psychoactive drugs (20). When we take both course and incidence into account, the relationship between an antisocial personality and substance abuse is no longer straightforward(30). The illnesses with the highest rates of ASPD and psychopathy comorbidity are substance use and disorders (SUDs)(23). Alcohol consumption and reliance on any illegally used psychoactive chemical are both considered forms of substance abuse(30). The global burden of illnesses is significantly increased by substance use disorders (SUD), which are among the most frequent mental disorders worldwide(35). On the other hand, those with SUD are far more likely to be given an ASPD diagnosis. Drug abuse and SUDs are quite more common in people with ASPD(23). According to Lewis et al., 1. around 2/3 of people with ASPD also had alcohol dependence diagnoses, and 1./3 had drug dependence diagnoses. Questions concerning the connection between ASPD and drug addiction disorders are raised by their frequent co-occurrence(36). Untreated SUD is linked to greater rates of aggression, victimization, and suicide among prisoners during their time in custody; 9-11 and a higher risk of death, criminal activity, and recidivism after release from custody. SUD and ASPD are typically thought to be harder to cure and less amenable to medicine than other types of mental illness(35). Loeber and Keenan (1994) and Fergusson et al. (1994) both discovered a connection between teenage drug use and antisocial behaviour in Pittsburgh and New Zealand, respectively(30). Inhalant and marijuana usage are strongly associated with behaviours that include unlawful activities that are subject to harsher punishment(20).

Three kinds, according to Rada: basic alcoholics, alcoholic sociopaths, and sociopathic alcoholics, should be identified. He contends that the two illnesses' start and progression differ significantly from one another (36). People with ASPD tend to be more prone than those without it to meet the requirements for alcohol abuse or dependence and are more susceptible to the effects of alcohol on aggression. However, not everyone who drinks alcohol does so in a violent manner. The quantity of alcohol drunk and the incidence of several violent crimes, including as homicide, sexual assault, and child abuse, are positively correlated (6). One typical finding when distinguishing between primary and sociopathic alcoholics is that the age at which alcohol abuse disorder symptoms first appear varies between the two groups. Lewis et al. discovered that compared to black males with ASP, white men with ASP had a greater frequency of drinking. According to Lewis et al., drinking is a serious risk factor for both men and women with ASP(36). According to recent research, 9.1% of people who have a lifetime alcohol use problem and 18.2% of those who have ever used drugs fulfill the requirements for ASPD. Additionally, it was discovered that the presence of ASPD predicted chronic cannabis use disorder, alcohol dependence, and nicotine dependence over the course of three years(23). Darke et al. (1994) found that 26% of methadone users now have an antisocial personality disorder diagnosis and that 69% of methadone patients had conduct disorder as children. Loeber and Keenan (1994) and Fergusson et al. (30) both identified a connection between teenage drug use and antisocial behaviour in Pittsburgh. Sensation seeking and a lack of premeditation are associated with impulsivity and the frequent use of drugs, particularly alcohol, cannabis, and amphetamines. When ASPD co-occurs with BD, it is also linked to major deficits in the capacity to delay reward and increased mesolimbic grey matter volume(34).

9) TREATMENT

One of the more difficult types of psychopathologies to treat is ASPD, which has long been acknowledged. Many service providers are hesitant to try to help these people because they are reluctant to seek therapy themselves(13). Treatment for individuals with ASPD is still a pressing concern (24). Younger people could make better treatment candidates since they are still relatively early in the developmental process, are simpler to detect through the educational and judicial systems, and are more readily treated. A contentious topic is, however, how to treat children (24). There are not enough high-quality trials for ASPD therapy (13). Except for those who abuse substances, most people with ASPD do not obtain therapy (17). Treatment centered on

alcohol use and scientifically supported pharmacological and psychological therapies might be beneficial for those with antisocial personality disorder with an alcohol use problem. According to research, there are several factors that may influence a person's likelihood of receiving inadequate therapy for antisocial personality disorder and mental illnesses involving depression and anxiety (5). The patient's diagnostic subgroup, as well as the therapist's preferences or training, influence the therapy chosen for a given clinical context. Social, institutional, economic, and even legal restrictions further limit the options(29). Additional therapy should be given if the person is already getting care for their antisocial personality disorder diagnosis. This increases the likelihood that therapy will provide favorable results. The second suggestion is that those getting therapy for antisocial personality disorder would need longer treatment durations or more intense care (5).

A) NON-PHARMACOLOGICAL TREATMENT

The first alternative is psychosocial therapies, which may also enhance CU features beyond behavioural and emotional symptoms. For preadolescent children with conduct disorders, parent training programs and cognitive problem-solving programs may be effective; however, for teenage children with conduct disorders, programs need to be supplemented by other interventions like functional family therapy, systemic family therapy, and multisystemic therapy (31).

i) PSYCHODYNAMIC APPROACH

There is currently no proof that standard psychodynamic psychotherapy, such as expressive or supportive psychotherapies (Kernberg 1984), psychoanalysis, or different psychodynamically based group psychotherapies, is beneficial for people with psychopathy or ASPD. Psychoanalytic forensic psychotherapists support changing treatment methods for violent and antisocial offenders in both individual and group settings. Utilizing mentalization strategies, such as assisting the patient in making the connection between their internal mental states and their behavioral acts, should help them make these changes (31).

ii) MENTALISATION BASED THERAPY

Mentalization-based treatment is one type of therapy that has gained popularity in the past ten years. Mentalization is the ability to consider one's own and other people's mental states (13). The theoretical underpinning of mentalization-based therapy (MBT), a psychodynamic therapeutic strategy that integrates cognitive and relational aspects of therapy, is attachment theory(31). For those who suffer from borderline personality disorder, this kind of treatment was initially developed. Based on an early study, this medicine may be helpful in reducing self-reported aggressive behaviour in ASPD patients with moderate degrees of psychopathic characteristics(13). MBT for ASPD uses a combination of group and individual psychotherapy to treat mentalizing issues(31).

iii) FAMILY THERAPY

Parent-training programs for preschool and school-age children

Family-based interventions that focus on unsuccessful parental punishment methods are the most successful therapies for child antisocial conduct (Brestan & Eyberg, 1998). These behaviorally focused programs aim to create circumstances in the home that encourage prosocial conduct in children and discourage antisocial behavior. To teach parents effective disciplinary methods, they use direct instruction, videotapes, or both. These initiatives try to instruct parents on the use of reinforcement to mold their children's behavior. Additionally, they try to boost the warmth and supportive attention given to the kid while decreasing the frequency of severe punishment. The fact that treatment improvements have been preserved throughout durations ranging from a few months to a year to as long as 14 years is another evidence of the efficacy of these methods(37). In order to prevent the problem from being passed down through the generations, treatment efforts should concentrate on the physical, financial, and emotional safety of all other family members, including the elderly parents, spouse, and children(31). In a study of a behaviorally oriented parent-child therapy program, participants in the treatment group demonstrated enhanced social competency and saw improvements in observer and teacher judgments of classroom conduct issues (37).

iv) COGNITIVE BEHAVIOURAL THERAPY

Programs for children with behavioral problems that use cognitive-behavioral treatment (CBT) have reportedly had a mixed record, according to research. While some studies report little to no behavioral changes as a result of treatment, others report significant improvements in terms of teacher and parent behavior ratings, observers' ratings of school behavior, and self-esteem. The inconsistent findings shown in CBT outcomes studies may have anything to do with the subjects chosen. Research that demonstrates varying outcomes for various patient populations lends credence to this theory. youngsters who are violent and abandoned in particular have shown that CBT improves their social abilities, but not those of nonaggressive and rejected youngsters. For people who are at a high risk for aggressiveness, CBT appears to be a promising treatment approach(37). According to the outcomes of cognitive-behavioral treatment, many individuals with drug use

problems fared well from its application provided they did not additionally have a diagnosis of antisocial personality disorder (5). In comparison to TAU [Treatment As Usual], the CBT group had a modest, non-significant increase in social functioning and a decrease in physical aggressiveness, but no changes in rage or verbal aggression(2). Strict behavioral controls should be utilized to regulate behavior when highly psychopathic people are placed in forensic institutions by the courts, and any clinical progress should be considered with considerable mistrust. Given the construct's ability to predict treatment outcomes and the likelihood of violence, whether they are inpatients or outpatients, all legally obligated patients should have their level of psychopathy evaluated(31).

v) PARENT TRAINING PROGRAMS

Programs for parent education may lead to a decrease in youth and child drug use. Several intervention trials were treated and untreated at-risk children were tracked into late childhood or adolescence provide evidence in favor of this hypothesis. Participation in the Strengthening Families Program, which had a parent education component, led to decreases in "the use of tobacco and alcohol among older children and the expectations to use tobacco and alcohol among non-using children." Additionally, there were decreases in parental drug usage. In an extensive preventative trial, students in the 12th grade subjected to the programme used alcohol, cigarettes, or marijuana one or more times per week less frequently than peers. Programs exist that teach social skills to kids without also teaching parents these skills. The findings of these and other research highlight the importance of influencing children's views, attitudes, and knowledge because they are more susceptible to developing substance use problems owing to their age(37).

vi) MULTISYSTEMIC THERAPY (MST) PROGRAMS

This program treats young offenders who are at a high risk of committing new offenses using a thorough home-based approach. Activities for treatment and prevention range in length from three to five months and encompass interventions aimed at a variety of aspects of problematic youths' lives. Interventions may be centered on a person's actions or attitudes, or on social or environmental settings. Considering the adolescent's interactions and conduct in the home, school, neighborhood, and community, interventions may take place. They could entail but are not restricted to, escalating parental supervision and corrective conduct, enhancing adolescent social and intellectual abilities, and minimizing contact with disruptive peers (Henggeler, 1989). Increasing benefits for engaging in acceptable behaviors is another aspect of treatment, such as preparing young people for successful careers and financial futures (37). MST has the most personal backing as a method of preventing drug abuse in the lives of individuals who are already at risk. This is particularly true since the programme explicitly targets persons for whom using drugs and partaking in serious crime are not only possibilities but actually realities(37).

vii) MILIEU AND RESIDENTIAL THERAPY

Any form of therapy in which altering the environment in which the antisocial person lives is referred to as milieu therapy. For the treatment of ASPD, two milieu or residential treatments have been used: Token markets and healing communities. Peer influence serves as the primary change procedure in therapeutic residential communities, where residents develop social skills and social standards. There is research looking at the effectiveness of therapeutic communities for general offenders in institutional and community settings, despite the fact that no trials of these settings have been documented especially for ASPD. However, the majority are founded on substandard study designs. In the United States, a community alternative to prison was investigated by Lamb and Goertzel in a randomized controlled trial (RCT), and in the United Kingdom, HM Prison Grendon, therapeutic communities have been studied in both prospective and retrospective cohort studies. None of this research produced data that would support the idea that therapeutic communities were successful in treating general offenders (31).

B) PHARMACOLOGICAL TREATMENT

Patients with ASPD respond poorly to hospitalization, despite the fact that concomitant therapy for anxiety and depression improves their prognosis(38). Only a small amount of evidence, based on research of poor quality, supports the use of pharmaceuticals. Determine any causes that may be creating or exacerbating the behaviors; determine any ailments that may be deteriorating or complicating the disease; and, finally, determine any behaviors in others that are stimulating the symptoms of ASPD(38). The authors suggested that pharmaceutical therapies should only be utilized for the treatment of comorbid mental illnesses, particularly depression and anxiety, and not as the primary therapy for ASPD or related behaviors of aggressiveness, rage, and impulsivity(9). NO therapies have shown effective in managing or treating ASPD, however, they occasionally come in handy for treating comorbid disorders or providing emergency care(9). According to various symptoms, some research show that second-generation antipsychotics, lithium, anti-epileptic medicines, and stimulants are the first-line treatments. A medical professional may strive to

avoid administering possibly habit-forming medications to an ASPD patient if they do have a substance use disorder(5).

Drugs prescribed for other mental illnesses and associated indications may be helpful to lessen certain of the antisocial personality disorder's characteristics and behaviours. Mood dysregulation can be lessened with the use of venlafaxine, monoamine oxidase inhibitors (MAOIs), and selective serotonin reuptake inhibitors (SSRIs) (National Collaborating Centre for Mental Health, 2010). The efficacy of all of these medications has been established, although lithium and SSRIs have drawn the greatest attention for treating mood dysregulation. Another symptom that can be treated with SSRIs is aggressive behavior. Antipsychotic medicines taken at low levels will help lessen any cognitive abnormalities(5).

Conclusion

Anti-social personality disorder constitutes the reckless behavior, physical aggression, manipulation, lies and lack of remorse. It is one of the common personality disorders. ASPD is leads to significant damage to others, oneself, and society. It leads to physical injuries to others, social damage, legal system time and cost, substance abuse, gambling, and family disruption. Even though there is dearth of the studies and evidence for the Antisocial personality disorder treatment and etiology ,the above review is an effort to compile the existing literature of the Antisocial personality disorder(39).

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