

**Gender Patterns in Antisocial Personality Disorder and Psychopathy**

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## **Abstract**

Several studies have reported a gender bias in the prevalence of antisocial personality disorder (ASPD); however, determining the cause of such biases remains to be accomplished. The dominant explanation for gender bias is a bias within the diagnosis and diagnostic criteria of ASPD. Previous research has primarily focused on male populations when examining ASPD resulting in males being the standard of comparison, and thus not generalizable to female populations. In attempt to challenge this standard, researchers have examined ASPD in female populations and reported a difference in the prevalence of ASPD between the genders. Researchers have since further investigated this difference and reported it might be attributed to biases in the diagnostic criteria of ASPD. In addition to gender biases in ASPD, there are reported observed gender biases in psychopathy. The explanation for the differences in gender is that some PCL-R (psychopathy checklist revised) items are biased towards gender, which results in different prevalence rates between the genders. To contribute to the existing research, I completed a systematic literature review examining the observable gender patterns in ASPD, conduct disorder (CD), and psychopathy. The culmination of articles in the review revealed that there are significant differences in gender in ASPD, CD, and psychopathy diagnoses. Although, the explanation for the differences in ASPD diagnoses have yet to be identified.

## **1. Introduction**

There are two mental disorders that are commonly associated with antisocial and criminal behavior, antisocial personality disorder (ASPD) and psychopathy. ASPD is a personality disorder characterized by impulsive, aggressive, antisocial or criminal behavior which results in the violation of others' rights and society's laws (Aggarwal, 201). Similarly, to ASPD, Psychopathy is characterized by callousness, selfishness, a lack of remorse, and an antisocial lifestyle (Hare Psychopathy Checklist, n.d.).

Both ASPD and psychopathy are significantly present within male populations and are less prevalent in females (Dollan & Völlm, 2009). Due to the difference in prevalence rates among the genders, much of the research to date on ASPD and psychopathy and their relationship to criminal behavior has focused on males. Consequently, relatively little is known about the generalizability of these findings to female populations (Dollan & Völlm, 2009). Additionally, it is unclear if these differences represent important factors that could contribute to changes in diagnoses of ASPD and psychopathy.

In an attempt to address this gap in the literature, this paper sets out to selectively review 1031 pieces of literature on antisocial personality disorder, psychopathy, and related disorders. Specifically, it examines if the conduct disorder symptoms requirement for ASPD influences the gender differences in diagnoses. All of these 101 pieces of literature were selected using the inclusion criteria that it (a) included fundamental concepts on ASPD, conduct disorder, or psychopathy, and (b) discussed ASPD, conduct disorder, psychopathy, or gender patterns.

## **2. Antisocial personality disorder**

### *2.1 Diagnostic criteria*

Antisocial Personality Disorder is a DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4th edition) diagnosis assigned to individuals who are 18 years or older, and disregard or violate others' rights without remorse or regret. It has been referred to by different names throughout time: moral insanity, egopathy, sociopathy, and psychopathy (Barlow & Durand, 2016). People with ASPD tend to be criminals or engage in antisocial behaviors which they live on the edge of the law, due to their lack of moral conscience and decision-making ability (Anderson & Kiehl, 2015). As a result, the diagnosis of ASPD is primarily focused on the observable behaviors of an individual.

The diagnostic criteria for ASPD, according to the DSM-IV, are:

1. a disregard for and the violation of others' rights since the age of 15, as indicated by one of the seven sub features:
  - a. failure to obey laws and/or norms by engaging in behavior which results in criminal arrest, or would warrant criminal arrest
  - b. lying, deception, and manipulation, for profit or self-amusement
  - c. impulsive behavior
  - d. irritability and aggression, manifested as frequently assaults others, or engages in fighting
  - e. blatantly disregards safety of self and others
  - f. a pattern of irresponsibility, and
  - g. lack of remorse for actions
2. the person is at least the age of 18
3. there is a history of conduct disorder present before the age of 15, and
4. the antisocial behavior does not occur in the context of schizophrenia or bipolar disorder (American Psychiatric Association, 2013).

The criteria for ASPD have been widely criticized, particularly for the requirement of conduct disorder symptoms. It has been criticized due to the gender differences that are observed in the diagnoses. Rutherford et al. 1999's study provided three explanations for the differences in gender observed in ASPD diagnoses. The first explanation is that behaviors that are a consequence of substance abuse are considered in the diagnosis. The second explanation is that the number of childhood criteria for ASPD affected the number of women diagnosed with

ASPD. The third explanation is that the criteria and wording of the criteria influenced the rates of ASPD in the population. However, despite these explanations, it has been reported that there are no differences between ethnic and racial groups (Warren & South, 2006).

One factor that was found to have a significant influence on diagnoses, outside of gender, was age. Warren & South 2006's study reported that "among 18-to-29-year old's, the prevalence rate was 5.2%, and among 45-to-64-year old's the prevalence was 1.4%."

### *2.2 Onset*

Due to the DSM-IV diagnostic criteria, ASPD cannot officially be diagnosed before the age of 18. As a result, if an adolescent or child displays antisocial behaviors, then the diagnostic criteria for ASPD are not met, and the appropriate diagnosis would be conduct disorder (American Psychiatric Association, 2013).

### *2.3 Prevalence*

The estimated lifetime prevalence of ASPD is between 1% to 4% of the general population. Within that range, the gender distribution tends to be skewed towards males, with 3 to 5 times more likelihood of being diagnosed with ASPD than females" (Fisher & Hany, 2020).

### *2.4 Risk factors*

Researchers indicate that risk factors for ASPD stem from biological, sociological, and psychological factors. The biological factors that have been identified as contributing factors are having a biological parent with ASPD, and being biologically male (American Psychiatric Association, 2013). It has been indicated that there is a genetic predisposition that individuals with ASPD are born without a conscience, which contributes to their antisocial behaviors.

In addition, there is ample evidence of neuroanatomical differences in individuals with ASPD. Tang et al. 2013's article on resting-state fMRI (functional magnetic resonance imaging)

showed uncoupled connections in areas of the frontal and parietal lobes which are associated with attention, self-regulation, and the ability to control oneself, and to resolve conflicts. In the article, it was noted that “psychological and anatomical deficits observed in the frontal and parietal areas, as well as the cerebellum, may account for the chronic low arousal, high impulsivity, lack of conscience, callousness, and decision-making problems commonly observed in individuals with ASPD” (Tang et al., 2013).

The sociological factors that have been identified as contributing factors are the internalization of messages from peers or parents, socialization of antisocial behaviors, and presence of a history of abuse (Antisocial Personality Disorder, n.d.). Internalization of messages from peers and/or parents consist of messages such as lack of warmth, increased poverty, violence, inconsistent discipline, presence of marital problems, and a presence of substance abuse. Socialization of antisocial behaviors are contributing factors because in some instances, children are being taught that it is okay to behave violently and antisocially.

### *2.5 Comorbidity*

Antisocial personality disorder is highly comorbid with other psychiatric disorders, specifically substance abuse disorders and mood disorders. “Evidence from epidemiological samples indicate that individuals with ASPD are 4 times more likely to experience a mood disorder, 13 times more likely to experience a substance abuse disorder, and 7 and 9 times more likely to have suicidal ideations and attempt suicide” (Werner et al., 2016). Commonly associated comorbid mood disorders are schizophrenia and borderline personality disorder. In addition, a common psychiatric disorder comorbid with ASPD is psychopathy. “Nearly all cases of psychopathy meet the diagnostic criteria for ASPD, whereas only a small portion of those with

ASPD meet the criteria for psychopathy” (Werner et al., 2016). Thus, suggesting that psychopathy is a more severe form of ASPD.

## *2.6 Treatment*

Scholars are in consensus that there are few effective methods of treatment for ASPD. Although, some studies suggest that early treatment or intervention of conduct disorder in children and adolescents is successful. Even still, researchers have tested and concluded that psychopharmacology and psychotherapy treatment options are ineffective due to the risks associated with ASPD in adulthood (Fisher & Hany, 2020).

Due to these risks, adults with ASPD might be ‘treated’ through the use of the criminal justice system, such as the utilization of incarceration, parole, or probation to control and/or manage their antisocial and criminal behaviors. Incarceration is not an effective treatment methodology because individuals with ASPD often have “difficulty learning from mistakes, are rigid in decision-making, lack remorse and empathy, and are typically unresponsive to punishment” (De Brito et al., 2013). A fundamental reason these people do not respond to punishment is due to an inner belief system that views rules and consequences as a function of society, which they do not see themselves a part of. They view themselves as existing above society, therefore, they should not be held to society’s rules. As a result, incarceration may only serve to reinforce their beliefs and have little success in deterring them from future crimes.

However, research suggests that there are some effective treatment methodologies. Methods that have been shown to be effective are the utilization of religion and spirituality as a rehabilitation tool, and Cognitive Self Change (CSC). Through religion and spirituality, individuals can reform and reintegrate into society successfully, which would potentially decrease their antisocial and criminal behaviors. CSC is a type of Cognitive Behavioral Therapy

(CBT) based on Samenow and Yochelson's (1976; 1977; 1985; 1986) work with offenders in The Criminal Personality book series. It has been shown to have "marginal success in modifying the behavior of violent offenders, both antisocial and otherwise" (Barbour, 2013; Powell & Sadler, n.d. in Antisocial Personality Disorder, n.d.).

Beyond these tested treatments, there are other methodologies that have the potential to be successful. One such method is training therapy. Through training therapy, individuals are trained to become more empathetic towards others which would increase their success within society. There is research to suggest individuals with ASPD experience varying degrees of empathy, which suggests training therapy could be effective (Meffer et al., 2013).

### *2.7 Physiology*

A large portion of research has focused on the physiological factors that influence ASPD. Neurologically researchers have primarily focused on the sympathetic nervous system (SNS) and the hypothalamic-pituitary-adrenal (HPA) axis. However, the relationship between ASPD and neurobiology may be more complex than originally thought (Goulter et al., 2019). Through examining the complexities of the neurological underpinnings of ASPD, researchers identified three neurobiological theories: the under-arousal/cortical immaturity, fearlessness, and Gray's model theory.

The under-arousal/cortical immaturity theory states that antisocial individuals have "abnormally low levels of cortical arousal" (Sylvers et al., 2009 in Barlow & Durand, 2016). These low levels of arousal are influential to the causation of associated antisocial and risky behaviors. According to this theory, arousal and performance are linked heavily. Thus, suggesting that when individuals experience abnormally high or low levels of arousal, their



performance is affected negatively. In response to this U-shaped relationship, individuals will seek out stimulation to increase their levels of arousal, which results in their antisocial behaviors.

According to the fearlessness hypothesis, antisocial individuals “possess a higher threshold for experiencing fear than most others” (Lykken, 1957, 1982 in Barlow & Durand, 2016). Thus, meaning that things that typically elicit fear do not elicit the same fear response. Since the fear response is decreased in antisocial individuals, they are more likely to participate in risky behaviors due to the failure to respond to danger cues.

Gray’s model theory states that there are “three major brain systems that influence learning and emotional behavior: the behavioral inhibition system (BIS), the reward system, and the fight/flight system” (Barlow & Durand, 2016). Of these systems, two of them are used to primarily explain antisocial behaviors. The first system, the BIS, is responsible for our ability to stop or slow down when faced with danger or fear. The second system, the reward system, is responsible for our behavior and action in response to rewards. The potential malfunctions of these systems are evident. “An imbalance between the BIS and the reward system may make fear and anxiety less apparent and the positive feelings associated with the reward system more prominent” (Levenston et al., 2000 & Quay, 1993 in Barlow & Durand, 2016), which explains the antisocial and risky behaviors seen in individuals with ASPD.

### *2.8 Gender patterns*

Within ASPD diagnoses, the gender distribution is skewed towards males. As a result, males are “3 to 5 times more likely to be diagnosed with ASPD than their female counterparts” (Fisher & Hany, 2020). These statistics suggest that there are underlying gender biases within either the diagnostic criteria, the diagnosis, or the clinician’s personal biases.

## **3. Conduct disorder**

### 3.1 Diagnostic criteria

Conduct disorder (CD) is a DSM-IV diagnosis assigned to individuals under age 18, who do not conform their behavior to society's age-appropriate laws or norms, and who habitually violate the rights of others. It is sometimes referred to as juvenile delinquency. There are two subtypes of conduct disorder: childhood-onset and the adolescent-onset. Childhood-onset requires that at least one criterion for conduct disorder be present before the age 10, and adolescent-onset requires that the criterion for conduct disorder be absent before the age of 10 (Barlow & Durand, 2016).

The DSM-IV conduct disorder diagnostic criteria are: "a repetitive and persistent pattern of behavior in which the basic rights of others, or major age-appropriate societal norms or rules are violated, as manifested by the presence of at least three of the following 15 criteria in the past 12 months from any of the categories below, with at least one criterion present in the past 6 months:

- Aggression to people and/or animals
  - a. often bullies, threatens, or intimidates others
  - b. often initiates physical fights
  - c. has used a weapon that can cause serious physical harm to others
  - d. has been physically cruel to people
  - e. has been physically cruel to animals
  - f. has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery)
  - g. has forced someone into sexual activity
- Destruction of property
  - h. has deliberately engaged in fire setting with the intention of causing serious damage
  - i. has deliberately destroyed others' property (other than by fire setting)
- Deceitfulness or theft
  - j. has broken into someone else's house, building, or car
  - k. often lies to obtain goods or favors to avoid obligations
  - l. has stolen items of nontrivial value without confronting a victim
- Serious violations of rules
  - m. often stays out at night despite parental prohibitions, beginning before age 13 years

- n. has run away from home overnight at least twice while living in the parental or parental surrogate home, or once without returning for a lengthy period
- o. is often truant from school, beginning before age 13 years

The preceding criteria is accompanied by the following: 1. the behaviors cause significant impairment in functioning, and 2. if the individual over age 18 the criteria for ASPD is not met. Further qualifiers are: 1. child, adolescent, or unspecified onset, 2. limited prosocial emotions – a lack of remorse or guilt, lack of empathy, callousness, unconcerned about performance, shallow, or deficient affect, and 3. with mild, moderate, or severe levels of severity” (American Psychiatric Association, 2013).

### *3.2 Onset*

The DSM-IV identifies that CD symptoms can appear as early as pre-school age and as late as late adolescence, which is when symptoms are most apparent (American Psychiatric Association, 2013).

### *3.3 Prevalence*

The estimated lifetime prevalence of CD is between 2% to 10% of the general population (Conduct Disorder, n.d.). Within that range, CD is more commonly seen and diagnosed in boys due to boy’s tendency to act out violently. Whereas girls tend to act out more in interpersonal relationships – such as social rejection of disliked peers, non-confrontation of a victim through malicious postings on social media (American Psychiatric Association, 2013).

### *3.4 Risk factors*

Researchers indicate that risk factors for ASPD stem from biological, sociological, and psychological factors. The biological factors that have been identified as contributing factors are biological parental history of attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD), CD, and substance abuse (American Psychiatric Association, 2013).

Additionally, neurological malfunctions in the amygdala and the orbito-frontal cortex are conveyed in the diagnoses of CD. One malfunction that has been identified as influential is the inability to self-regulate combined with a more activated fear/anger center, which produces dysregulated and antisocial behaviors (Finger et al., 2011).

The sociological factors that have been identified as contributing factors are poor controlled temperament, low verbal IQ, parental rejection, parental neglect, and other forms of maltreatment, including, but not limited to, sexual abuse, parenting overindulgence, and inconsistent parenting. Parenting overindulgence has recently been identified as a risk factor due to the “development of a sense of entitlement, lack of concerns for others, self-absorption, unrealistic expectations, and frustration when these expectations are not delivered” (Fogarty, 2009).

In addition, lack of economic support and opportunity is frequently cited as a cause of juvenile delinquency, as well as adult criminality. However, criminologist Samenow (2004) argues that many adolescents grow up in adverse circumstances, and do not engage in delinquent or criminal behavior. Instead, these individuals make more pro-social choices despite adversity. As a result, it is determined that “delinquency is a rational, though maladaptive and dysfunctional choice, arrived at through active rejection of education, societal values, and legitimate employment opportunities” (Samenow, 2004).

### *3.5 Treatment*

There are no specific treatments for CD, but research suggests that evidence based parenting programs for guardians of children with CD reduced the incidence of CD progressing to adult criminality (Bonin et al., 2011). Due to CD behavior resulting in contact with the juvenile justice system, treatment may be mandated and enforced, occur in an institutional

setting, or academic programs. Supervision, clear expectations for behavior, accountability, and consequences for inappropriate behavior are all part of a quality treatment program. As a result of lack of treatments, further research needs to be conducted to identify effective treatments to decrease the prevalence of CD.

## **4. Psychopathy**

### *4.1 Assessment*

The Psychopathy Checklist-Revised (PCL-R; Hare, 2003) is utilized in the diagnosis of psychopathy. It focuses on the underlying personality traits of individuals. The PCL-R is composed of two parts: a partially structured interview and a review of the person's medical and criminal history. The 20 traits that are assessed by the PCL-R are: "glib and superficial charm, grandiose estimation of self, need for stimulation, pathological lying, cunning and manipulateness, lack of remorse or guilt, shallow affect (or superficial emotional responsiveness), callousness and lack of empathy, parasitic lifestyle, poor behavioral controls, sexual promiscuity, early behavior problems, lack of realistic long-term goals, impulsivity, irresponsibility, failure to accept responsibility for own actions, many short-term interpersonal relationships, juvenile delinquency, revocation of conditional release, and criminal versatility" (Encyclopedia of Mental Disorders, n.d.). During the interview portion, the person's background (i.e. medical, criminal, educational, and work history) is covered.

### *4.2 Successful and unsuccessful psychopaths*

The assumption that psychopathy is characterized by an under responsibility of the autonomic stress response has long been questioned by researchers. Successful psychopaths are "individuals who fit the criteria of a psychopath, having certain fundamental traits, but largely succeed in their exploitation" (Mullins-Sweatt et al., 2010). These psychopaths demonstrate

significant autonomic reactivity and stronger executive functions. In opposition, unsuccessful psychopaths are “individuals who fit the criteria of a psychopath, possessing certain fundamental traits,” but largely failing in their exploitation (Mullins-Sweatt et al., 2010). These psychopaths demonstrate significantly reduced cardiovascular stress reactivity. Yang et al.’s study (2005) reported a reduction in prefrontal grey matter volumes when looking at unsuccessful psychopaths, compared to successful psychopaths and the control. “Decreased prefrontal volumes may render unsuccessful psychopaths particularly susceptible to poor decision-making, impulsive aggression, and unregulated antisocial behavior, thus, increasing the probability of being apprehended” (Buchheim et al., 2013). To compare, successful psychopaths demonstrated a “relative sparing of prefrontal grey matter that may provide them with normal executive functioning and intact capacities for the control of affective states.” Thus, allowing successful psychopaths to react sensitively to environmental cues of danger, coincidentally avoiding apprehension (Buchheim et al., 2013). A number of recent studies supported that successful psychopaths exhibit normal cognitive abilities related to normal structure and function.

#### *4.3 Primary and secondary psychopaths*

A related distinction between the subtypes of psychopathy is that between ‘primary’ or ‘low-anxious’ and non-impulsive psychopaths, and ‘secondary’ or ‘high-anxious’ and impulsive psychopaths (Buchheim et al., 2013). Motzkin et al.’s study (2011) on prefrontal connectivity in psychopathy reported that primary psychopaths reveal a significantly higher connectivity between ventromedial prefrontal cortex (VMPFC) and the amygdala. In comparison, secondary psychopaths reveal a relatively low connectivity which results in impulsivity. While psychopaths are commonly characterized by an inter-hemispheric imbalance, primary psychopaths display a hypoactive right hemisphere and secondary psychopaths display a hyperactive left hemisphere.

Primary psychopathy is thought to be supported by a genetic composition or dispositional deficits in emotional responsivity (Cleckly et al., 1976), whereas experiences of social and environmental adversity are central to theories of secondary psychopathy (Karpmann, 1941).

#### *4.4 Physiology*

Psychopathy is a neuropsychiatric disorder that imposes a significant burden on society. It is characterized by callous and impulsive antisocial behavior and is associated with high rates of violent crime and recidivism (Hare, 2003). People who meet the criterion for psychopathy are characterized by a dominance of instrumental, proactive, premeditated, or predatory aggression in terms of activities. Often times, they exhibit a high degree of lying, deceiving behaviors, manipulative behaviors, and simulating empathy (i.e., hiding their true motives or intentions). It is even a “relatively reliable predictor for violence, high rates of recidivism, and poor treatment responsiveness” (Buchheim et al., 2013).

Researchers have identified biological factors as contributing factors to psychopathy. Such biological factors are neurobiological findings which suggest that the “condition is due to a dysfunction of the ventral and ventromedial pre-frontal regions, inner cortex, temporo-parietal cortical areas, subcortical limbic regions, and the amygdala” (Buchheim et al., 2013). Additionally, a “thinner cortex in a number of areas has been demonstrated in psychopathic inmates compared to non-psychopathic. Within psychopathic aggression and violence, there is an assumed lack of empathy” (Buchheim et al., 2013).

There is also an investigation of a possible link between affective and cognitive processes in psychopathy which revealed that people with ASPD did not show any influence of negative conditions on behavior. Whereas in psychopaths, it revealed that negative emotions did not disturb cognitive tasks (Buchheim et al., 2013). In conjunction, Yang and Raine’s study (2005)

reported four deficit impairments associated with psychopathy: the evaluation of positive or negative reinforcers, the processing of affective stimuli including its context, the assessment of emotional salience and regulation of emotional responses, and the pain and empathy system.

#### *4.5 Gender patterns*

The PCL-R has been shown to have significant psychometric properties. However, recently researchers have been examining the PCL-R in female populations to determine if there are gender differences associated with the assessment tool. A number of studies have examined the expression of items on the PCL-R between male and female populations (Wynn et al., 2012). One fundamental study conducted by Rutherford et al. (1996) suggested that some PCL-R items may not be directly applicable to women. In support, Grann (2000) reported that most of the PCL-R items did not demonstrate gender differences, but a few items did demonstrate significant differences in gender. Those items were “callousness, lack of empathy, and juvenile delinquency, which are commonly associated with males, whereas for females, sexual promiscuity was significant” (Grann, 2000).

Taken together, studies examining rates of psychopathy have reported a slightly decreased prevalence in women compared to men. Thus, suggesting that there is a gender bias existing either in the diagnostic assessment tool or the assessment items themselves. Based upon previous research, it has been reported that there is a bias within both the assessment tool and assessment items, which results in the differences in genders in the diagnoses of psychopathy.

### **5. Gender patterns**

Overall, there are major observable differences in gender in ASPD, CD, and psychopathy. Within ASPD, males are more likely to be diagnosed than their female counterparts. In search of causational factors, researchers tested the influence of



biological/genetic factors, environmental factors, developmental factors, clinician biases, and DSM diagnostic criteria to determine if they played a role in the gender differences. However, researchers have not conclusively identified which factors contribute to the gender differences, which begs the need for further research.

CD diagnoses are composed primarily of boys due to the differences in the socialization between boys and girls. In the United States, boys are taught that it is socially acceptable to act out violently towards others, whereas girls are taught that it is not acceptable (Conduct Disorder, n.d.). As a result, boys are more likely to be diagnosed with CD due to their violent behaviors.

In psychopathy, researchers have identified where the gender differences exist in the diagnoses. The differences stem from a few of the PCL-R items: “callousness, lack of empathy, juvenile delinquency, and sexual promiscuity” (Grann, 2000). Thus, suggesting that portions of the PCL-R possess a criterion gender bias.

## **6. Findings**

### *6.1 Discussion*

The findings of the literature review revealed that there are observable gender differences in ASPD and psychopathy diagnoses. In ASPD, the differences in gender have yet to be conclusively identified. However, it could be attributed to (1) DSM-IV conduct disorder symptom requirements and or (2) sociological factors such as the differences in socialization between boys and girls. DSM-IV CD symptom requirements are likely to contribute to these differences due to boys having a higher tendency to be diagnosed as a result of their violent behavior. Boys are also more likely to exhibit violent behavior due to the socialization that it is socially acceptable to behave violently. Additionally, in psychopathy, there are observable gender differences in the assessment tools (PCL-R) used to diagnose people with psychopathy.

The PCL-R contains some items that are significantly different between the genders:

“callousness, lack of empathy, juvenile delinquency, and sexual promiscuity” (Grann, 2000). The difference in gender expression in these items is due to the difference in socialization in boys versus girls, such as boys are taught to be emotionless while girls are taught to be full of emotion.

### *6.2 Limitations*

Within the review, there were three limitations identified. The first limitation is that the literature review did not contribute influential factors that have not been previously mentioned in the research. The second limitation is that there were no datasets utilized to test the results of the review. The third limitation is that there is a likely possibility that the results are not applicable to incarcerated populations due to a higher prevalence rate and treatment methods being ineffective.

### *6.3 Future research directions*

To further advance the research on ASPD, CD, and psychopathy, more research needs to be conducted to examine CD symptoms requirements in detail in order to determine if it contributes to gender differences within ASPD diagnosis. Secondly, scholars need to examine if there are other contributing factors beyond the diagnostic criteria. Such contributing factors might be the differences between socialization in boys and girls at different developmental stages. By following these research directions, the goal is to identify the role that CD symptom requirements have in the gender differences in ASPD diagnoses. As well as identify the role that socialization has in ASPD diagnoses, and to identify the differences in the socialization between boys and girls.

### *6.4 Future treatment directions*

In addition to advancing research on ASPD, extensive research needs to be conducted to test and identify new effective treatment methods. One potential treatment method is to combine effective treatments for ASPD with engaging stimuli to keep people with ASPD more engaged and interested, which addresses the under arousal neurobiological theory. By addressing the theory, the goals are to engage people with ASPD more, create incentives for people to seek and stick to treatment plans, and to improve the success of existing treatment methods.

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