

Psychopathy subtypes: etiology, characteristics and the importance to identifying variants

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Abstract

Traditionally psychopathy is described as a personality disorder characterised by lack of empathy and guilt, shallow affect, manipulation of other people and premeditated and violent antisocial behaviour. The current study analyses the major aspects of psychopathy and provide an overview of most influential existing theories on psychopathy subtypes and their distinguishing features. In this research, we summarize the main traits that allow to differentiate the two variants of psychopathy. We analyse the distinct etiological processes that cause those traits through genetic and environmental processes and the divergences that have emerged about alcohol and substance abuse. Finally, we describe the damage of not differentiating those two variants, specifically, emphasizing that treatment should be different for each variant.

Keywords: psychopathy, personality disorder, aetiology of psychopathy, PCL-R, PPI-R, triarchic psychopathy measure, Levenson self-report scale, psychopathy subtypes, primary psychopathy, secondary psychopathy, aggression, violent crime, psychopathy treatment

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Psychopathy subtypes: etiology, characteristics and the importance to identifying variants

Introduction

Psychopathy is a personality disorder defined by a specific cluster of behaviors and inferred personality traits. A common belief is that psychopathy refers to a distinct diagnostic category whose defining characteristics distinguish it from construct of antisocial personality disorder (ASPD). Nevertheless, the term is still often used interchangeably, however there are strong evidences that psychopathy is not a unitary construct and that there is a fair distinction between psychopathy and ASPD (Ogloff, 2006). Though still underdeveloped as an area of research, the studies on psychopathy subtypes to date provide important pieces of evidence that can help to resolve key questions in the field, including the very definition of psychopathy.

In this article, we expose the four most represented methods for the clinical and forensic assessment of psychopathy namely: Psychopathy Checklist-Revised (PCL-R), Psychopathic Personality Inventory – Revised (PPI-R), Triarchic Psychopathy Measure and Levenson Self Report Scale.

We provide an overview of most influential existing theories on psychopathy subtypes and their distinguishing features and we explain the most common traits that hold the key to differentiation of psychopaths. Later, we analyze the distinct etiological processes that cause those traits within variants, through genetic and environmental processes, with emphasis on neurological processes. The damage of not differentiating the variants are presented through paragraph on Clinical Outcomes and Legal issues. Specifically, emphasizing that treatment should be diverse for each variant.

Materials and Method

All the main scientific studies regarding the psychopathy were examined. Specifically, we used the search engines PUBMED (<https://www.ncbi.nlm.nih.gov/pmc/>), Scopus (<https://www.scopus.com>), ScienceDirect (<https://www.sciencedirect.com>) and Google Scholar (<https://scholar.google.com>) to research the keyword “psychopathy” associated with “etiology”, “genetic”, “subtypes”, “variants”, “treatment” “clinical outcomes” “crimes” “legal issues”. All major papers published in the English language in the last years were considered. The results of the search were screened on the basis of the titles and abstracts of the papers. We excluded papers that did not fully relate with the topic under examination. Articles deemed relevant to the issue under investigation were read and ana-

lyzed in their entirety. We conducted a critical analysis of all the scientific papers selected.

The search yielded over 150 scientific papers deemed suitable for analysis; then 70 articles were analyzed and studied in their entirety while the others were discarded as duplicates or because they were not judged relevant to the topic.

History of psychopathy

In 1952 the American Psychiatric Association (APA) published its first Diagnostic and statistical manual of mental diseases (DSM), where the term sociopathic personality prevailed. The person who suffers from «sociopathic personality disturbance» was described as ill primarily in social terms with often comorbidity with neurosis, psychosis or personality disorder. Such individuals according to DSM-1 are not treatable and responsive to any sort of punishment. At that time, the term «psychopathic personality» was used synonymously with «emotionally unstable personality.»

The same inconsistencies remained in DSM-2, published in 1968, with minimal changes in terms, in fact, as noted in the introduction, «the antisocial reaction explained above is one of the areas that still remained in disagreement»(APA, 1968). Some scholars speculate that it was only DSM-3, published in 1980, and DSM-4, published in 1994 that brought some diagnostic consistency by relatively objective and non-inferential diagnostic criteria (Lykken, 1995). Others argued that DSM-4 intended to shift diagnosis closer to the PCL-R and Cleckley’s conception of psychopath (Crego & Widiger, 2014). The main problem of diagnosis as seen in DSM-4, is that large proportion of heterogeneous criminals diagnosed within prison or other forensic settings would meet DSM-4 criteria for Antisocial Personality Disorder (ASPD), but only about half of the cases of ASPD would meet criteria for psychopathy (Lykken, 1995).

The latest version of DSM (DSM-5) was introduced in 2013, and the ASPD was listed under Cluster B Personality disorders. The same list of traits presented in DSM-4 is repeated in Section III of DSM-5; the only change is that the «psychopathy specifier» was included in the chapter entitled Alternative Models of Antisocial Personality Disorder. (APA, 2013). Section III of DSM-5 describes ASPD in terms of 7 traits. These traits are part of the Personality inventory for DSM-5 (PID-5). PID-5 is a 200-item questionnaire designed to assess the DSM-5 dimensional trait model. These alternative traits are entailing the presence of three additional traits - low anxiousness,

high attention seeking and low social withdrawal. This is very controversial as low fearfulness theory still doesn't constitute the contemporary picture of psychopathy because of lack of empirical evidence.

Historical accounts on psychopathy variants

Benjamin Karpman was the first scholar that propose the introduction of a differentiation between «primary» and «secondary» psychopaths, each reflecting different etiological influences (Karpman, 1941).

Karpman's Primary and Secondary psychopaths are phenotypically similar. However, the primary psychopath was conceptualized with lack of conscience and impaired capacity to develop normal attachments with absence of guilt or anxiety. On the other hand, secondary psychopaths were conceptualized as entailing a conscience that fails to function appropriately due to an affective disturbance based on early psychosocial learning. Karpman saw secondary psychopaths as individuals associated with strong negative emotions, above all, hostility and aggression, but in contrast to primary psychopath they are able to feel guilt, anxiety and are prone to depression. These negative emotions are considered as a «hot» impulsive and reactive behavioral style. While, on the contrary, primary psychopaths exploit others with a «cold» and calculated method. He believed that another basic distinction is a possibility of treatment because presence of basic foundation of conscience makes them amenable to psychotherapy (Skeem et al., 2003).

David Lykken associated primary psychopaths with fearless temperament. He tried to test his theory in a study with male inmates who met all Cleckley's criteria and a control group that was classified as psychopathic due to their records of antisocial behaviour but was not seen as ideal Cleckley's psychopath. Study included administering the Activities Preference Questionnaire (APQ) intended to assess fearfulness and administering electric shocks to measure subjects pain threshold.

Later on, Lykken applied pair of recording electrodes on subjects' fingers to study their electrodermal responses produced by sweat gland activity in the response to the stimulus and proposing a task to measure avoidance learning. He found that inmates who represented Cleckley's ideal psychopath achieved lower scores on APQ, those individuals also showed a significantly reduced electrodermal response and increased passive avoidance errors within a learning tasks than control group.

Lykken and Fowles linked the theory with Gray's biopsychological theory of personality. The two central components of Gray's model are the behavioral avoidance or inhibition system (BIS), that controls the inhibition of ongoing behavior, the increase in vigilance and arousal which can be produced by aversive stimuli, and the behavioral approach system (BAS) which regulates appetitive motives and is associated with the experience of positive affect and impulsivity (McNaughton & Gray, 2000).

Fowles and Gray suggested that primary psychopaths might be understood as a consequence of a weak BIS, a model equivalent to what Lykken referred as low fear hypothesis. On the other hand, individual with a normal BIS but unusually active BAS might apply to secondary psychopaths. (Lykken, 1995; Newman et al., 2005). Consistently with Lykken's and Gray's theory about psychopaths deficit in aversive responding, Patrick, Bradley and Lang (1993) conducted a study with subjects organized in 3 groups, showing them a series of 27 slides, 9 pleasant, 9 neutral and 9 unpleasant previously rated on dimensions of valence and arousal by normal subjects. They found the absence of an augmented probe-startle response during the exposure to unpleasant slides as compared to pleasant slides. However, Blair, Mitchell and Blair (2005) stated that when individuals with psychopathy are presented with threatening visual images, they show equivalent electrodermal responses to those of comparison individuals which is not consistent with reduced fear theory.

Lykken's conceptualization is consistent with Karpman's view that secondary psychopaths experience negative affect and behave impulsively, but Lykken's classification goes even further, individuals whom he classifies as psychopaths failed to become socialized because of genetic peculiarity, usually a peculiarity of temperament, whereas, children with inherited temperamental problems that are left untrained, neglected or abused by their incompetent or unsocialized parents, he called sociopaths. Lykken was emphasizing the importance of conscious parenting as a tool for preventing criminal behaviour in population with ASPD (Lykken, 1995).

The Lykken's sociopath would be consistent with Porter's secondary psychopath. Porter embraced Karpman's etiological ideal of primary psychopath and secondary psychopaths, one primarily congenital and one primarily environmental, but he argued that secondary psychopath might be considered a dissociative disorder - the child's emotion being dissociated from or unconnected with cognition and behaviour over time rather than a personality disorder (Porter, 1996). According to Porter, secondary psychopaths are born with the capacity to respond empathetically, but this ability is lost due to physical or sexual abuse and other mistreatment suffered by the child (Porter, 1996).

Blackburn & Lee-Evans (1985) in distinguishing primary and secondary psychopath proposed another view. Investigating Megargee's typology of violent offenders (Megargee & Mendelsohn, 1962) he made cluster analysis of Minnesota Multiphasic Personality Inventory (MMPI) profiles of maximum security forensic patients. His main conclusion was that the distinction between psychopaths and secondary psychopaths lies in their degree of withdrawal. He described both types as aggressive, impulsive and hostile, with the main difference in primary psychopaths being extroverted, confident, dominant and low in anxiety whereas secondary psychopaths were characterized as a person with low self-esteem, anxious, emotionally disturbed and withdrawn.

PCL-R and its derivatives

The dominant instrument for the clinical and forensic assessment of psychopathy is the Psychopathy Checklist-Revised (PCL-R). PCL-R is considered the gold standard in psychopathy research (Swogger & Kosson, 2007), it is firmly grounded in a clinical tradition that long has described psychopathy in terms of a constellation of affective, interpersonal, and behavioral characteristics (Cleckley, 1976). PCL-R began as a research tool for operationalizing the construct of psychopathy (Blackburn, R. et al., 2008) The PCL-R is a 20-item clinical construct rating scale completed on the basis of a semi-structured interview and detailed collateral or file information. Each item is scored on a 3-point scale; the total score, which can range from 0 to 40, provides an estimate of the extent to which a given individual matches the prototypical psychopath, as exemplified, in the work of Cleckley. Some scholars expressed concern that explicit measures of low trait anxiety and trait fearlessness were not included in the list of PCL-R items, recent research indicates that the current items adequately reflect these two traits (Neumann, Johansson & Hare, 2013). The second edition of the PCL-R appeared in 2003, with detailed psychometric and validation data for 10,896 North American male and female offenders, substance abusers, sex offenders, African American offenders, forensic psychiatric patients, and offenders in several other countries. The PCL-R items and their scoring criteria remained the same as those in the 1991 edition (Hare, Neumann, Mokros, 2018). The 2003 manual provided users with an extensive review of the then extant literature on PCL-R assessment of psychopathy.

PCL-R is the ultimate assessment tool for measuring psychopathy, and it does minimize the heterogeneity between Antisocial Personality Disorders and psychopathic personalities as presented in DSM-5. However, in need of discovering subtypes significant heterogeneity still remains in the PCL-R item set.

Psychopathic Personality Inventory – Revised

As already mentioned, it is argued that PCL-R index psychopathy as unitary construct, instead it is argued that PPI is tool that took an inclusive personality-based approach with the aim of capturing the full spectrum of trait constructs embodied in Cleckley's description of a psychopath (Patrick, Fowles, Krueger, 2009) (Cox et al., 2013)

The PPI initially included 187 items but in order to lower its reading level and eliminate psychometrically problematic or culturally specific items, 33 items has been removed, which led to creation of the PPI revised version (PPI-R). Factor analysis of PPI results in possibility to organize it in eight subscales with two distinct higher order factors. Benning and colleagues (2005) labeled these factors fearless dominance and impulsive antisociality, stating

that the first factor (PPI-I: Fearless Dominance) was characterized by social potency, stress immunity, and fearlessness; essential features of the interpersonal-affective traits and analogous to primary psychopathy. Instead, the second factor (PPI-II: Impulsive Antisociality), analogously to secondary psychopathy, was marked by negative emotionality, such as aggression and alienation, and low behavioral constraint, such as impulsivity and sensation seeking. Findings suggest that PPI-I is negatively related to hostility and anger and shows only a weak positive association with physical aggression (Falkenbach, Stern & Creevy, 2014). This is in accordance with the study conducted by Skeem et al. (2007) where they used PPI and describe it a less violence-based assessment of psychopathy traits. Scores on PPI-II are more generally indicative of psychological and behavioral maladjustment which includes impulsivity and aggressiveness, child and adult antisocial behavior, alcohol and drug problems, high anxiousness and suicidal ideation (Patrick, Fowles, Krueger, 2009). Unlike PCL-R Factor 1 and 2, which are moderately correlated, the 2 higher order Factor of PPI-R are uncorrelated.

Triarchic Psychopathy Measure

Patrick, Fowles and Krueger (2009) developed Triarchic model of psychopathy around three constructs: Boldness, Disinhibition, and Meanness.

Boldness is intended to reflect the positive adjustment features noted by Cleckley's «mask of sanity» (1941/1976/1988) that gives the appearance of good psychological functioning despite the severe behavioral pathology. Boldness may be expressed through adaptive features, such as emotional stability, low internalizing symptomatology, leadership/authority, social poise, assertiveness, persuasiveness, bravery, and venturesomeness, but also through less adaptive proclivities such as narcissism, low BIS, manipulativeness, risk-taking, and thrill-seeking (Patrick, Fowles, Krueger, 2009; Sellbom & Phillips 2013; Strickland et al., 2013).

The term «disinhibition» as used by Patrick, Fowles and Krueger (2009) describe «a general propensity toward impulse control problems entailing a lack of planning and foresight, impaired regulation of affect and urges, insistence on immediate gratification, and deficient behavioral restraint». It is viewed as nexus of impulsivity and negative emotionality and also associated with substance use problems and other mental health problems such as anxiety, depression, and suicidal behavior. Disinhibition, thus reflects mainly features of psychopathy that are assessed by the criteria for ASPD, the items of PCL-R Factor 2 (those comprising its Impulsive - Irresponsible facet, in particular), and the PPI's Self-Centered Impulsivity factor (Hicks & Drislane, 2018).

Finally, the term meanness is described by Patrick, Fowles and Krueger (2009) as «a constellation of phenotypic attributes including deficient empathy, disdain for

and lack of close attachments with others, rebelliousness, excitement seeking, exploitativeness, and empowerment through cruelty». Terms related to meanness include callousness, cold heartedness and antagonism. Meanness corresponds with PCL-R Factor 1 and presents individuals who seek to dominate and exploit others instead of avoiding them. It is believed that manifestation of meanness could be seen in common psychopathic behavior such as cruelty toward animals premeditated violence, vindictive and destructive aggression, arrogance, and lack of cooperativeness and close attachments to others (Hicks & Drislane 2018; Evans & Tully, 2016).

Primary psychopath would be defined as having an equal representation of Boldness, Meanness, and Disinhibition. In contrast, secondary psychopathy and the severe ASPD subtype conceptions are dominated by Disinhibition, followed by a significant portion of Meanness but little Boldness (Hicks & Drislane, 2018).

Levenson Self Report Scale

The LSRP scale was developed by Levenson, Kiehl and Fitzpatrick (1995) to detect self-reported psychopathic features in noninstitutional samples. It consists of 26 items on a 4-point Likert-type format that forms two scales, Primary and Secondary, which were rationally constructed to serve as counterparts to PCL-R Factors 1 (an inclination to lie, lack of remorse, callousness, manipulativeness) and Factor 2 (impulsivity, intolerance of frustration, quick-temperedness, and lack of long-term goals) since Levenson Kiehl and Fitzpatrick (1995) was of opinion that the two factors as composed in PCL-R are quite compatible with the distinction made by Karpman, about the primary and secondary psychopaths.

Even though one may think that finally is introduced assessment tool that can disaggregate psychopathy and offer empirical evidence for primary and secondary subtypes, unfortunately validity of the LSRP is questionable. Several studies showed that this tool has been more highly related to measures of secondary psychopathy and antisocial behavior than to measures of the core affective and interpersonal features of psychopathy. First conundrum is associated with Primary psychopathy scale that is said that indexes an egocentric, callous, and manipulative mindset more globally, which is related to both primary and secondary psychopathy (Yildirim & Derksen, 2015). Furthermore, primary psychopathy is more related to Factor 2 and facets of PPI-II than Factor 1 and facets of PPI-I (Poythress et al., 2010; Brinkley et al., 2001), which is completely opposite of hypothesis that Levenson, Kiehl and Fitzpatrick had in mind when creating LSRP. Moreover, the absence of a substantial negative correlation between the Primary scale and trait anxiety calls into question this scale's construct validity, as Levenson Kiehl and Fitzpatrick (1995) predicted that primary psychopaths should be low in trait anxiety. The secondary scale also provides confusing data, as it is closely related

to Machiavellianism (Yildirim & Derksen, 2015), and shows similarity with criminality and violence as primary scale.

In an effort to reconcile emphasized problems occurring Levenson's two scales, Christian and Sellbom (2016) developed an expanded 36-item version of the LSRP three-factor scales, with an emphasis on improving construct coverage with a range of criteria including measures designed to index constructs described by the triarchic model of psychopathy (Patrick, Fowles & Krueger, 2009). However, lack of empirical studies cannot derive further conclusions. Same goes for the Levenson Self Report scales bears too much mixed evidence about its reliability.

The instrumental difference between primary and secondary psychopathy

Hicks and Drislane (2018) in the most extensive meta-analytic study about psychopathy variants, analyzed 24 studies. They examined subtype differences on measures of personality traits, organizing the variety of personality measures into the construct of negative emotionality (divided into 2 groups: neuroticism and anger/aggression), positive emotionality and disinhibition. They found that regardless of the differences across studies in data analytic techniques, clustering variables, sampling strategies, and participants characteristics, 20 studies (83%) showed strong empirical evidence for clear primary and secondary psychopath variants. Interestingly, Hicks and Drislane explained that other 17% that were exceptions still reported finding psychopath related subgroups, but they didn't match that closely examined conceptions of primary and secondary psychopaths. Comparing the subtypes to each other the primary variant had higher PCL-R total and Factor 1 scores whereas the secondary variant had higher Factor 2 scores. This is in accordance with theory that F1 is more discriminating towards the construct of psychopathy in sense that provides more information about the construct than F2 items which is correlated strongly with ASPD. The subtype comparisons were very similar when using PPI, TriPM, ASPD, Levenson self-report scale and the Youth psychopathy inventory.

Trait-based models discriminate primary psychopaths and secondary psychopaths not only in the terms of psychopathology but also personality, it provides answers on long-awaited questions about etiological factors of psychopathy and possibility of treatment. According to Hicks and Drislane, the greatest difference between primary psychopath and secondary psychopath is on personality traits for neuroticism, there is an overall agreement also that secondary psychopath scores higher on disinhibition.

Despite the high rates of criminal behavior, the primary variants were associated with little in the way of psychological maladjustment. Primary psychopathy consistently exhibited few internalizing problems as evidence by rates of fear and distress disorder commensurate with or lower than the control groups, whereas the secondary psy-

chopaths was associated with elevated levels of both internalizing and externalizing problems. The secondary psychopath was more likely than the primary psychopath to report having an anxiety disorder and to have more severe alcohol and drug use problems. Secondary psychopaths were also associated with other mental health problems including borderline personality disorder and symptoms of major mental disorders and maladaptive coping strategies. Secondary psychopath is associated with social skills deficits including poor assertiveness, social anxiety and withdrawal and susceptibility to peer pressure. Secondary psychopath shows positive associations with retrospective accounts of having experienced trauma or abuse including childhood sexual abuse, physical abuse and neglect. Secondary psychopaths have been found to be associated with higher rates of post-traumatic stress disorder. Multiple studies showed higher incidence of institutional fractions in secondary psychopath than in primary psychopath, particularly for infractions involving impulsive or reactive aggression (Blair, Mitchell & Blair, 2005). There is also evidence that the secondary psychopath is associated with greater treatment motivation and treatment change than the primary psychopath, with higher likelihood of reporting receipt of mental health treatment or use of prescribed antidepressant medications in the past. This is notable given that secondary psychopath is associated with elevated suicidal ideation and suicide attempts.

Neuroticism – trait anxiety

Neuroticism is, indeed, as Karpman hypothesized the key difference between the primary and secondary psychopath. Hicks et al. (2004), in their empirical study in incarcerated male subjects found psychopathy variants divided in two groups. The first group consistent of primary psychopaths they labeled “Emotionally stable psychopaths”. The second group consistent of secondary psychopaths they labeled “Aggressive Psychopath”. Their primary psychopath is characterized as person of high social dominance and fearlessness, together with low anxiety, low impulsiveness and aggressiveness. In contrast, their secondary psychopath was characterized by high aggressiveness, reactive hostility, impulsiveness and anxiety. Relative to non-psychopathic group that served as controlled group in that study, secondary psychopaths manifested greater negative affectivity, alienation and less general well-being.

Skeem et al. (2007), in the study with male prisoners found equal results as Hicks and colleagues. In this study secondary psychopaths had significantly more traits of avoidant and dependent personality disorders than primary psychopaths. Secondary psychopaths showed greater somatic anxiety. They reported in comparison with control group that was composed of violent but non-psychopathic subjects, secondary psychopaths showed to be more emotionally unstable and withdrawn. Primary psy-

chopaths were less anxious, more assertive or dominant and interpersonally confident i.e. free of negative emotionality than comparison group. Swogger and Kosson conducted two separate studies, one with 258 unselected white male prisoners (Swogger & Kosson, 2007) and one with 262 unselected African American male prisoners (Swogger, Walsh & Kosson, 2008). Importance of these two studies lies in the fact that psychopathy variants can be found even in different racial profiles and also as evidence that PCL-R-assessed psychopathy is valid across ethnicity. Primary psychopaths in both studies showed low anxiousness. However, secondary psychopath group in study with white male prisoners was characterized by higher anxiety or negative affectivity scores than all other clusters, whereas secondary psychopath group with African American male prisoners showed moderately high trait anxiety. It is important to mention that members of secondary psychopath group with African American male prisoners did not have lower scores than primary psychopaths on the Affective dimension of the PCL-R, that result suggest similar levels of callousness and emotional shallowness in the two groups.

Wareham et al., 2009., draw same conclusion about trait anxiety in mixed gender study within youth offenders. Among four groups they identified two groups, both impulsive, but that differed mainly in terms of low and high anxiety. They reported that subtypes did not differ significantly in regard to gender (However, this topic will be more detailed later in paper). Those and other similar studies show clear evidence that psychopaths can be divided into two variants. Primary variant who shows low levels of anxiety and low internalizing problems, and secondary variant that shows elevated level of anxiety (Zwaan-swijk et al. 2017).

Anger/Aggression

Aggression can be defined as behavior aimed at harming others physically or psychologically. Anger can be defined as an emotion characterized by tension and hostility arising from frustration, real or imagined injury by another, or perceived injustice (APA). Secondary variants are prone to higher levels of anxiety, but also impulsivity which can be seen as nexus to hostility and more expressed aggression (Hicks et al., 2004). Secondary variants engaged in more fights already in early childhood which continued in adulthood and had earlier age of first charge (Hicks et al., 2004; Hicks, Vaidyanathan & Patrick, 2010). High anxiety secondary psychopaths exhibited muscular tension and is reported that are more prone to sulking and other indirect expressions of aggression (Skeem et al., 2007). In their study with male juvenile offenders, Kimonis et al. (2011) reported that secondary variants engaged in significantly more institutional violence than primary variants. The violent incidents of secondary variants were more reactive than those of primary variants. Due to higher level of aggression, secondary variants are charged with a greater

number of violent crimes than primary psychopaths. They also exhibit greater criminal versatility in comparison with non-psychopathic group but similar to that of primary psychopaths (Swogger & Kosson, 2007; Swogger, Walsh, & Kosson, 2008).

Studies showed that higher psychopathic women, specifically secondary variants may be more pathological and aggressive than higher psychopathy men (Falkenbach, Reinhard & Larson, 2017). Researches yielded also one more important conclusion regarding female psychopathy and aggression, which is that female psychopaths are more relationally aggressive and less overtly aggressive than males. It should be said that psychopathy in females is understudied, however, an interesting Italian study, points out that women committed crimes mainly against property and their crimes against the person and were committed within the family (Caraballese et al., 2020). While the target of men's violent behavior are typically extrafamilial victims or intimate partners, female victims were usually intrafamilial and often the victimized subjects were their children (Caraballese et al. 2020).

There are strong empirical evidence that psychopathy variants are more aggressive and exhibits greater criminal versatility than non-psychopaths (Olver et al., 2015; Poythress et al., 2010; Swogger, Walsh & Kosson, 2008; Coid, Freeston, & Ullrich, 2012; Falkenbach, Stern & Creevy, 2014; Brennan T. al., 2008; Fanti, Demetriou & Kimonis, 2013; Kimonis et al, 2011; Lee & Salekin, 2010) however there are mixed opinions that secondary variants are more aggressive, that they engage in more violent crimes and that they express greater criminal versatility than primary variants (Blagov et al., 2011; Hicks et al., 2004; Claes et al., 2014; Drislane, Patrick & Aarsal, 2014; Falkenbach, Stern & Creevy, 2014; Kahn et al., 2013; Vaughn et al., 2009).

Substance use disorder

Many studies conducted in prison settings have investigated the association of psychopathy, assessed by the PCL-R, with substance use disorder. They found a significant association that is entirely explained by the impulsive-antisocial factor (Blackburn R. et al., 2003). However, two more recent studies involving inmate samples that examined correlates for the four facets rather than the two broad PCL-R factors suggested a more complex picture (Kennealy, Hicks & Patrick, 2007; Walsh, Allen & Kosson, 2007). Walsh, Allen & Kosson (2007) found a strong and robust association for PCL-R Factor 2 with substance dependence. The impulsive lifestyle facet of Factor 2 demonstrated stronger associations than the antisocial facet with lifetime symptoms of alcohol and illicit drug dependence in this male sample, and with substance use among female offenders in another study (Kennealy, Hicks & Patrick, 2007). Regarding facets of Factor 1, the interpersonal facet was positively correlated with cocaine,

but not other drug, dependence symptoms (Walsh, Allen & Kosson, 2007).

Under the assumption that Factor 1 is more associated with primary psychopathy and Factor 2 with secondary psychopathy, research is showing equal results as stated above. Secondary psychopaths does tend to be prone to greater alcohol abuse than primary psychopaths (Hicks et al., 2004), with primary psychopaths showing less severe drug and alcohol problems than its secondary variant (Vassileva et al., 2005; Swogger & Kosson, 2007; Brennan, Breitenbach, & Dieterich, 2008; Kimonis et al., 2012; Vaughn et al., 2009). Overall, similar to trait aggression, psychopathic groups including primary and secondary variant shows more severe substance abuse than non-psychopathic group (Coid, Freeston & Ullrich, 2012).

There is an implication that continuous substance use may result in cognitive deficit akin to those associated with disinhibitory liability, which would increase liability for psychopathy and potentially contribute to poorer treatment outcomes. Secondary variants tend to be more aggressive and impulsive, and this could be related directly to greater substance abuse, because dependence may lead to criminal activity. Also, high anxiousness could result in searching "escape" in drugs to relieve negative mental state, this include the possible abuse of antidepressants as secondary variants exhibiting high anxious level tend to be prone to depression. The co-occurrence of psychopathy and substance use disorder appears to be substantially attributable to general externalizing proneness, or disinhibition, which may manifest as impulsive decision making (Ellingson et al., 2018).

Environmental and Genetically based approach

Environmental factors (such as good parenting, good education or on the other side physical abuse, broken homes) in primary psychopaths life can be seen as motors which are pushing the subject toward specific direction, toward life of crime and endless recidivism or toward the side of being law abiding citizen that learned to assimilate in society and learned how to hide his true personality, to become how they are popularly called "Successful psychopaths".

Authors suggest that risk for developing psychopathy is likely to act in conjunction with environmental factors, although growing body of evidence is pointing toward genetic risk (Viding et al., 2005). Many argued that emotional dysfunction shown by psychopaths makes them more likely to learn antisocial strategies to reach their goals (Blair, Mitchell & Blair, 2005), that suggest that specific behavior expressed by the variants it is not genetically based but learned.

Most prominent evidence of antisocial behavior later in the life it's shown to be physical abuse, lack of good parenting and broken homes. Connection between child abuse and neglectation with criminal behavior is shown in

the study, that was carried out by Widom (1989). A 20-year follow-up showed that the children who were abused or neglected were more likely to be arrested as juveniles and as adults than were controls, and that they were more likely to be arrested for juvenile violence (Maxfield & Widom, 1996). Child sexual abuse, along with child physical abuse and neglect, also predicted adult arrests for sex crimes (Widom & Ames, 1994). Most importantly, Luntz and Widom & Ames (1994) showed that child abuse predicted adult antisocial personality disorder, and Weiler and Widom (1996) found that child abuse predicted increased PCL-R scores in adulthood, for both sexes and ethnicity.

Widom explained possible links between childhood victimization and later antisocial behavior

1. Childhood victimization may have immediate but long-lasting consequences (e.g., hitting or intense shaking may directly cause brain injury).
2. Childhood victimization may produce bodily changes (e.g., desensitization to pain) that encourage later violence.
3. Child abuse may lead to impulsive or dissociative coping styles that, in turn, lead to poor problem-solving skills or poor school performance.
4. Victimization may cause changes in self-esteem or in social information-processing patterns that encourage later violence.
5. Child abuse may lead to changed family environments (e.g., being placed in foster care) that have deleterious effects.
6. Juvenile justice practices may label victims, isolate them from prosocial peers, and encourage them to associate with delinquent peers.

On the other hand there are other environmental factors suffered in the young age that can cause brain damage and already in the very beginning of one's life, such as, suffering birth complications, preeclampsia, anoxia and forceps delivery (Blair, Mitchell & Blair, 2005). Raine, Brennan and Mednick (1994) in their broad study with 4.269 male births examined the connection between birth complications and maternal rejection with violent offending at age of 18 years and found wide connection. Other similar studies are showing that those early complications together with other psychosocial factors results with more likely chances to develop conduct disorder and delinquency, therefore committing violence in adulthood (Raine, 2002).

All thing considered, we have strong evidences that primary psychopathy is heritable whilst secondary psychopaths are "created" via various environmental influences.

Clinical Outcomes

As mentioned before, Karpman (1941) speculated that individuals with secondary psychopathy would be more responsive to treatment than those with primary psychopathy. Poythress and colleagues (2010), has examined differential treatment responsivity among psychopathy variants. They found that offenders classified into a subgroup reflecting secondary psychopathy attended treatment more reliably and showed higher treatment motivation than offenders classified into a primary psychopathy subgroup. There is evidence that those offenders classified as being secondary psychopaths are more likely to reoffend following release than primary psychopaths (Kimonis et al., 2011; Poythress et al., 2010). In accordance with those studies, Daly and Polaschek (2013) found that secondary psychopaths who showed higher F2 scores (with no difference on F1), were rated as more anxious by their therapists and were more likely to be reconvicted following treatment. Wong notes that it is F2 that should be prioritized for treatment, since it carries most of the unique predictive power of the PCL-R for crime and violence, a view well supported by recent meta-analyses (Kennealy et al., 2010).

On the other hand, the study by Olver and colleagues (2015) provided the first clues about treatment response within primary psychopaths via VRS (Wong & Gordon, 2006). They observed that the secondary psychopathy subtype had higher risk and more criminogenic treatment needs at the start of treatment and improved more during treatment. However, changes made during treatment were not related to reduced violent recidivism for this second subtype. On the other hand, the first subtype of psychopaths showed less improvement, but the changes they did make were indeed related to less violent recidivism. The authors speculate that behavioral changes of secondary psychopaths may be more easily spotted by coders of the VRS because of 'visible' emotional instability and impulsivity.

There are more supporting evidence that secondary psychopaths are eligible for the treatment, whereas primary psychopaths paradoxically, are showing good response to the treatment but still have the highest rates of recidivism among all groups (Seto & Barbaree, 1999). That can be caused by the fact that psychopaths are highly manipulative and will say and do anything for their own gain. It is not rare to hear that they conned parole board or even psychologists and raters.

Another problem is the fact that most of the traditional correctional treatments are showing modest results even with general incarcerated population, other than with personality disorders such as psychopathy who needs different approach. On top of that, lack of staff and money to conduct longer and more exhaustive treatments is ever present problem in any institution, even if it pays off in the long run. Some regular treatments were not only ineffective with psychopathic personalities but also counterproductive. That's why it is of great importance to have specific

treatments tailored only for this targeted group. In 2001, Wong and Hare proposed another approach to treating psychopaths, which is to focus on their behavioral control rather than acting on cognitive factors normally addressed in traditional therapeutic settings, such as empathy or temperament. Behind this approach lies the fact that psychopathy as disorder is associated with traits and behaviors that are ingrained and reinforced through years of learning from a very young age, which is why according to Wong and Hare it is unlikely that any traditional psychotherapeutic strategy would be capable of eliminating these traits from an uncooperative adult, who is unmotivated to change, moreover because psychopaths does not think that there's anything wrong with them.

In short, they believe the best treatment strategy would be to focus on minimizing the harm they cause to others through reinforcement of specific behavioral patterns and self-control.

Legal issues

There is a growing body of literature that explains just how dangerous a psychopath can be, meaning they are more likely than others to be violent, and to recidivate, but not only violently. Some authors emphasize the fact that what make psychopathy unique is that its defining characteristics and traits lead to behaviors that conflict with the generally accepted norms and laws of society.

A lot of psychopathic personalities are in prison because of the violent crimes they committed, but the prison is also full of the psychopathic personalities whom may be called «successful psychopath» i.e. the ones who are incarcerated for white-collar crimes such as fraud, stock manipulations and embezzlement. The «third» and perhaps most dangerous group are the ones who usually get away with the crimes they commit. This group break the law but are rarely prosecuted or even if they are, they are serving light sentences. Violations, such as, physical abuse of others, commonly child or spouse maltreatment, bullying, sexual misconduct or any sort of lying and manipulating with all «means» to achieve their goals. Harm that those personalities inflict is extreme, and it doesn't only cause material damage that is usually even possibly to restore but the one that results in psychological and physical harm to others, including the people around the victim.

Use of PCL-R in legal assessment

This differences in Nomenclature are important for mental health professionals performing assessments in legal settings. It has been argued that the PCL-R is best construed as a “forensically relevant instrument”, that is, although not specifically “psycholegal” in nature, it measures a construct that may be pertinent to consider in relation to various legal questions, such as whether a sex offender is at increased risk to engage in further predatory

sexual crimes if released back into the community (Otto & Heilbrun, 2002). In their recent survey of U.S. case law, DeMatteo and colleagues (2014) identified 348 cases involving the PCL-R from 2005 to 2011. The PCL-R “appears to be the most widely used measure of psychopathic traits in forensic settings around the world”. (as cited in Hare, Neumann, Mokros, 2018). Douglas, Vincent and Edens (2018) conducted a metanalysis study examining the link between psychopathy (particularly using the PCL measures) and recidivism and concluded that the PCL family of measures (PCL:YV, PCL:SV) has the greatest support with respect to predicting recidivism. However, psychopathy, as measured by the PCL family of instruments, is less strongly related to future sexual offending compared to violent and nonviolent offending.

Discussion

Psychopathy is a personality disorder defined as a specific cluster of behaviors and inferred personality traits. Though it remains a growing area of research, there is ample evidence for the presence of two subtypes: primary psychopathy and secondary psychopathy.

Currently, the assessment of psychopathy is based on four tools: Psychopathy Checklist-Revised (PCL-R), Psychopathic Personality Inventory – Revised (PPI-R), Tri-archic Psychopathy Measure and Levenson Self Report Scale.

None of them are specific to the evaluation of different subtypes. However, they allow to highlight some distinctive features of the primary and secondary variants.

The most important traits used to subtype differentiation are: neuroticism and trait anxiety, anger/aggression and substance use disorder. As regards “neuroticism and trait anxiety”, Primary variant shows low levels of anxiety and low internalizing problems whereas Secondary variant is characterized by elevated level of anxiety.

Analysing the trait «anger/aggression» it seems that the Secondary variant is more correlated to high levels of aggressiveness and greater criminal versatility than Primary variants, even though some studies do not agree with these conclusions.

As regard “substance use disorder”, most studies indicate that Secondary psychopaths tend to be prone to greater alcohol abuse than Primary psychopaths whereas Primary psychopaths show less severe drug and alcohol problems.

Regarding the etiology, both variants have an inheritance component associated with environmental influences, anyway we have evidences that Primary psychopathy is mainly heritable whereas Secondary psychopaths are “created” via various environmental influences.

Studies regarding clinical outcomes do not provide concordant results but all authors agree about the low efficacy of the treatments and the high recurrence rate. In fact, a particular feature of psychopathy is that its defining

characteristics and traits lead to behaviours that conflict with generally accepted social norms and laws.

Regarding legal aspects, predicting the recidivism rate would be important; currently the most widely used tool is the PCL-R, even if it is not “psycholegal” specific it has important limitations.

Conclusion

Despite conundrums that were repeatedly brought upon in this paper one thing we can conclude definitely: there are strong evidences that difference between primary and secondary psychopaths exists.

Decades of studies reveal numerous distinctive features between the two variants, particularly with regard to neuroticism, anger and substance use.

These distinctive features lead to important differences between primary and secondary psychopaths in the type of crimes committed, social dangerousness, response to treatment, and rate of recidivism.

Therefore, it would be important to differentiate psychopathic subjects from non-psychopathic ones and then to subdivide the former group into the two variants.

In our opinion, a systematic classification of psychopathic subjects based on the distinction into primary and secondary psychopathy might allow the introduction of a clinical and legal approach specific to the two variants.

The result could be identifying more effective treatment pathways and a suitable legal management of psychopaths.

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