

Psychopathy, Addictions, Interpersonal Violence and Antisocial Behavior, a mixed relationship

Psicopatía, adicciones, violencia interpersonal y conducta antisocial, una relación mixta

GERARDO FLÓREZ*, **

*Unidad de Conductas Adictivas, Complejo Hospitalario Universitario de Ourense, España

**Centro de Investigación Biomédica en Red de Salud Mental (CIBERSAM), Oviedo, España

Addictions and interpersonal violence are mayor public health challenges strongly linked to each other. Obviously, addictions can increase the risk of interpersonal violence directly through intoxication, funding of drug use or being part of an ilegal, then violent, drug market. Nonetheless, the following shared risks at the individual level for both problems have also been described as significative (Yu et al., 2012): suffering from an internalizing disorder, having a mayor mental health disorder, being male, being young, having poor education and school performance, being aggressive and having personality disturbances that include impulsivity, sensation seeking and lack of executive control.

Internalizing symptoms, aggression, impulsivity, sensation seeking and lack of executive control are common symptoms for Personality Disorders (PD) (Skodol et al., 2005), an heterogenous group of disorders with a general population prevalence that ranges from 4% to 13% (Yu et al., 2012). Therefore, it is no big surprise that a clear association between PD and violence has been found (Yu et al., 2012), with a 3.0 Odds Ratio (OR) (Confidence Interval (CI): 2.6 to 3.5). A greater association has been reported for Antisocial Personality Disorder (ASPD), with a 12.8 OR (CI: 7.4 to 14) (Yu et al., 2012), a similar risk to those who

are addicted to alcohol or drugs. So that to prevent a violent act seven ASPD subjects have to be detain (Yu et al., 2012). ASPD individuals also have a greater re-offending risk (Yu et al., 2012).

ASPD seems to be important to understand interpersonal violence and to try to prevent it, but, what is ASPD? For DSM it is “a pervasive patterns of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood” (Lynam and Vachon, 2012). So ASPD is about being antisocial, and being antisocial is what makes that someone receives an ASPD diagnosis. This is not very helpful. It is the same as saying that someone is ill because he has fever, and that he has fever because he is ill. True, but its reductionism gets us nowhere in search for solutions. A more specific approach is needed. DSM establishes that three or more of the following signs and symptoms are needed to assure the ASPD diagnosis: failure to conform to social norms, reckless disregard for safety of self or others, consistent irresponsibility, deceitfulness, impulsivity, irritability and aggressiveness, and lack of remorse. The first four are the needed signs to affirm that an individual shows “a pervasive patterns of disregard for, and violation of, the rights of others.....”; the final three are the symptoms needed to put an individual into such pattern. As we have previous-

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Send correspondence to:

Unidad de Conductas Adictivas, Hospital Santa María Nai, Complejo Hospitalario Universitario de Ourense, Ramón Puga 52-56, 32005, Ourense
E-mail: gerardo.florez.menendez@sergas.es.

ly mentioned impulsivity, irritability and aggressiveness are also shared risks for addictions and interpersonal violence. But what about lack of remorse?

Lack of remorse has been described as one of the central symptoms that clinicians and researchers need to be aware of when looking for psychopathy, another type of PD close and generally confused with ASPD and antisocial behavior (Cooke and Michie, 2001). This confusion is quite understandable as psychopathy is not included in diagnostic manuals such as DSM or ICD, and even more important, because both disorders share some features. Psychopathy has been described as a pattern of: (1) callous and unemotional (CU) affects reflecting a deficient affective experience, (2) a grandiose and arrogant interpersonal style, and (3) a pervasive impulsive behavior (Cooke and Michie, 2001; Hare et al., 2000). If we do compare both patterns we can easily establish that impulsivity is a common feature for both disorders. This common feature makes both disorders part of the externalizing syndrome, and even explains why there is a genetic overlap between both of them (Larsson et al., 2007). So, impulsivity is the key to define that someone has an externalizing disorder, but not all externalizers have antisocial behavior, or ASPD, or psychopathy. No, impulsivity is the common ground, necessary but not sufficient. At least one of two other factors are needed (Larsson et al., 2007): an environment that promotes antisocial behavior and / or being CU, which is clearly related to lack of remorse. Before turning the discussion towards these factors let's consider the nature and biological basis of impulsivity.

In the first paragraph impulsivity, sensation seeking and lack of executive control were defined as personality disturbances that were related at the same time to addictions and interpersonal violence. Like in the case of ASPD and psychopathy there is also confusion between these terms. Sensation or novelty seeking is a construct characterised by the pursuit of novelty even at the risk of increase harm (Mujica-Parodi et al., 2014), dopaminergic pathways in the drive and motivational brain circuits modulate this strongly biological and heritable behavior. This behavior has its benefits and its risks specially if we consider high novelty seekers, externalizers, with a tendency to look for positive emotional reward versus low novelty seekers, internalizers, with a tendency to avoid negative emotional punishment. An equilibrium is needed for evolutionary purposes between the two. Neither of them is a priori pathological in an individual if behavioral flexibility is present. In the case of novelty seeking, this flexibility is lost, when there is lack of executive control, and in this case impulsivity appears. From this point of view, the distinction between the "brave", they feel fear and overcome it organizing their behavior to react to danger, the "coward", they feel fear and retreat because they think that they are not capable of managing danger, and the "reckless", they do not feel fear so they ignore danger, is clear (Mujica-Parodi et al., 2014).

Non-pathological sensation seekers do have the brains to be aware of the risk, to control the fear that emerges because of that risk, and to organize behavior that allows them to achieve their goal. Pathological sensation seekers, impulsive people, might also achieve the goal, but they lack the brains to see danger and feel fear, so they do not organize their behavior, they simply pursue the goal. Now, which brain circuits are needed to be "brave" and not "reckless"?, the ones that give executive control (Mujica-Parodi et al., 2014). It is important to remember that we are not currently discussing about antisocial but impulsive behavior whose consequences can be pro or anti-social. Research has constantly shown that brain Prefrontal regions and the Amygdala are the essential structures for executive control. The Amygdala, a complex subcortical area that regulates conditioned non-conscious learning based on emotional and physiological clues, makes an automatic understanding of the fear that is being felt, and sends the information to the OrbitoFrontal Cortex (OFC) where the fear is related to the danger and with the help of the rest of the Prefrontal cortex a structured behavioral answer will be arranged to overcome the fear, control the danger and achieve the goal (Mujica-Parodi et al., 2014).

Anger, with or without fear, is another emotion that can trigger impulsive or reactive aggression. In this case a hyper-responsive Amygdala reacts to anger that comes with automatic aggressive behavior destined to eliminate or suppress the present environment stimulus that has been automatically perceived to be the source of the threat or frustration. Prefrontal regions, such as the OFC and the Anterior Cingulate Cortex (ACC), lack enough executive control to inhibit the aggressive behavior (Rosell and Siever, 2015; Siever, 2008).

Neuroimaging research has proved that Prefrontal cortical thinning and reduced functioning is correlated with impulsivity (Mujica-Parodi et al., 2014) and with antisocial individuals (Yang and Raine, 2009). In a 43 studies meta-analysis increased antisocial behavior was associated with structural and functional impairment in the right OFC (an area that helps in the inhibition of non-planned behaviors that are considered to be inadequate so that behavior can be calibrated to social cues, whose rewards and punishments are not so immediate as the emotional driven ones), right ACC (an area that helps in the processing of emotions in order to control the behaviors that those emotions bring with them) and left Dorsolateral Prefrontal Cortex (DLPC) (an area that helps in cognitive flexibility achievement) (Yang and Raine, 2009). In short, when sensation seeking goes wrong because of lack of executive control people become impulsive and the risk of impulsive aggression and violence, reactive and non-planned, increases, it does not matter with which diagnosis the individual has been labeled (Blair and Lee, 2013). Drug abuse and addictions is another consequence of that impulsivity, and this is why impulsivity is a

common risk factor for both problems. Once that someone who is impulsive is abusing drugs or alcohol the risk of being violent and aggressive in an antisocial way increases (Romeo-Martínez & Moya-Albiol, 2015). Obviously, impulsive people can be antisocial before abusing addictive substances, if the environment, family or social, were they grow up promotes antisocial behavior, due to socio economic deprivation and / or a criminal way of live; or if they are CU and they lack remorse.

As we have previously mentioned being callous and unemotional is one of the three dimensions of psychopathy. Where does this dimension comes from? Once again the Amygdala and the Prefrontal Cortex are invoked, but in a different fashion. The Amygdala not only is involved in the processing on internal emotions but also of others emotional expressions, specially fear, pain and sadness, signs of distress (Blair, 2008). As an area for automatic stimulus reinforcing learning it is easy to understand that others emotional expressions are also going to be used to learn threatening / punishing and rewarding associations (Blair, 2008). The VentroMedial Prefrontal Cortex (VMPC) its another Prefrontal executive control area, related to emotional regulation through the representation on value information (Blair, 2008). Psychopathic children, which means that they are high on CU traits, show similar emotional attention-related impairments as patients with Amygdala lesions (Blair, 2008), with a reduced response to fearful, painful and sad expressions (facial expressions, vocal tones and body gestures) and impairment in the stimulus reinforcement learning conditioned by those expressions. Without receiving from the Amygdala the correct emotional reinforcing information, weaker functional connectivity between the two areas has been found (Herpers et al., 2012), the VMPC can not represent it for correct decision making. Psychopathic children lack a basic skill for socialization, something that can be learn but not teach, as it is conditioned learning. Basically, that fear, pain and sadness in those that surround them is aversive and has to be avoided like other negative stimulus. Without this crucial emotional information the VMPC can not help other Prefrontal areas in social correct decision making. Psychopathic children and adults do not show emotional empathy, they do have cognitive empathy knowing what fear, pain and sadness means and what is right and wrong (Blair et al., 2006), but when fear, pain and sadness appears around them they feel no distress, so that there is no emotional urge to help others overcome their fear, pain and sadness, there are no empathic behaviors and they keep on trying to achieve their goal (Blair, 2008; Blair and Mitchell, 2009). This emotional blindness can be considered as an attentional deficit (Blair and Mitchell, 2009; Newman et al., 2010), relevant bottom-up emotional information for correct socialization is ignored and because of this correct moral and social decision making is impaired (Blair et al., 2006), psychopaths only consider top-down informa-

tion that moves them towards achieving their goals (Blair and Mitchell, 2009). Basically, care and justice based norms are ignored by psychopaths (Blair et al., 2013). Thereby, the problem starts as an emotional deficit, or weaker affective priming, that interferes with moral judgement (Young and Koenigs, 2007), so that these individuals are seen by others as CU, without empathy and attachment, lacking guilt and remorse, showing shallow affect and superficial interpersonal relationships. This is why psychopathy is the only mental disorder where the risk of instrumental aggression is increased, this type of violence is purposeful and goal directed and can be planned and executed without autonomic activation. Psychopathic individuals lack all the emotional and moral brakes that stop normal people from performing the instrumental violence that comes to their minds. This does not mean that the risk for reactive aggression is not increased in psychopaths, actually it is, they can also be impulsive as they can be "reckless", angry and frustrated (Blair, 2008). Another issue has to be considered in relation to violence and psychopathy, not only they show a reduced emotional response to expressions of fear, pain and sadness in others, but also to threat ones (Blair et al., 2013). In situations of interpersonal threat they show less Cortisol response, high Testosterone levels, and less physiological arousal (Herpers et al., 2012). Once again their reinforcement-based decision making is impaired, they show less distress to the emotional negative value of being injured by others, which turns them more violent and aggressive.

Research on CU trait has shown the following: the trait is dimensional rather than categorical (Blair and Lee, 2013), like with novelty seeking flexible levels of empathic contagion are useful from an evolutive perspective, specially for men who have more dominance evolutive behaviors and might need to be aggressive and violent on more occasions during their lives compare to women; it can be reliably assessed as from childhood (Herpers et al., 2012); affected children are more aggressive and pervasive (Herpers et al., 2012); genetic factors contribute importantly to its expression (40-78% of the trait variance is attributable to genetic influences), while antisocial behavior seems to be more environmentally driven (Herpers et al., 2012; Larsson et al., 2006; Larsson et al., 2007; Viding and McCrory, 2012); unlike antisocial behavior with age the trait becomes more stable and is associated with more conduct problems and violent behaviors (Herpers et al., 2012; Herpers et al., 2014; Lynam et al., 2007), so that this trait can be considered a basic tendency whereas antisocial behavior is more an adaptation to environmental factors (Cooke and Michie, 2001).

An important remark has to be made about the relationship of being CU, receiving a psychopathy diagnosis and being antisocial. As psychopathy is a diagnosis used in forensic settings that have a direct relationship with the criminal justice system, most, if not all, of adults labeled psychopaths will show a combination of antisocial behavior

and CU traits. They need the last to meet the criteria for psychopathy, but also the first to be assessed by a forensic officer who makes the diagnosis (Viding and McCrory, 2012). Does this mean that CU traits always comes with AB? Not necessary (Benning et al., 2003). We might find individuals with CU traits, that are not impulsive and do not take or abuse drugs, who have found an ecological – social niche where they can express their CU behavior without being interviewed by forensic staff (for instance, the loan shark Mr. Scrooge from Dickens` A Christmas Carol novel). Research on children also shows that they have CU traits before being labelled as antisocial (Viding and McCrory, 2012). In this way, impulsivity and drug abuse make CU individuals show more AB that will lead them to commit crime, generally with more violence than other criminals, that will throw them into a forensic assessment were they will receive the psychopath label.

As previously noted Lack of Remorse, an ASPD symptom, and CU trait, a psychopathic dimension, can be interpreted as being the same. Well, we can stablish that someone who is CU surely lacks remorse. But not all individuals that score high on lack of remorse do have a CU trait and should be consider psychopaths. Good assessment is needed to determine if someone shows a lack of remorse because he or she shows no emotional empathy, clearly psychopathic, or if it is something enviromentally driven and the individual can show emotional empathy to someone, which is more antisocial (Cooke and Michie, 2001; Hare et al., 2000; Sellbom et al., 2015).

What relationship has research found between psychopathy and substance use? Research using the Psychopathic Checklist List revised (PCL-R), a forensic tool for diagnosing psychopathy has answered this question (Hare et al., 2000). The PCL-R can be divided into two factors, (1) Interpersonal and affective, (2) impulsive and antisocial lifestyle (Hare et al., 2000; Storey et al., 2015). Well replicated studies report that alcohol and drug addiction and PCL-R total scores show a moderate to low correlation (Hemphill et al., 1994), being stronger for non alcohol drug addiction. But they also show that factor 2 is more correlated with drug and alcohol addiction than factor 1 (Hemphill et al., 1994). This correlation is also present when other variables such as number of substances tried, age at first alcohol intoxication and number of charges or convictions for drug related crime are considered (Hemphill et al., 1994). So substance use and abuse in psychopathic people is more related with being “reckless” than with being CU, also a common factor por interpersonal violence. This difference, as some research suggests, might be more intense in psychopathic women, where factor 1 could even be protective against substance abuse (Schulz et al., 2015).

As a conclusion a risk on interpersonal violence asesment checklist is given for clinicians working at Addiction Treatment Units (see Table 1).

Table 1. Checklist for assessment of risk on interpersonal violence at Addiction Treatment Units.

- Patient is young.
- Patient is male.
- Patient shows low educational achievement.
- Patient is a sensation seeker.
- Patient suffers from a mental health disorder.
- Patient suffers from a personality didorder.
- Patient is “reckless”, impulsive and lacks executive control, intoxicated or not; detecting this behavior when there is no intoxication is more relevant.
- Patient gets easily irritated, angry or frustrated, intoxicated or not; detecting this behavior when there is no intoxication is more relevant.
- Patient comes from, and lives in a criminal environment.
- Patient funds alcohol or drug use through violent acts.
- Patient uses to the point of intoxication substances that increase impulsivity and irritability such as alcohol or cocaine.
- Patient shows a stable callous and unemotional trait.

Not all these signs and symptoms predict the same risk level, but we can assume that the more a patient shows the higher the risk is. Only the last one is clearly related to instrumental violence, although funding alcohol and drug use through violent acts could also be. The rest are associated with reactive violence. So, if an intoxicated young male, with a previous history of impulsive behaviors and violent criminal convictions, comes into your office and in a highly irritated fashion demands you to fund his alcohol and drug use, you should probably take actions to guarantee your personal safety, specially if you know that this particular patient shows a stable CU trait.

Clinicians with an interest in gaining more knowledge in these topics should try to receive training in the assesment of psychopathy, with tools such as the Comprehensive Assessment of Psychopathic Personality (CAPP) or the PCL-R, and in risk assessment training, with tools such as the Historical Clinical Risk Management (HCR-20 V3).

Conflict of interest

The author declares that he does not have any conflict of interests.

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