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Acquired Sociopathy vs. Developmental Psychopathy

1) **Introduction**
   - **a)** Defining the difference between a sociopath and a psychopath
     - **i)** Ward (2010): Sociopath has irresponsible, unreliable behavior that is not personally advantageous; unable to form lasting commitments or relationships; egocentric thinking paired with impulsivity – 358.
     - **ii)** Ward (2010): Psychopath is many of the same things, but are more aggressive from the start whereas sociopaths are only aggressive when pushed; psychopaths are unable to understand emotional cues such as fear or pain in others – 361.
   - **b)** Illustrative cases, to refer back to throughout the presentation
     - **i)** Ward (2010): The case of Phineas Gage, acquired sociopathy from accident with metal rod damaging his frontal lobe – 359.
     - **ii)** *People* (1985): The case of Josef Mengele, infamous psychopath and Nazi doctor, who experimented ruthlessly and inhumanely on concentration camp prisoners; especially twin children – web archive.

2) **Neurological Differences in Becoming Antisocial: What are the differences in acquiring sociopathy or developing psychopathy? What neural damage or processes take place to make someone antisocial?**
   - **a)** Tankersley (2011): Developed psychopaths are either born with genetic traits that make them callous and unemotional (CU trait), which makes them psychopaths no matter their environment; or are created because children without this genetic trait are abused or seriously affected by their environment – 350.
     - i) Farrington (2000): Longitudinal study followed ~400 boys from ages 8 to 32, interviewing them and their parents about home life, school, conduct, etc. The study found that most boys who fit the DSM's antisocial personality disorder criteria had convicted parents, little supervision, large families, and low intelligence → these are psychopaths who did not necessarily express the CU trait – 609-621.
     - ii) Lang (2002): This study found an interesting relationship between levels of psychopathy and victimization or violence in their environment as they grew up. High levels of victimization and abuse were highly correlated with higher levels of psychopathic tendencies and violence in the adults (those without the CU trait), and some developed psychopath traits with little to no violence or victimization in their environments (those with the CU trait) – 97.
       - (1) Method: ~100 Swedish adolescent males who had committed crimes were interviewed, tested, and had background checks done, then were compared to

the Hare Psychopathy Check List (PCL). A configural frequency analysis was able to yield the results above, highlighting the subjects' behaviors throughout the longitudinal study and comparing them to their levels of victimization, exposure to violence, and their scores on the check list. – 93-100.

iii) Viding (2005): Study of twin pairs with one twin scoring either in either CU traits or in antisocial behavior scales (as rated by their teachers) supports the finding that those with CU traits were more likely to take part in antisocial behavior no matter their background or environment while those who took part in antisocial behavior due to their environment had only minor levels of CU traits. The authors request more research into CU traits as a potential cause for psychopaths – 592-597.

b) Tankersley (2011): Sociopaths are created most often by damage to the frontal lobe – impairing their judgement, inhibitions, and emotional intelligence and causing changes in their personalities – 351.

i) Raine (2000): Due to acquired sociopaths becoming so due to lesions affecting the frontal lobes, this study compared these brain areas in psychopaths to those of normal people and people with substance abuse problems. Findings included that in the absence of brain lesions, psychopaths had a significant 11% reduction in grey matter in their frontal lobes – 119-126.

ii) Lapierre (1995): Supports Raine's findings because psychopaths performed more poorly on prefrontal-oriented tasks than a control group, showing impaired frontal lobe processing like that caused by the lesions in acquired sociopaths – 145-150.

3) Comparison of Emotional Intelligence: How do sociopaths compare to psychopaths in their perception of the emotions of others and how do their brains operate when making decisions or accounting for consequences?

a) Bar-on (2003): Defines emotional intelligence as an array of emotional and social abilities, or competencies and skills that allow someone to function in day-to-day life and be effective in personal and other social relationships. They studied individuals with damaged frontal lobes and found that while these people were not sociopaths and that their basic intelligence was still intact, their social and emotional intelligence was severely impaired. This study concluded that neural circuitry involved in judgment and decision making must overlap somehow with emotional intelligence, a position supported by the next studies. This means that sociopaths and psychopaths lack emotional intelligence due to damaged or afflicted frontal lobes – 1790-1797.

b) Veit (2002): Study used fMRI to study the activation of brain regions with 3 groups of criminals: psychopaths, those with social anxiety, and a control group. The study found that the limbic-prefrontal circuit (consisting of the orbitofrontal cortex, the insula, the anterior cingulate, and the amygdala) was under-activated in psychopaths and overactive in those with social anxiety while it was normal for the control group.

i) Method: Each of the groups was put in the fMRI machine while being presented with various pictures of faces (the conditioned stimuli) and sometimes experienced a

painful pressure (the unconditioned stimulus). Thus in the healthy control group, some pictures began to elicit anxiety in the amygdala in anticipation of the painful pressure. The lack of anxiety in the limbic-frontal circuit found in psychopaths was interesting to the researchers as a potential area for future study into the behavior of psychopaths, because it did not activate a correct fear response -233-236.

c) Birbaumer (2005): Replication of the study done by Veit beforehand, but this study also measured SCR and emotional valence and arousal in the presence of various face pictures (CS stimuli) and the painful pressure (UC stimulus). The findings support the past study and add that although the psychopaths were aroused by the stimuli, the lack of emotional processing may indicate the neural basis of the lack of psychopaths' anticipating the aversive consequences of their actions. In essence, this is more evidence that psychopaths have low emotional intelligence – 799-804.

4) Comparing Aggression and Violent Tendencies: Are sociopaths or psychopaths more aggressive? What neural functioning causes the aggression and how is it expressed in either case?

a) Bechara (1996): This study compared the skin conductance responses (SCR) of sociopaths and a control group. This kind of indifference towards behavior is indicative of how violent or aggressive behaviors are not thought out and how they lack remorse for outcomes the general population would be appalled by – 215-223.

i) Method: Both groups underwent a study where they played a card game that simulated making life decisions. The control group predictably exhibited SCR when they were about to make their decisions due to their apprehension or the weighing of future consequences. The sociopaths did not exhibit SCR as much and did not respond to either forms of punishment if they chose incorrectly (a mild shock or social punishment: being told they were wrong). The fact that the sociopaths' frontal lobes were lesioned is said to account for their lack of interest in the punishments and their lack of SCR exhibition. They were notably indifferent to the consequences of their actions and future outcomes, meaning they were reckless and impulsive.

b) Blair (1995): This study presented psychopaths and a control group with scenarios involving moral transgressions (i.e. lying to someone, attacking someone, verbally abusing someone, etc.) and conventional transgressions (i.e. speeding while driving, stealing, etc.). The researchers found that psychopaths were unable to differentiate between the two because they did not have the reasoning abilities offered by frontal lobes that the control group had. Normal people learn their morality by associating their actions with the welfare of others. Psychopaths in this study not only disregarded the welfare of victims or other people in the scenario, they also treated conventional transgressions as moral transgressions, meaning their frontal lobe damage inhibits their judgment and allows them to disregard the welfare of others while maybe over emphasizing the welfare of other things – 20-25.

c) Blair (2001): Tankersley introduced the idea that psychopaths and sociopaths are aggressive in different ways. This study found that to be true. Sociopaths are emotionally hindered by acquiring lesions to their orbitofrontal cortices, which triggers reactive aggression because their somatic marker and social response reversal systems are impaired. For psychopaths, their violence inhibition is impaired because they were unable to make associations between their actions and distress cues during their development (possibly due to their CU traits or just a bad environment). Because their violence inhibition is impaired, psychopaths are more instrumentally violent, creating or using violence for no real reason whereas sociopaths' violence inhibition is damaged in a different way, making it a more viable option for reaction that the typical person – 727.

d) Raine (1997): This study conducted PET scans of the brains of psychopaths in prison for murder and compared them to a control group of healthy individuals. This study found reduced glucose metabolism in the frontal cortex, amygdala, and hippocampus, among other brain areas, which demonstrated inferior functioning. These deficits are credited as contributing to the violence of the psychopaths, which supports these other studies. Another interesting point from this study was the abnormal asymmetry of their brain functioning overall, with the left hemisphere functioning less than the right. This study demonstrated the neural abnormalities of the previously presented studies but applied to subjects known to have committed violent acts, namely murder – 501-503.

5) Conclusion

a) Let's return to our two figures from the introduction, Phineas Gage and Josef Mengele, and compare them with what this research has shown.

i) Ward (2010): Phineas Gage had his frontal lobe damaged, changing his personality because his inhibitions and decision making center were affected. His emotional intelligence decreased for this same reason; however, he had made those associations before the accident, they were taken from him. He became more aggressive, but only in his reactions. He no longer had inhibition of violence, but since he previously did he only used violence when it appeared to be the solution to a problem. Overall, his sociopathy was only due to the accident – 359-360.

ii) *People* (1985): Mengele developed into a psychopath and it appears his condition was fed by his participation in the Holocaust. His background leads to the belief that he was high in CU traits, and the environment of the concentration camps could have only added to these. He likely had a significant decrease in his frontal lobes from his birth, which prevented him from ever developing emotional intelligence which in turn allowed him to perform his experiments without feeling or remorse. He went into hiding after the War, meaning the imprisonment of his fellow Nazis was enough of a consequence to make him leave the country, but there is no record of him ever showing any remorse for his actions. His experiments were cold and calculated, he was violent because he could be – web archive.

b) Acquired sociopathy and developed psychopathy may appear to be interchangeable or extremely similar on the surface. Although many of the same brain areas are implicated in both, major differences between developing and acquiring antisocial behavior still exist. These two figures are meant to illustrate these differences and show that although the behavior and personalities of those with antisocial personality disorders seems interchangeable, there are important differences on the neurological level.