



Crimes and Neuroimaging: Essay Refuting the Biological Factors of Criminal Minds

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Essay

Volume 9 Issue 1

Received Date: January 31, 2024

Published Date: February 28, 2024

DOI: 10.23880/ijfsc-16000360

Abstract

As a popular-neuroscience books reader, it comes to my attention the amount of books in neuroscience that all of them claim that criminals do crimes not by their will, but due to a morphological, functional, pathological change in the brain and other biological factors. All these books use PET scans to show that criminals have a non-functional prefrontal cortex, atrophied brain tissue on MRI scan; genes in their DNA make them commit crimes, etc. Basically, all these books claim that it is not the criminals' mistake, but it is their brains' fault! This paper will detail these books and provide arguments responding to their claims. Then the reader of this paper will realize that these issues are politically driven and it has nothing to do with science. The reader as well, will entail (not infer) with certainty, that the brain is not more than a small factor that might change a person behavior, but it will not make someone commits crimes.

Keywords: Crimes; Mind; Neuro-Criminology; Biological Roots; Neuroimaging; DNA

Abbreviations: CTE: Chronic Traumatic Encephalopathy; DTI: Diffusion Tensor Imaging; LOC: Locus of Control; RSFC: Resting-State Functional Connectivity.

Introduction

Science is the study of patterns and regularities, so when a pattern repeats itself in a certain condition, scientists infer association. A big rule in science is "association does not mean causations". From these logical points of view, it is easy to refute the claims made by many pop-neuroscience books which present criminals with brain PET scans and DNA sequences that contains genes that thought to be associated with aggression and antisocial behavior. They claim that it is not the criminal's mistake, but it is the responsibility of

his/her brain's malfunction. All neuroscience books show the same cases again, again, and again. They regurgitate the same things in all these books. Some of these books are: The psychopath inside: A neuroscientist's personal journey into the dark side of the brain, The anatomy of violence: The biological roots of crime, Incognito: The secret lives of the brain, The creating brain: The neuroscience of genius, The broken brain: The biological revolution in psychiatry, Descartes' error: Emotion, reason, and the human brain, Images of human behavior: A brain SPECT atlas, etc. The biological roots of crimes is proposed for three reason; blame no one for the crime for ideological reasons, let the criminals off the hook, and make financial profit from selling delusion for the public based on something that was literally built from thin air.

I used to believe myself in these claims, but after I cross-examined their presented evidences and digging deep into the heart of this issue, it came clear to me, it is not a scientific issue rather than sociopolitical ideology. When a topic reaches to the political level then expect exaggeration and disinformation. One politician described a specific gang of criminals as “Animals”, so another politician responded “Do not call them animals, they are humans”. It is clear that both sides are extremists regarding their views on criminals and crimes. So when you see pop-neuroscience books speak about the crimes are made by the criminals’ brain, not themselves, then you know why these authors speak in this fashion. As they say “They preach to the choir”.

Essay

According to these authors presented narratives and claims, a respond for these previous claims is simply made by filliping the table on their arguments as follows;

Every person is different. There are anatomical variations, function variations, and even in medicine there is a known field called personalized medicine. For example, a dose could be deadly to someone, but will feel nothing to someone else. A person could benefit from a drug and the same drug can make someone else worse or even poisoned. So the idea that all humans must have the same activity on a PET scan is false, and every person is different based on how active is the person, how much sugar they take, lifestyle, use of drugs before, etc.

If this pattern is true (i.e. inactive prefrontal cortex on PET scan); therefore; it must exists in all murderers. If you go to a maximum security prison and you take all the prisoners who killed before, then you do a PET scan for all of them. All of them they must have the same pattern, right? For sure they will not, so how you infer that this pattern is an indication of a murderer?

Why many people who have the same brain patterns on PET scan and they have aggression genes, but they never committed murder like James Fallon the author of the psychopath inside and Adrian Raine the author of the anatomy of violence. The authors themselves have PET scans like the murderers and the DNA of crazy psychopaths, but they never committed any crimes as to the best of our knowledge! So if we go to the public and scan people who never committed any crimes and they have these pattern, would these patterns be pathological or used in court. Did they committed any crimes? Should we arrested people based on their brains’ scans? It will be a good way of finding the killers!

The American Psychiatrists Association challenged Dr. Amen [1] to publish his cases in an American peer reviewed

journal, but he could not. Furthermore, they described his method as fraudulent and unscientific.

Blaming an organ for your decision is a weak argument. If someone raped a woman then the criminal said; “It is not me, it is my pen** who did the rape”! Or if someone steal money from a person then said “it is not me, it is my hand, I have a condition called sleight of hand”. No one will accept their argumentation and it will look as if they try to get off the hook.

This view of letting the criminal off the hook is associated with political party who despite of due process, proof of guilt beyond a reasonable doubt, prohibition of warrantless searches, right to confront witnesses, right to jury trial, and appellate review, still wants to defend the criminals because they see high recidivism rate among criminals. So they disbelieve in punishment. But if they follow The Code of Hammurabi “Let the punishment fit the crime” then the recidivism rate will drop instead of giving a slap on the wrist of the criminal. Punish them hard enough that they do not want to go thru that process again for the small crimes and capital punishment for the big crimes. If you give a murderer a five star prison system, with free food and healthcare, they will get out and kill again. Many cases in France they go to prison because they have a good dental care system. Poor punishment and corrupted correction system can cause that rate, nothing is wrong with punishing a criminal. Carrot-and-stick approach works with humans.

These books repeat the same cases again and again like the Texas shooter who had a tumor on his amygdala, the 40 years old pedophile who had a brain tumor, or the whinstone who killed his wife due to an arachnoid cyst, or the guy who killed all his family during sleeping, etc. But why all the patients in the world with the same conditions in the same anatomical region do not do the same? Many people with repetitive brain trauma never had Chronic Traumatic Encephalopathy (CTE) or murderer their family.

Following the rule stating “Every rule has an exception”. Why this selective reporting of rare cases as to be the rule not the exception?

Almost all of these books speaks about Phineas Gage. He had a rod inside his prefrontal cortex. His personality changed a little bit, but did he became a serial killer? Did he start butchering people left and right? No. So why only we see this brain change with people with minor trauma compared to Phineas Gage’s trauma? Why we see it only in court? It has nothing to do with science, but it has to do with a political ideology. Case in point, Spanish Phineas Gage lived a normal life [2].

Other causes were neglected for example poverty, lack of education, drugs, and mental health which are more reasons to get people involved in crimes more than a brain function scan.

The brain scan shows atrophy or poor functions could be due to many reasons like infarction, use of drugs, mother use of drug during pregnancy, etc.

If someone had no function in the prefrontal cortex and as a result they have no empathy for people, but they live all their lives normal and one day they killed someone by mistake, it is not because they have no empathy or they want to botcher people. For example, Whinstone who killed his wife, he did not start the attack. She jumped on him and he was defending himself. He choked his wife to death. Then he realized she passed away, so he knew he made a mistake. So he throw his wife body in order to cover what happened. This means he did not want to kill. He actually left his wife behind and try to avoid the fight but she jumped on him. So he was reacting and he was angry because she was attacking him (i.e. reactive aggression not proactive aggression), even though, he left her behind but she insisted to fight him. The team of lawyer took the strategy of insanity! That's why they took that path in order to win the case, so you say whatever you need to say in order to win. That does not mean he is insane and he wanted to kill his wife and send her to the grave yard. Anyone with a normal brain can find himself in this scenario. The issue is these authors take the case as the team of lawyers' talking points and neglect the reality. As they say "The devil is in the details". When you dig deep in each story, the story crumples.

These authors want to sell their books, so they make a bizarre idea promoting what is popular in society based of cherry picked cases. Promoting "It is not the criminal fault, it is his/her brain's fault".

If you are a victim yourself, you will not believe any "biological" evidence supports the claim that this is not the criminal fault, but it is the criminal brain's mistake.

Avoiding taking responsibility and avoid pointing fingers on someone. It is common now in society that people do not want to take responsibility for their actions. As well, it is common phrase now "I do not want to point finger at someone" in society which is a social issue more than a neurological issue. Basically, they talk about issue with avoiding to talk about who caused the problem. This approach will never solve any problem, but it will make it worse.

They have claimed many genes cause aggression and antisocial behavior which will lead to crimes as the end result.

But many of these genes turn out to be in normal individuals and never committed a crime. I do not want to comet the exact word fallacy, but there is no crime gene. They claimed that XYY chromosome is the syndrome of violence then it turns out that the methodology of that paper was wrong and it has a small sample. There are genes like: MAOA, 5HTT, DRD2, DAT1, and DRD4 are antisocial and aggressive behavior. But there is no gene that causes crimes. Not all social people are not criminals. Similarly nonsocial people are not harden criminals. Aggression is not the main cause of crimes, here are many reasons to commit crimes like; interests, jealousy, desperation, competition, fear, etc. Aggression could be one. Not to forget, in America they always argue that gay people are gay because of their genetics. The biggest study of genes came out negative stating that there is no gay gene. Despite that, Americans still debate about gay genes!

One time they say the human is born with bad genes, then when they confronted with facts that these genes everybody has them, then they jump to the other strategy claiming that people undergo some kind of metamorphosis that you only see in movies like Dark Asylum, 2001. Then you test how real this metamorphosis process which makes everybody a monster, then you find it does not exist. These authors excel in selling fear about a spaghetti monster that never been seen. So they over-intellectualize bizarre theories about how people switch from nice people to crazy maniacs.

Ocam razor principle states that the simplest solution for a problem is the correct solutions even if more complex solutions exists. Most of these criminals follow their desires. They have been taught to cheat the system and to play smart not hard. So the reason behind them committing crimes is the bad environment and the poor education system, drug use, lifestyle, mental health status, etc.

Making up biological roots for any issue. For example in psychiatry they come up with the brain chemical imbalance theory indicating that serotonin and dopamine levels can causes depression or schizophrenia respectively [3]. Even though, there is no scientific evidence for that theory [3]. So if a person has a bad mentality due to bad education, due to lack of education, lack of morals, due to lack spiritualism (i.e. secularism), and bad influence due to having bad friends, then you have to expect these crimes. Basically, they neglect epigenetic reasons. Denying all the previous reasons and blame some gene or below average blood flow in a certain brain region does not lead to the heart of the issue. Now, they come with the "theory of biological roots of crimes" or the "neuro-criminology" which has no bases.

Naturalism deny any existence of self or soul like what Daniel Dennett is preaching. If all people see through the materialistic, nihilistic, and absurd lenses, then expect

more crimes, because there is no -one- objective morality, but there are -multiple- subjective moralities. For example, pedophilia rules in France different than the United States and the United Kingdom. Actually, in the United States there are different age limits -to be allowed to get married or have sexual activity- in different states.

The harsh legal system in the United States incriminates many people because it is design to put more people in prison. The prison is ran by the private sector and the government, so they make money out of it! Therefore, they ask the government to incriminate people. They required from the government to fill all cells. There are 50,000 federal laws in the United States. A Harvard study showed that the average American commits three felonies every day [4]. A felony is punishable by one year in prison. Why they commit felonies? Because they do not know they exist. There are 50,000 federal laws in the United States! If you spend all your life learning them, you will not finish them because they keep making new ones every day. If the American government wants to come after one of their citizens they can by digging a little bit. So the system is "over incriminating", does not mean the people are criminals. It does not make people safe, it finds a scapegoat! Basically, someone needs to go to prison. Finally, I will say this is an American problem pushed on the rest of the world. As well, all the authors who keep spreading this narrative are American authors or live in America. Some of these authors are James Fallon, Adrian Raine, Daniel Amen, Nancy C. Anderson, Antonio Damasio, David Engelmann, etc [1,2,5,6-8].

Example

No one is denying that people with mental illness could commit crimes, but trying to make biological roots for

everything is a farfetched approach to reach to the truth. The lack of proper mental healthcare system in the United States made this issue compounded. Big part of that issue is the psychiatrists and psychologists themselves. We have schools around the world and many people have guns. Why the public shooting happens in the United States only? I do not think that brain damages happens in American brains only. Not all the shooters have "bad" genes.

This movement of postulating the brain pathologies are the cause of crimes, is following explanations Cesare Lombroso who blamed the actions of criminals on their brains' pathology. "Lombrosoism" started by claiming that crimes are "inherited" and it has physical characteristics like single palmer crease. The Lombrosoism will lead to eugenics based on subjective opinions, not solid science. All these books make the fallacy of appealing to femininity by stating that men are criminals and men hormones make males only criminals, meanwhile woman are peaceful which is classic textbook fallacy and logical issue. Ignoring that women tend to commit crimes within their families, meanwhile men tend to commit crimes to an outsider of their families based on patterns. Which makes women crimes far worse than men crimes. It is so bizarre how they (i.e. these authors) explains things. For example Dr. Amen [1] in his book (Images of Human Behavior), he dedicated a whole chapter about women periods and how that affects them to become aggressive! Do not be surprise if they start defending women who commits murders by saying "This woman was on her period, so she was insane". As well, all these books does not offer a solution for the crime issue and how to handle it!

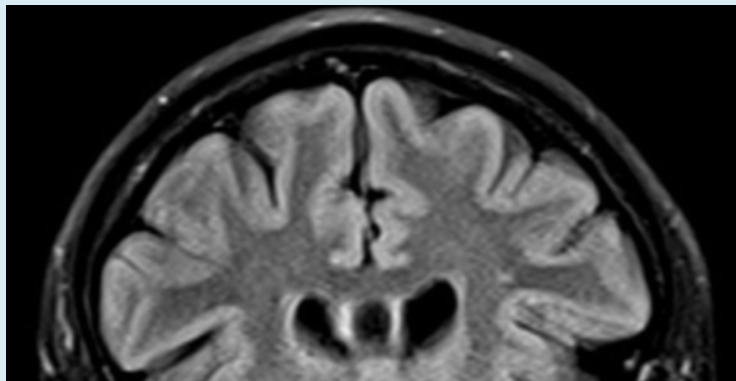


Figure 1: An MRI Scan Sagittal Section with a Closer Look to the Cavum Septum Pellucidum which Raine Claim that is a Sign of Psychopaths!

The methodologies used by these authors were weak and not scientific. Adrian Raine -in his book- tested some

temporary employee and paid them money to tell him stories about the crimes that they did in the past! All of this study

is protect by taking protection from the authorities. So they told him about many murders, rapes, arm robberies, etc. Do the reader of this paper see how weak that methodology is? He paid people to lie to him and tell him some horror stories like a group of children on the camp fire. This is how pathetic their “research” methodologies are! Paying people to tell you fairy tales. Then Raine did an MRI scan for their brains and their brain appeared normal. People with antisocial behavior have lower brain volume. But Raine’s sample of supposed anti-social psychopaths have normal brains. What a waste of money and resources! Raine claimed that cavum septum pellucidum is a sign in psychopaths, neglecting that it is a normal anatomical variation that exist in all fetuses and it fuses in 85% and remain opened in 15% of population see Figure 1. Raine claims that 15% of humans are psychopaths, so what he suggest? Eliminate 15% of the people with this normal anatomical variations. He even calls them “biological high risk”!

Adrian Raine, Antonio Damasio [1,7] build an argument that infants with brain damage, develop into adults with behavior issues. They neglected the fact that infants brain are still developing and they will recover.

Remember they based their claims based on only two cases! Adrian Raine used -in his research of biological roots of crimes- a skin conductance test which is used in the polygraph. Bear in mind many people passed the polygraph test after they take training so it is not an accurate test. It is easy to trick.

There are many people who naturally sweat a little, control their heart beats, and hide their emotion like a professional poker player. So his testing is not reliable and those authors make big claims with no evidences.

In order to show bias and dis-information campaign, we have to take one case and investigate it deeply to show what happened in that case and how it is presented by these authors. If you think what have been written above is crazy, take their ideas of solving the crime issue. Adrian proposed solutions by preventing women from getting pregnant (until they have a genetic clearance and training) and imprisoning people who have high risk of committing a crime (i.e. before committing the crime!) which both ideas violet the human rights declaration. This reminds me of William Lennox (1884-1960) soluation to epileptic patients to start a eugenic program to eliminate them!. These solutions which only seen in crazy movies like “Gattaca”, is all “cocaine talk”.

Case Study of Texas Tower Sniper

In almost all pop-neuroscience books, the authors of these books present the case of Whitman “The Texas Tower

Sniper” as a case that was caused by glioblastoma tumor in the amygdala. The insinuate that a brain tumor can makes you a proactive aggressor, not a reactive aggressor. He had genes or mutation of some genes which made him a psychopath by nature! They ignored all the other details that lead to the first shooting in American university or school. Let’s find and summarize other reasons that lead to this shooting.

Charles’ father has a history of abusing Charles’ mother while she is pregnant with Charles. Maternal stress during the pregnancy can lead to mental health issue for the baby even during pregnancy like irregular heartbeats. The maternal stress during pregnancy will manifested as high cortisol levels. Since the day that he was born until the day of the shooting, he was abused mentally and physically by his mother and his father, on daily bases. Abuse makes someone react to abuse by abuse. Since he was born in abusive household, he learned to be abusive to show dominance or control according to the social learning theory then he applied what he learned on his wife Kathy. Early stress in life and later aggression in life are connected.

There are two types of aggression; reactive aggression which attribute to environment and proactive aggression which attributed to gene heritability. Charles Whitman aggression was reactive aggression (i.e. environmental, not genetic). There are genes that can makes you aggressive, but there are no genes for making you a psychopath. But these authors make equification fallacy by stating aggression genes are psychopathy genes. There are no psychopathy genes whatsoever.

Charles grows up exposed to domestic violence which resulted adverse development effects. A study proved these findings on abused children compare to control group children on Diffusion Tensor Imaging (DTI). As well, on resting-state functional connectivity (RSFC) fMRI of gray matter volume and amygdala volume.

Charles Whitman was complaining –to his doctor- of anxiety, chronic stress, depression, headaches, and homicidal ideation which is an expected result of being in that abusive environment. The doctor prescribed for him Dexedrine and amphetamine. Exposure to amphetamine long enough can lead to dopamine nerve terminal damage. Amphetamine is a neurotoxic substance and it can lead to decrease of the immunity of the human body. When the immune system is weak, the white blood cells will not fight viruses or cells who have un-controlled divisions (i.e. cancer). The amphetamine could cause cancer indirectly by making the immune system weak. Which could be the case in Charles Whitman tumor. The tumors can be induced by exposure to chemical, radiation, or other sources that causes cancer directly or indirectly. The tumor could be induced by the amphetamine

indirectly. So there is no biological roots. As well, the symptoms Whitman described was worsen after the drugs because the amphetamine is brain damaging chemical. The doctor did not help, but made the condition worse. Which is a human intervention, not biological. Amphetamine was administrated in animals with a marker to identify where the amphetamine will be concentrated. It was found in the frontal cortex, amygdala, and hippocampus.

Which are the area's most of the authors claim that it is responsible for empathy, emotion, thinking rationally, etc. Does this ring any bell? Furthermore, prolonged use of amphetamine can cause neural degeneration after stopping use the drug, which happened in Whitman's case. Neuroblastoma cells are treated with microdoses of Amphetamine because it is neurotoxic substance and it is used as a chemical therapy by intracting with histone proteins causing epigenetic modification which affect genes expression by acetyltransferase and deactylase, and enzymes which cause behavior changes and affect the genes. It will decrease myelination and disrupt the dopamine levels. The Amphetamine will increase the level of aggression. In Whitman's case, he was already aggressive and with this drug he will be a very dangerous person. The Amphetamine cause impulsivity, decrease empathy, increase anxiety, and increase likelihood of committing a crime. The homicide ideation increase by substance use and increase the liklyhood of acting upon these ideations. Psychiatric disorder can cause committing a crime by 84.6% of a sample of 251 people, meanwhile substance use cause committing crimes in 61.5% of a sample of 251 people.

Kkuper-Bucy syndrome is caused by many reasons; one of them is amphetamine withdrawal. Characterized by insomnia, amnesia hypersexuality, etc. Whitman had many Traumatic Brain Injuries (TBIs) especially one in a car accident as a young boy as well later in his life. He was diagnosed with partial development of Kkuper-Bucy syndrome by Lowe M [9]. Whitman suffered many things, so why these authors picked the tumor only from all these reasons?

It is known that psychological problems in females usually internalized, while men externalized the problem. Whitman was aware of his issues and he even wrote about them. He noticed his behavioral changes after the medication. When he was suffering before, he reach for a doctor, but he made his situation worsen.

Whitman suffered from prenatal alteration, abuse during his life, use of amphetamine, TBI, depression, anxiety, insomnia, chronic stress, suicidal thoughts, struggle in school, and a tumor. Why the only thing mentioned about him in these pop-neuroscience books is the tumor only. Why

they paint him as someone with a normal life and a happy wife? Since he was a child he was abused and when he got married, he abused his wife all the time. Why they do not speak about his long journey with depression? Why they do not speak about him being emotional and physical abused for 18 years? Why the do not speak about his concussion while he was a marine corps? He wrote about wanting to commit suicide. The authors do this picking of the tumor in order to make a point that we question in this paper in details.

Whitman thought the only solution after examining the outcomes or Locus of Control (LOC), he made the decision by himself to externalize the problem by killing his wife, mother, 16 people in the university, and himself.

Here is an undergraduate student named Lowe M [9], who graduated with a degree in psychology and wrote a thesis about Whitman case stating "the effect of this drug -amphetamine- may have been the tipping point." She is undergraduate and she can analyze way much better than these pop-neuroscience books' authors [9] concluded her thesis "human are complex, explanations ... expected to be just as complex and complicated." She summarized the whole issue in saying it is complex and it has too many reasons, not just a brain tumor or some gene or a gene mutation. Why these authors want to change the facts? These authors are encouraging patient with neurological conditions to commit crimes because they are already covered and protected by these "evidences".

Whitman case was the first shooting case in school in America, so it has a significance in the gun debate in American. One party wants to ban guns and another party wants to allow more guns. The party which oppose guns use this story to prove the point that anyone can have a brain tumor then go and shoot people everywhere, that's why making guns illegal is a must. And they build on stories and statistics. As well, the other political party, they use "The Armed Civilization Theory".

Now, there are many researchers publish papers like Darby RR, et al. [10], inspired by these authors claiming that tumors in the prefrontal cortex, temporal lobe, or amygdala will make the patients criminals! Not only that, but they add another region, the parietal lobe! Basically what they are stating is, the whole brain when it is affected by any pathology, you will become a psychopath. This is becoming really absurd. They base their findings on a study with sample of 17 criminals who happened to have an infarction or a lesion. Then they repeated it on a sample of 23. They claim that it is not the idea of having a brain tumor is the cause of the issue, but the tumor restricting the connection of the affected area with other areas which is known as diaschisis. For example, the connection between two amagdala is affected.

They stated that because all the patterns that they presented looks so random “heterogeneous”. They added other structures like nucleus accumbens and parietal sulcus [10].

They claim that the temporal lobe association is far more important than the prefrontal cortex! Their claims are weak since all the brain was added with exception of the occipital lobe. They claim different patterns than the pattern proposed by the pop-neuroscience books authors. The authors of this paper did not show how the criminal history was collected and documented and how their patient became criminal after having that medical condition. As well, their paper included assault cases in the sample and they did not focus on rape and homicide only. They did not state how many of each category which shows how weak is their paper. They could have one killer, one rapist, and the rest are prisoner who involved in some fight. You do not need a brain tumor to fight people.

Free Will

Free will have been questioned after Libet experiment on free will which was wrong for many reason because it is subjective (depends on the examinee), the time taken from switching from looking for your thoughts and watching the o'clock, the eye is delayed processing of incoming information by 15+ second, etc.

Now, these pop-neuroscience authors claim that a brain tumor, infarction, and TBI can make you lose your free will. They mentioned that the victims they write “we lost control of myself”. The respond will be if someone with mental illness and they have a low self-esteem and feel they lost control is because they convinced themselves that they lost control. Many people think the government is spying on them or crazy things. It does not mean it is true. Some people feel they are near becoming crazy and they can say that. But we can't take it because it is not reliable. They could have panic attacks which make them think that, and they could have hallucinations (visual and auditory or even smell). If you tell these patients you are right, and then their condition become worse. Someone like a psychologist needs to speak with them to calm them down. Let them know, it is all in their heads. That's what they feel, but it is not true and explain to them how that happened to them. Speaking with the patient with mental illness to see the subconscious reasons for what they feel -in Freud style- will improve the patient. Many patients wants to talk, they do not need medications. The Freud style in treatment by exposing the subconscious mind of the patient works far more better than using heavy cocktails and horses tranquilizers [3].

Scientific America stated that “free will, as we ordinary understand it, is an illusion” and they claim that neurological injury can impair our free will [11]. Which is it? Do we have a free will? Or the neurological injury will impair our free will? because it is a contradictory statment and it appears like cognitive dissonance. They repeat what the patient tell them that they have lost control of themselves! Well, one of my patient he has an umbilical hernia. He told me he had this hernia for two years then he added that the last week the hernia sac spoke with me! Should I believe my patient that his hernia pouch spoke to him? Or is he having hallucinations? Because the pop-neuroscience books authors and Scientific America take their patients claims literally 100%. There are 700,000 Americans have brain tumors, and there are 800,000 Americans have strokes [6], should all of them commits crimes? Because they already have the “biological root of crime”.

Genetics

Everybody claim there are many genes make anyone a psychopath. Here is a list of these genes: MAOA, 5HTT, DRD2, DAT1, DRD4, ANKK1, COMT, and 5-HTTLPR. Let take them one by one to see if anyone of them is a psychopathic gene.

Gene	Influence/association
MAOA	Aggression and depression
5HTT	Epilepsy
DRD2	Tourette's syndrome (TS), post-traumatic stress disorder (PTSD), affective disorders, and schizophrenia
DAT-1	Bipolar and Attention Deficit Hyperactivity Disorder (ADHD)
DRD4	Personality traits
ANKK1	Alcohol dependence
COMT	Mood and aggression
5-HTTLPR	Anxiety and depression

Table 1:

Is there any psychopathy gene there on the list? No. They claim there are genes that “might” contribute in some aggressive behaviors or cause mental illness. These people with mental illness might commit a crime, then these authors will blame the gene as the root cause of the problem. But many people have these genes and they do not commit crimes. How to overcome this genetic issue? Is by living in a physically and mentally healthy environment which will lead these genes to be less significant which is one of James Fallon's claims [5]. So this basically shut down the genetic argument for crimes.

Lawyers Vs. Medical Experts

Lawyers are trained to say whatever to achieve the goal (i.e. the defendant is not guilty), meanwhile medical experts are trained to see facts and empirical evidences to separate between the truth and the fiction. Many times lawyers pay money to medical experts to say what the lawyer wants to hear in court of law in order to win the case. The judicial system depends on eye witness testimony as the highest form of evidence, meanwhile in science, the eye witness testimony is the lowest form of evidence [12].

Conclusion

The above stated facts led me to conclude that the biological roots of crimes are socio-politically view point rather than a real science. The point of such claims is to let the criminals off the hook instead of working hard to fix the systemic issues that they have in their country. Instead, they blame biological factors that every humans around the world share with them. The rest of the world do not have these issues which indicates that the issue is not biological in nature.

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