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### “Criminal Gene”: Myth or Reality

The term “criminal” refers to an individual who has committed an act that is unlawful. Many researchers have developed several theories that explain why individuals commit crimes. The main arguments that demonstrate why crime is committed lie in environmental factors and genes. Several theories explain how genetics impacts criminal behavior. For instance, twin studies, adoption studies and how chromosomes might affect and cause criminal behavior. Additionally, some theories explain how the environment shapes an individual to become a criminal or a delinquent. An example is the social learning theory by Albert Bandura. However, both genetics and environment can contribute to making a criminal. In the discussion below, the paper focuses on how each factor impacts criminal behavior and provides a conclusion on which element between the environment and genetics has a more significant impact on criminal behavior.

Human body cells are generally made up of a set of 22 chromosomes together with one pair that determines whether the individual will be male or female. Therefore, the total number of chromosomes in a human body is typically 46. The chromosomes that determine sex are named X and Y chromosomes. The male possesses a mixture of XY chromosomes while the female possesses a combination of XX chromosomes (Waldman and Rhee 499). However, during the fertilization stage, there can be unusual occurrences and an extra chromosome might

be formed. For instance, during fertilization, some males end up having an additional Y chromosome, therefore, having the combination of XYY. The condition is referred to as an XYY syndrome. Consequently, the Y chromosome is linked with testosterone which causes an individual to be more violent and aggressive. Since chromosomes carry the genetic materials of humans, this proves that genes affect whether a person becomes a criminal. Criminals are more aggressive and violent therefore the extra Y chromosome can contribute to an individual deciding to commit a crime.

Twin studies have been used to determine the effects of genes on criminal behavior. This study uses two types of twins known as monozygotic and dizygotic twins. Monozygotic twins are identical since they develop from one egg and they share all the genetic data. On the other hand, dizygotic twins are fraternal and share only half of the genetic material and information. The goal of the Twin studies is said to have control over the impacts of the environment since the twins are raised in the same environment. Therefore, the environmental impact is the same (Akers, Krohn and Radosevich 640). As a result, when similarities between dizygotic twins are smaller than in monozygotic twins, there will be proof that genetics has an essential role in criminal behavior.

A study made in 1920 was based on 30 sets of twins where thirteen sets were monozygotic and seventeen were dizygotic. Additionally, one twin had to have a history of criminal behavior for comparison in each of the sets. The results showed that two sets in the dizygotic twins both committed crime while ten sets of the monozygotic set had engaged in criminal behavior. A different study made in Denmark showed that monozygotic twins had a higher probability of committing a crime when one of the twins was a criminal. The percentage for monozygotic twins was 50 percent while 20 percent for dizygotic twins. Moreover, the

studies showed that a link was more significant in crimes that were more serious. As a result, twin studies show that genetics have a huge impact on whether an individual becomes a criminal or not.

Several types of research show that there is a connection between aggression and genetic distinction. The aggression is caused by an enzyme whose function is encoding genes. The enzyme is called monoamine oxide. The tasks of monoamine oxide are to catabolize amine neurotransmitters like noradrenaline dopamine and serotonin (Brunner and Nelen 579). Slow movement of the gene known as MAOA is associated with high violence and aggression levels. Individuals with this condition are usually oversensitive therefore they are more affected by experiences that are negative as a result; they became defensive and reacted violently and aggressively. A study conducted on a male member of a family from Denmark showed that men with low activity levels of the gene MAOA-L displayed aggressive and violent behavior. Apart from the behavior, the condition was linked to a harmful mutation in a part of the gene. The members of the family that were not affected by the condition did not possess the mutation. Furthermore, individuals with MAOA-L gene had a higher probability of occurrence among people associated with murder than individuals without the gene.

The Psychopath condition is more likely to be inherited than based on environmental factors because a mature psychopath does not have all the pro-social emotions such as guilt and empathy. A psychopath can kill many people and keep trophies of their achievements. This person shows that they do not experience remorse for criminality of any kind in the crimes that they commit. However, some social aspects of the environment can create a psychopath. For example, when a child witnesses their parents being brutally killed, the child will grow up lacking emotions such as empathy. Worst of all is that they will grow up being resentful and

want revenge. Indeed, genetics plays a prominent role, but the environment's part is not to be ignored.

Adoption studies are used to differentiate the degree in which both environment and genetics impact criminal behavior. The study examines the similarities between the individual that is adopted to that of their biological parents and that of the adoptive parents. Similarities to the biological parents show that genetics impacts criminal behavior while similarities to the adoptive parents indicate that the environment has an impact on criminal behavior. On the other hand, the study also examines the actions of the siblings who are not biological siblings but are raised in the same environment.

A study was made in Denmark by Mednick and Karl where the results showed that genetics had a crucial impact on criminal behavior. The first study showed that the adoptive children had a higher similarity to their biological parents and therefore had a higher chance of becoming criminals when their biological parents were criminals (Lowenstein 75). Thus, crime has a more significant connection to genetics. Another study that happened in 1980 comprised of fifty-two adopted children that had biological mothers whom were criminals. Seven of the children ended up committing crimes. Only one case had an adoptive parent that was a criminal. As a result, adoption studies show that genetics has a more prominent role in impacting criminal behavior than the environmental factors. However, the environment still plays a role in making a criminal.

The environmental factors that cause individuals to commit a crime include the society, family, political, cultural, religious and social functions in environments where people live. However, the primary factors are family, community and poor physical environment. Living in a

society with a weak economy, experiencing violence in the family from childhood and isolation from the community can cause an individual to commit a crime. In a further analysis, the rates of unemployment can lead to an individual committing a crime.

The environment a child grows in is vital and when there are problems like violence, the child might suffer the consequences later. The family risks include education, poverty, the structure of the family and the parenting practices that the parents use. For a child to grow well, the family should be a loving one and free from violence (Waldman and Rhee 525). The families that have poor communicating skills and low-income family bonds might lead to a child developing aggressive and violent behaviors. As a result, needy families and families where parents do not punish their children have a higher probability of nourishing an environment that will lead to the children being delinquents and developing criminal behavior. Child neglect and child abuse are also major causes of a child becoming a delinquent or developing criminal behavior. Children have a 50 percent chance of becoming criminals if they were abused in their young years.

Peer groups contribute to an individual developing antisocial and criminal behavior, especially in adolescence. When children show aggressive actions in a school setting, they are cast away and seen as outcasts. The repercussions create an anti-social behavior because the child will not have good relationships with his or her peers. The child will also find other bullies like themselves and form a relationship or group. This group will grow and become friends, therefore letting each other learn more about each other's anti-social behavior. The reaction will continue to grow until the individuals become delinquents. These individuals would have been raised in an environment where they learned criminal behavior.

The differential association theory was developed in 1947 by Sutherland. The theory states that a criminal develops his behavior; the behavior is determined by communication and interacting with other people. The theory also states that the transmission and learning of criminal behavior occur among people close to the individuals committing crimes. Furthermore, the individual is taught the methods of committing crimes, attitudes, drives and motives for committing a crime. Moreover, the incentives are learned from defining the legal cause as whether they are unfavorable or favorable (Akers, Krohn and Radosevich 638). An individual will end up committing criminal behavior when they learn more favorable definitions that are against the law. According to the theory, an individual learns definitions from others and these definitions will determine whether he will engage in criminal behavior. The individual can learn unfavorable definitions which will decrease their chances of committing the crime. When learning the descriptions, the individuals choose to balance criminal stories to standard definitions.

Criminals learn criminal definitions from people who are already criminals while individuals who decide not to commit a crime to learn it from people who have never committed any crime before. However, having an association with criminals does not automatically make an individual a criminal. It is a combination of different factors that develop a criminal. When a person has been exposed to criminal behaviors and definitions at an early age, the descriptions increase in intensity for an extended period, the individual will have a high probability of engaging in crime. Criminal behavior can be learned through operant conditioning where reinforcement follows the action. For example, when a child steals one dollar, they will buy things and eat them, while when they do not steal, they will not eat.

Finally, there will be an influence on a child to commit a crime so that they can be positively reinforced. As a result, criminal behavior is strengthened by the frequency, amount of the exposure and the probability of its reinforcement. Ronald Akers then improved the theory in 1980 which has built the works of Sutherland. The approach focuses on the importance of peers who are delinquents and the reinforcement of the criminal behaviors. It also focuses on the imitation of behaviors by peers. The theory states that social learning intercedes the influence of structural elements on crime. This theory explains the influences of peers, human agency and the society.

Howard Becker's theory of labeling states that criminal behavior is a result of the creation of social groups as opposed to quality of an action. Studying the effects of a criminal is not essential because criminal behavior is rule breaking that was made by people who are necessary in the society. Howards states that criminal behavior is labeled, and it varies in different communities. He states that rules and laws as the likeness of specific values that much of the society holds as significant.

Becker states that the individuals who break the rules are different from those who make the rules. The individuals who commit crime view themselves as if they are morally at odds with the individuals who abide by the rules (Waldman and Rhee 500). They consider themselves as outsiders and they also perceive the ones that follow the rules as different and outside their social group. As a result, they form a culture where they feel like it is okay to commit crimes. The individual will get support from his like-minded peers and establish a culture where it is normal to commit crimes. An individual who is involved in organized crime learns better ways of committing crimes through differential association.

Certain theories explain the interactions of genes and environment in creating a criminal, for example, the theory of general arousal of criminality. Three elements describe the approach of arousal. Such factors include extroversion, psychoticism and neuroticism. Psychoticism is linked with characteristics of violence, aggression, impulsive behaviors, antisocial and lack of empathy. Extroversion is associated with components of being active, sociable, carefree and lively. Neuroticism is connected with being depressed, anxious, having low self-esteem and being emotional. The three factors can influence criminal behavior in an individual. Neuroticism was an indicator in older individual's probability in committing crimes, while extroversion was an indicator of the likelihood of a juvenile individual to commit a crime. Psychoticism was an indicator of the chances of a child developing into a delinquent.

This theory states that an individual will inherit a nervous system that is not responsive to low stimulation levels and as a result, the individuals look for stimulation somewhere else so that they can increase the stimulation (Lowenstein 69). The stimuli that excite these individuals include actions that are high risked and are linked with behavior that is anti-social. The right environment is needed to create an individual with anti-social behavior. Therefore, the theory requires both genetics and environmental factors.

When taking into consideration the roles of both the environment and genes on crime, I believe that the best rationalization is the combination and interaction between the two factors. An individual's genetic material together with the environment in which they live in will influence the behavior of the individual. The question should not be on how either of the factors affects criminal behavior. However, more studies should be conducted on how the interactions between the two impacts criminal behavior. There is also proof that specific environmental



factors influence the genetic expression. For example, when a mother smokes cigarettes during pregnancy, the child might develop some abnormal characteristics.

Some personality disorders are caused and linked to neuro-chemicals such as dopamine and serotonin which can be triggered by environmental factors such as stress. Therefore, if an environment can affect the expression of a gene, then there is a significant link between environmental factors that cause criminal behavior and the genetic factors (Lowenstein 70). Furthermore, genes and inherited elements provide a basis for how an individual responds to the environment. These individuals are a result of their genetics and the environment where they have been raised and live.

It does not necessarily mean that genetics have to be combined with environmental factors for a crime to occur. Each element can influence behavior independently. However, in other cases, the combinations of the two components are needed for an individual to become a criminal. For example, a child who has XYY syndrome will be aggressive but the probability of becoming a thief is low unless he or she is from a poor background and he steals so that he can get food. As a result, both the genetics of an individual and the environment factors are responsible for making an individual engage in criminal behavior or not engage in criminal behavior. Both the environment and genetics are necessary and they both have the same impact on criminal behavior.

In conclusion, there is evidence that both genetics and environmental factors can influence criminal behavior. There is a significant need for societies and families to create a good environment for their children. Families should love each other and form a bond with one another as opposed to being violent. Societies should focus on treating children who show

characteristics of disorders that can lead to delinquency and criminal behavior. These individuals should be counseled and rehabilitated to prevent them from engaging or learning how to commit crimes. Furthermore, there are educational programs that help children to grow as ordinary law-abiding citizens. Societies should develop more of these programs and also encourage individuals to see therapists or go to a rehabilitation center. Older individuals should check themselves into programs that will help them get rid of the undesirable behaviors. Furthermore, family members of such individuals should encourage them to go to therapy sessions.

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