

# ***Formation Mechanism of Criminal Behavior***

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**Abstract:** This paper explores the factors that affect people's criminal behavior. From the perspectives of genotype and environment, we have described in detail the impact of these two aspects on people's criminal motivation and behavior. First, the current study listed the ways and places in which genotype and environment will affect people's criminal behavior. For example, the effects of genotype on people include heredity, intake in the previous period, low heart rate, personality disorder, and brain structure problems; The impact of environment on people includes the original family and cultural background. In addition, the current study analyzed the case of a twin study and studied how these two factors affect people. After that, we analyze the characteristics and limitations of these impacts and study whether people themselves can change this impact. Finally, we conclude that genotype and environment can affect a person's criminal tendency differently. In addition, this criminal tendency caused by genes or environment does not necessarily make people commit criminal acts. Through correct guidance, a person can still avoid criminal acts.

**Keywords:** genotype environment, MAOA, central nervous system, ASPD, amygdala prefrontal cortex

## **1. Introduction**

According to scientific research, many criminals have different innate conditions and growth environments from others. Some of them are different from others in terms of genes or brain structure: some may have damage to the amygdala and prefrontal cortex, and some may suffer damage to the central nervous system as a whole. Others are affected by the environment, such as their original family, friends, peers, or cultural background. However, people who are more likely to commit crimes because of their genotype or environment sometimes do not and sometimes also commit crimes. What factors affect these phenomena? Can these effects be reduced or changed? This is the theme of this article.

The current study will discuss how genes and environment affect a person's criminal behavior. I will specifically analyze which genes and physiological structures make people more likely to commit crimes, which environmental factors make people more likely to commit crimes, and the characteristics, ways, and limitations of these influences. Another question that needs to be studied is what other factors affect crime.

Finally, the current study will start with the characteristics and limitations of these impacts, explore whether these impacts will inevitably lead to people committing crimes, and how to deal with this

impact to avoid people committing crimes. The current study will also discuss how we can overcome these impacts to achieve the goal of crime prevention.

## **2. Literature Review**

### **2.1. Criminal Behavior**

Crime refers to acts and events that violate the law and endanger society. Criminals often have specific motives when carrying out these acts, and behind these motives, they can often reflect their cognition, ideas, and personality tendencies. Through the study of the human genome and environment, we can find the reasons behind these trends, thus providing help for us to explore the formation mechanism of crime and prevent crime.

Criminal acts often endanger society. Criminal acts will not only lead to many people's loss of property and life safety but also panic and worries in society. Whether it is theft, robbery, or murder, it will harm many people and society. If there are more such crimes, society's overall harmony and stability will be seriously affected.

Therefore, we should start to study how to prevent crime. One way of thinking about this type of research is to start studying criminals. We can explore why criminals commit crimes from various angles, what their criminal motives, ideas, and reasons are, and whether their perception of others and the world is different from others. After studying these, we can understand the thoughts and behaviors of criminals and prevent them in a targeted way.

### **2.2. Formation of Criminal Behavior**

#### **2.2.1. Genotype**

Some intrinsic factors will affect people's criminal behavior. Therefore, some inherited genes and physical characteristics often increase the probability of people committing crimes. It is estimated that in any given community, 10% of the families are responsible for greater than 50% of its crime. This shows that innate and genetic factors can affect people's criminal behavior [1].

First, some genes may cause people to become more criminal prone, such as MAOA, the warrior gene. Studies have found that MAOA adversely affects information processing in the cortical neural circuit composed of the amygdala, the rostral cingulate gyrus, and the medial prefrontal cortex. MAOA amplifies the influence of bad early life experiences and produces harmful social cognitive bias by causing a genetic overdose of serotonin and destabilizing the critical neural circuits ("social-emotional scaffolding") used for social assessment and emotion regulation. This causes a person to be violent, which makes him more likely to commit crimes. Also, susceptible alleles may cause brain development to changes in function and structure, which, combined with other factors, may induce the development of antisocial behavior. This may also make people more likely to commit crimes [2]

Second, intake in the prenatal period will affect a person's criminal tendencies. For example, alcohol intake during prenatal often makes people more likely to commit crimes. Premature exposure to alcohol often leads to Fas in children. A significant symptom of Fas is that it causes problems in brain structure and affects the central nervous system. This effect on the central nervous system will not only lead to cognitive problems but also lead behavioral problems. These problems may include inattention, lack of independent life skills, stubbornness, and social withdrawal. In addition, children with FAS showed a higher rate of behavioral problems (e.g., lying, cheating, and stealing). Sometimes these may become the factors that lead to criminal behaviors [3].

In addition, low heart rate and under arousal can often make people receive less negative body feedback, which makes people feel less afraid. This can sometimes become a factor that encourages people to commit crimes.

Also, personality is a factor that affects people's criminal behavior. For example, people with antisocial personalities (ASPD) often only consider their views and ignore the feelings of others. They are less compassionate and more aggressive. Some adults with anti-social personalities will show more violations of laws and regulations and serve more sentences than ordinary people. Their smoking and drug use ratio is also higher than that of ordinary people. In addition, they are more aggressive and depressive and more prone to suicide. This personality may lead to an increase in the probability of crime.

Finally, abnormalities in certain brain parts can also make people more likely to commit crimes. For example, the amygdala is often associated with emotion regulation. If the amygdala is abnormal, people may become more challenging to control their emotions. Gao and his colleagues once tested the fear conditions of 3-year-old children. Twenty years later, they explored the relationship between childhood bad fear conditions and adult criminal behavior. A group of 137 people convicted before age 23 were compared with those in the same group who did not commit crimes. The results showed that the children who committed crimes later had significantly less skin response to conditional stimuli. There is no conditional stimulus for the people in the criminal group at all. This shows that the amygdala's influence on people's fear will affect their criminal motivations. In addition, abnormal amygdala function often leads to the decline of people's ability to recognize other people's facial expressions and perceive other people's emotions, which is also a factor that may lead people to commit crimes. However, some criminals show an exception: their amygdala responsiveness is higher than others. High amygdala responsiveness is one of the symptoms of anxiety disorder. Some people think that a more active amygdala will cause a person to become more anxious, which sometimes becomes a stimulation for a person to commit a crime [4]. Another example is the prefrontal lobe, which is responsible for reasoning and decision-making. Damage to the prefrontal lobe may cause people to act too thoughtlessly. All these factors will increase a person's probability of committing a crime [2].

### 2.2.2. Environment

First, a person's original family often significantly impacts that person. Because in the original family, children often carry out observational learning on their parents' language and behavior, and this observational learning will make children form some initial concepts and behaviors. If the parents set a bad example to the children at this time, the children may have some wrong ideas and behaviors, which may lead to crime.

People are most vulnerable to family influence when minors are mentally and cognitively unsound, emotionally, ideologically, and immature. Their criminal motives are straightforward and naive. Their behavior also follows the psychology of rebellion, obedience, curiosity, and imitation.

Among the family factors, three factors affect the germination of juvenile delinquency: (1) Family structure variables (family integrity and socio-economic status), (2) Family function variables (family atmosphere, parent-child attachment, parent-child communication, etc.), (3) Family member behavior variables (family upbringing and parental monitoring). Research 50 years ago showed that the focus of research on the relationship between family environmental factors and criminal psychology has shifted from family structural variables to the latter two. Researchers believe that the latter two directly impact criminal behavior, and family structure variables are only caused by the latter two.

Then, there are data showing that there may be a relationship between income distribution and crime. Crime is more likely to occur in people and regions with lower incomes. However, this association has not been proven causal, so it needs further study [5].

Finally, a person's cultural environment will also affect whether a person commits a crime or not. Because a person's cultural environment will shape their way of thinking or cognition, it may lead to crime under the joint action of other factors. In addition, some particular cultural environments may

cause some people's needs or thoughts to be suppressed, which is also one of the factors leading to human crimes.

The twin study can also show the effect of environment and genes. A twin study is often used to investigate the effect of the gene, shared environment, and unique environment. Because monozygotic twins, their genes are 100% identical. For dizygotic twins, 50% of their genes are the same [6]. The study of monozygotic and dizygotic twins growing up in similar environments can often reflect the impact of genes on people. In contrast, the study of monozygotic twins' similarities and differences can reflect the environment's impact. We can use this study to investigate how genes and the environment affect people's criminal behavior [7].

Gottesman and his colleagues researched twin studies. They invited 3226 pairs of twins who participated in the Vietnam war (55% of them are MZ). The average age of these respondents is 44.6 years old; 90.4% are white, 4.9% are African, 2.7% are Hispanic, and 1.3% are Native Americans. Among them, 38.6% are college graduates, and 33.3% are high school graduates. Then, they use the Diagnostic Interview Schedule for interviewing them. Finally, they defined the outcome as four parts: Early Arrest, LaterEverArrested, Felony Conviction, Early Criminal Behavior, and later Criminal Behavior. And the outcomes were scored. The result is that the probability of early arrest (8.2%) and subsequent multiple arrests (6.6%) is very similar. Compared with early and multiple subsequent arrests, the proportion of those arrested after 15 (16.2%) is much higher, while the proportion of those sentenced to felony (2.5%) is much lower. In addition, about 66% of the subjects did not commit early crimes, compared with about 84% who did not commit late crimes [7].

The researchers conclude that monozygotic and dizygotic twins have great consistency in criminal behavior. This reflects that the environment is likely to affect people's criminal behavior. Genetic factors also impact criminal behavior, but this effect often occurs when people are a little older. Generally, genetic factors often affect whether people will be arrested after the age of 15 and whether people will be arrested many times. In contrast, environmental factors usually affect people's early criminal behavior before age 15. In addition, after twins leave their familiar environment, the environmental impact does not seem to last continuously.

This experiment proves one thing: both genes and environment are factors that affect whether a person commits a crime. These two factors will affect people's cognition and behavior in different ways.

### 2.2.3. How to Prevent Criminal Behavior

First, the influence of both genetic and environmental factors on people can be changed. Some of humans' natural conditions are plastic; for example, neurons may reflect their plasticity because of our constant learning [4]. Some studies also show that although the environment will impact people, as people leave this environment, the effect will be weakened [7]. Therefore, the key to crime prevention is usually to strengthen the guidance and intervention for people. Research on children's fear conditions shows that the influence of the environment on people appears before age three [4]. Therefore, when people are so young, family influence becomes very critical. Children's objective learning will let them learn what their parents say and do. Therefore, parents should set a good example for their children at this time to achieve the goal of positive guidance for children. In addition, parents sometimes need to control their children appropriately. Research shows that when children arrive at Adobe, their sense of autonomy will be enhanced. However, the lack of parental control is positively related to juvenile delinquency. Therefore, appropriate parental control becomes necessary [8].

In addition, for society, increasing the overall level of equality also plays a crucial role in crime prevention. Research shows that the increase in violent crimes is often closely related to people's income, and the relationship between homicide and income inequality is more closely than the

mortality rate of all other causes. This may have something to do with people feeling ashamed, humiliated, and disrespected. It may also be related to the gap between people's current situation and their previous status [9].

In conclusion, it is a good idea to prevent crime from the family's guidance and control and improve the overall fairness of society. Through the adjustment and improvement of these two aspects, we can give positive guidance to people affected by genotype and environment and significantly reduce the probability of crimes committed by these people [10].

### 3. Enlightenment from Research Results

Some people are more likely to commit crimes than others because their natural conditions and growing environment give them particular cognition and tendencies. Therefore, we should strengthen the guidance of children at the stage of growth so that they can be restrained by various morality and values even when they are less afraid or more aggressive to reduce the possibility of their crime.

In addition, the original family, school, and society should positively impact people when they grow up. This will enable people to carry out correct observational learning when they grow up and form a better understanding. This can reduce the possibility of people committing crimes due to environmental impact and enable people genetically more likely to commit crimes to receive positive guidance. This will minimize the negative impact of genetic and environmental factors on people.

### 4. Conclusion

Both genotype and environmental factors may make people more likely to commit crimes. However, these two factors often affect people in different ways. Genotype factors are usually human genes or physical conditions that cause people to have certain tendencies. For example, Fas causes lesions in brain structures and affects the central nervous system; MAOA and other genes make people more aggressive and want to fight more; Lower heart rate and arousal make people less nervous and afraid; Personal disorder makes people lack empathy and only consider their feelings, And lesions in the hippocampus and prefrontal lobe make it difficult for people to control their behavior. All these factors make people have a certain tendency as a whole.

Environmental factors are usually: a person's environment shapes or change some of his cognition and ideas. Thereby making the person more likely to commit a crime. For example, the influence of one's native family or cultural background. Of course, the consequences of these impacts can be reduced through correct guidance and the creation of a better family and social environment.

In addition, although these two factors will lead to people's tendency and tendency to commit crimes, people will become less likely to commit crimes if the impact of this tendency is minimized in various ways.

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