Theories of crime can broadly be grouped into biological and non-biological explanations. This factsheet outlines a number of theories about the possible biological causes of crime. In each section, there will be an outline of the theory, evidence in support or against that theory, and an evaluation of both theory and research evidence.

Crime is a complicated phenomenon, with many different explanations.

The examiner expects you to be able to:

- Give a range of explanations of criminal behaviour
- Provide evidence that supports and/or contradicts these explanations
- Evaluate the quality of the evidence provided
- Evaluate the validity of the explanations

Introduction: What is a “theory of crime”?

Crime and criminal behaviour are as old as human society itself. However, it wasn’t until the late 19th century that psychologists attempted to systematically explain the causes of criminal behaviour. Early theories of crime saw criminals as biologically different from non-criminals. More recent biological explanations suggest that genes may be partly responsible for criminal behaviour, while more modern theories also take into account social and psychological factors.

It is important to understand the causes of crime, as this can have important implications, specifically in the treatment of offenders and the prevention of crime. If the cause of crime is biological, maybe we should seek biological treatments. If the cause is social, perhaps a change to government policy is needed.

Understanding the causes of crime has implications for both treatment and punishment.

Exam Hint: Make sure to check the specification of the exam board you are studying to know exactly which theories you are expected to learn.

Part 1: Early biological theories: Atavism and Somatotypes

Early attempts to explain criminal behaviour saw criminals as differing significantly on a biological level from non-criminals. This could be seen by looking at facial features or body types.

A: Atavism

Lombroso argued that criminals could be identified by facial features

One of the earliest attempts to make a scientific study of criminal behaviour comes from the work of Cesare Lombroso (1876). By using measurements from both the heads and faces of living prisoners, and the skulls of dead criminals he put forward a theory that criminals differed biologically from non-criminals. He argued that criminals were not as evolved as non-criminals, and they were an “evolutionary throwback” to an earlier stage of evolution. This idea is known as atavism. He claimed that this caused them to be impulsive and less able to control their basic urges. Criminal types could be identified from their facial characteristics which he argued were signs of atavism. For example he argued that criminals had low foreheads, shifty eyes and would show a reduced sensitivity to pain. Furthermore, he argued that certain types of criminals could be identified by facial features. For example he said that thieves had flattened noses, but in murderers the nose is “aquiline” like the beak of a bird. The lips of rapists are fleshy and protruded, while the lips of “swindlers” (con artists) are thin and straight.

Evaluation

- Lombroso was the first researcher to attempt to study criminal behaviour in a scientific way. Before him, criminal behaviour had not been studied, and was considered much more a philosophical or religious issue. It could be argued that the entire field of criminology owes its foundation to Lombroso’s work.
- However, Goring (1913) attempted to replicate Lombroso’s findings in a sample of thousands of English prisoners, and found none of the facial features identified by Lombroso.
- However, although there is little evidence for atavism, Goring did discover that a common factor amongst criminals tended to be low intelligence. If (as much modern evidence suggests) intelligence is caused in part by genes, this might support Lombroso’s main argument that criminality is genetic.
- Although Lombroso was attempting to be scientific in his study of criminals, he neglected to compare the results from his criminal sample to a control group of non-criminals. This is a problem because if he finds a common trait in criminals (for example the low forehead) he cannot be certain that this trait is specific just to criminals, or that it is common in non-criminal populations also.
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- It could also be argued that in his eagerness to prove his theory correct, Lombroso may have been biased in his measurements (an investigator effect). The fact that later research has failed to replicate his findings supports this.

- Another issue with this theory is that even if it was found that there was a relationship between facial characteristics and criminal behaviour, we cannot then claim that the cause was atavism. There could be a third factor involved. For example, people from poor backgrounds are more likely to be criminals, and are also more likely to have a poor diet. The poor diet may be the cause of the facial characteristics described by Lombroso.

Cesare Lombroso is credited as being the father of criminology

http://upload.wikimedia.org/wikipedia/commons/1/1c/Lombroso.JPG?uselang=en-gb

Exam Hint: It is easy to dismiss Lombroso’s theories in the light of 21st century scientific understanding. However the theory of atavism needs to be understood in its historical context; Lombroso was working at a time where evolution was just beginning to be understood, and when there was no previous research to guide him. Therefore it is important to acknowledge this in your evaluation.

B: Somatotypes

Another explanation which links criminal behaviour to biological factors was put forward by Sheldon (1940). He argued that somatotypes or body types were linked to criminal behaviour, and that certain body types were more likely to lead to criminality. Sheldon argued that all people can broadly be split into three somatotypes, each one accompanied with various personality traits.

Endomorph

http://upload.wikimedia.org/wikipedia/commons/e/e2/Tremendo_gordo.jpg

Physical characteristics: Endomorphs are soft and fat. They tend to be overweight, lacking in muscle or tone. They have wide hips, and fat spread all over their body including the upper arms and thighs. However they tend to have slim ankles and wrists. Personality: Endomorphs are sociable and relaxed.

Mesomorph

http://upload.wikimedia.org/wikipedia/commons/8/80/Andrzej_Zieleniecki5.JPG

Physical characteristics: Mesomorphs are strong and hard. They have board shoulders and narrow waists. Mesomorphs are muscular, with strong arms and legs. They have very little body fat. Personality: Mesomorphs are brave and adventurous, and enjoy physical activity. They can be aggressive and domineering, and care little for what people think about them.

Sheldon argues that certain body types lead to a higher risk of criminal behaviour. In particular, adventurous, sensation seeking mesomorphs, with their imposing stature are more likely to be drawn to crime. Sheldon argued that the body type of the mesomorphs made them more assertive and domineering than the thin self conscious ectomorphs or the fat friendly endomorphs.

Evaluation

- Sheldon carried out research into body types and delinquency, and found that there was a higher percentage of mesomorphs in delinquent populations than non-delinquent. Other studies have replicated this finding.

- However, just because there may be a relationship between mesomorphy and criminality, we cannot say for certain in which direction the causality is.

- Sheldon argued that it was the somatotypes that caused the criminal behaviour. The strong athletic build of the mesomorphs allows them to achieve a position of dominance from a young age, and this assertive and domineering personality leads to criminal behaviour in later life.

- However, it may be that people who are prone to criminality end up becoming mesomorphs. Someone who engages in criminal behaviour may pay more attention to their body, for example going to the gym to deliberately gain muscle mass. It could similarly be that a criminal lifestyle leads to more muscle, in particular needing to maintain athleticism to evade capture by the police.

- Another factor could be testosterone levels. Dabbs et al (1995) found higher testosterone levels in male prisoners who had been convicted of various violent crimes. High levels of testosterone are also linked to muscle growth and strength, the key characteristics of mesomorphy.

- Another possible factor could be labelling. A mesomorph individual may be labelled as a troublemaker early in life; due not to their personality or behaviour, but simply because of their size and muscle mass. This label may influence the young person, and in effect becoming a self fulfilling prophecy.

- Sheldon’s theory does not take into account that people’s somatotype is not fixed. People’s bodies change throughout their lives, and an individual may be all three types at some point in their lives. Sheldon does not detail whether this would lead to changes in criminal behaviour.

- Also, Sheldon’s theory could not really explain how ectomorphs and endomorphs can also be criminals. While there may be a high proportion of mesomorphs in prisons, many criminals are ectomorphs or endomorphs. Sheldon’s theory cannot account for this.

Ectomorph

http://upload.wikimedia.org/wikipedia/commons/7/7d/Skinny_German_Boy_%285879565414%29.jpg?uselang=en-gb

Physical characteristics: Thin and fragile. Lacking both in fat and muscle. They have thin shoulders and narrow hips a thin chest and thin abdomen. They have thin faces with a high forehead. Personality: Ectomorphs are fragile people, self conscious and private. They are emotionally restrained and thoughtful.
Sheldon does not take into account the different types of crime. Mesomorphs may be more likely to be violent criminals, but are they also more likely to commit fraud or sexual assault?

- The theory of somatotypes could be described as being descriptive rather than explanatory. If body type does cause criminal behaviour, Sheldon offers no explanation as to why the person is a mesomorph/endomorph/ectomorph in the first place.

For a genetic explanation, as identical twins have identical genes. Boys who have fathers with criminal records are more likely to become criminals themselves. There also seems to be a strong link between fathers and sons. This makes genetic sense as a child shares 50% of their genes with their father, yet only 25% with grandparents, aunts and uncles, and 12.5% with cousins. Therefore, we would expect there to be more similarity between people who are more closely genetically linked. However, a big issue in making this assumption is that we cannot completely discount the effect of the environment. Not only do fathers and sons share genes, they also share an environment. It may be that the shared environment causes the similarities in criminal behaviour. It might be that having a criminal father may lead to other factors (poverty, poor education) that could lead to crime. A further finding from Farrington was that having a young mother and living in a bad neighbourhood added to the probability of fathers and sons being arrested. This again confuses the issue of genes and environment. All of these possible explanations make it difficult to isolate and measure the effect of genes. It is difficult to overcome this methodological issue when looking at family studies.

One way to overcome the issue of shared genes and environment is to use adoption studies. This is when we compare adopted children to both their birth parents and their biological parents. If children are more similar to their birth parents, a genetic explanation is likely, whereas if they are more like their adopted parents, it is likely due to environmental factors.

Exam Hint: It is important to show the examiner that you understand issues of cause and effect. Just because there appears to be a relationship between two factors, we cannot be certain about what caused what. There could always be a third factor involved.

Part 2: Contemporary Biological Explanations

While the theories of atavism and somatotypes are largely discredited, modern psychologists still investigate biological causes of crime. Two theories are that crime may be caused by genes, or that there is a criminal personality type that is inherited.

A: Genes

A recurring trend in modern psychology is to look towards genetic explanations of human behaviour. Psychologists have attempted to see if there is a genetic basis for criminal behaviour by investigating whether crime tends to run in families.

Osborn and West (1979) investigated the rates of criminal records in families. They found that 13% of sons who had non-criminal fathers had criminal records; for sons who had fathers with criminal records, this rate was 20%. This evidence seems to suggest that there may be a genetic link.

Similarly, Farrington (2002) found evidence for a genetic link by examining three generations of relatives, including grandparents, aunts, uncles and cousins. They found that if one relative had been arrested, there was a higher probability that another relative had also been arrested. However, similarly to Osborn and West, the most important relative was the father; if the father had been arrested, there was a high chance of sons being arrested too.

A meta-analysis of twin studies conducted by Ishikawa and Raine (2002) found a concordance rate for criminality of 44% for identical twins, and 21.6% for non-identical twins, providing further support for a genetic explanation, as identical twins have identical genes.

<table>
<thead>
<tr>
<th>Parents with a criminal record</th>
<th>% of sons with a criminal record?</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>13.5</td>
</tr>
<tr>
<td>Biological only</td>
<td>20.0</td>
</tr>
<tr>
<td>Adoptive only</td>
<td>14.7</td>
</tr>
<tr>
<td>Biological and adoptive</td>
<td>24.5</td>
</tr>
</tbody>
</table>

Mednick et al (1987) studied over 14,000 adoptees and found the results shown in the table. It can be seen here that both genes and environment play a part. We can see that genes have an effect as the rate of sons with a criminal record is significantly higher when they have a biological parent with a criminal record. However, it can also be seen that the environment does play a part; the rate of criminal sons is higher when the adoptive parent has a criminal record, regardless of whether or not the son has a criminal birth parent.

Boys who have fathers with criminal records are more likely to become criminals themselves. These pieces of evidence seem to suggest that there may be a genetic basis for criminal behaviour, as it appears that it runs in families.

Criminal behaviour seems to have some genetic basis.

Another piece of evidence that suggest a biological basis for criminal behaviour comes from Bohman (1996). He found that even when adoptive parents know that their child’s biological family has a history of criminality, this has no effect on the child’s later criminal behaviour (which is still at a higher rate than average).

If criminality is genetic, we should be able to identify the genes responsible. It has been suggested that there is a link between one variant of the 5-HTTLPR gene and violent behaviour (Reif et al, 2004). Another study suggests that there may be a link between the NOS1 gene and impulsivity (Reif et al, 2009). Both impulsivity and violence are key factors in many crimes.
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Evaluation

- Studies that find a concordance between parents and children have consistently found that the relationship is strongest for minor offences rather than for violent crime.
- Genetics cannot provide a full explanation of criminal behaviour. If crime was purely genetic, then there would be a 100% concordance rate between identical twins. The use of family studies raises methodological issues. There may be issues with generalising from adoptees to non-adoptees. There is the issue that twins not only share genes and an environment, but also share a prenatal environment. Also, twins may be treated more similarly than non twins. Adopted children tend to get placed in homes that mirror those that they came from. All of these factors could lead to higher concordance rates which are little to do with the effect of genes.
- If criminality is due to genes, it is likely to be due to the interaction of a large number of genes rather than just one or two.

Exam Hint: Because family studies are a non-experimental method, we cannot assign cause and effect relationships. Just because there appears to be evidence for a genetic link, the issue of shared environments clouds the issue. It is important to show a clear understanding of this limitation.

B: Criminal Personality

A final biological theory is that there exists a criminal personality, which is psychological in nature, but that develops due to biological factors. This theory was put forward by Eysenck (1970). He argues that criminals inherit a type of nervous system that affects their ability to learn and adapt to their environment. This nervous system causes the individual to develop a criminal personality. The theory goes like this:

- We learn through experience to avoid punishment and to seek out rewards. When we are punished for wrongdoing, we will eventually stop doing the wrong thing to avoid the punishment.
- How quickly you learn through punishment is determined by your nervous system. Most people have a nervous system that learns quickly. However, some people possess nervous systems that are resistant to conditioning.

Eysenck argued that personality is made up of two factors, introversion/extraversion and neuroticism/stability. The criminal personality is one that is extraverted and neurotic, as well as showing signs of psychoticism.

- Extraverts are outgoing, sociable and stimulation seeking. They take risks and tend to be thrill seekers. Eysenck argues that this comes about through inheriting an under aroused nervous system that needs constant stimulation to maintain the optimum level of arousal.
- Criminals also show signs of neuroticism. This means characteristics of anxiety and emotional instability.
- Psychotic personality types are cold, aggressive and hostile.

Eysenck argues that extraverts and neurotic personality types do not condition well. They do not learn society’s rules and norm easily as they do not respond to punishment.
Part 3: Overall Evaluation of Biological Explanations of Crime

A: What is crime?

While these theories all go some way to explaining some of the possible causes of crime, what is actually considered to be a crime may differ according to individual difference as well as differences between cultures and time periods. For example, a parent who beats their child would be prosecuted in the UK for child abuse, whereas such behaviour used to be legal and socially acceptable.

If the definition of crime is fluid, how can we pin down the ultimate cause for criminal behaviour? If someone would be considered to be a criminal in one country, but not in another, does it make sense to look to biology to explain their criminal behaviour? For example, someone caught smoking cannabis in the UK may face prosecution, yet the same action would be legal in California. Is that person a criminal?

Social constructionists would argue that crime and criminality could be bound by culture, and therefore there is no objective truth that can explain the cause of crime. The best that we can do is to investigate the causes of crime within the context or culture in which it occurs, and accept that universal laws (such as biological explanations) do not exist.

However, others would argue that there are some universal crimes which all cultures acknowledge as illegal e.g. murder and theft. It may be more appropriate to use biological explanations for these types of universal crimes rather than for behaviour that may or may not be considered criminal depending on which country you are in.

B: Determinism and Free will

Are you free to choose your own behaviour, or is your behaviour determined by forces beyond your control?

http://upload.wikimedia.org/wikipedia/commons/c/c2/Broken-chains.gif

An issue with all of the theories presented here is that they raise ethical issues in terms of free will. If criminal behaviour can be explained by your facial characteristics, your body type, your genes or your personality, can we ethically punish someone for their crimes? If the cause of their criminal behaviour is a biological factor that is beyond their control, can we hold an individual responsible for their actions? Our legal system is based on the idea of free will; we assume that an individual is free to act as they choose, and so we can punish them for their actions. However, all of the biological theories suggest that the cause of crime may be more deterministic in nature. If this is true, we may need to rethink our legal system.

A related point is that if the cause of crime is biological, we should be able to predict who will become a criminal. This may raise the ethical issue of whether it would be right to take preventative action. Could we pre-emptively lock away people who have the gene for criminal behaviour? This might be an extreme example; a more realistic issue would be whether or not someone’s biology could be used as evidence against them. For example, if you have a defendant in court for violent behaviour, could the prosecution use the fact that he carries a particular gene as evidence of guilt?

On the other hand, being able to predict which people are more predisposed to criminal behaviour may allow us to put measures in place to prevent the individual from turning to crime. For example, if a child had the gene for criminality, perhaps extra lessons in emotion management and social interaction could be implemented to reduce the risk. However, on the other hand, someone who knows that they have a gene for criminality or the criminal personality may feel helpless to change their fate. They may feel that they have no free will, and so end up becoming criminals in a self-fulfilling prophecy.

If criminal behaviour can be explained by biology, can we lock people away for having criminal genes as a preventative measure?

http://upload.wikimedia.org/wikipedia/commons/0/0f/Prison.jpg?uselang=en-gb

C: Sample biases

There is a methodological problem with conducting research on criminals who are in prison. These criminals are by definition the ones who have been unsuccessful with their criminal activities. Therefore we may have a sample bias (I think you have used this term previously and it should be boldened only in its first use in any research done on such a sample. These criminals may be of lower intelligence, more impulsive and less able to think about the consequences of their actions. This is why they were apprehended by the police. Therefore, we may not be able to generalise results from such a sample to all criminals. There will be many criminals who never get caught, but unfortunately, we cannot conduct research on them! Possibly the criminals who avoid arrest may be more intelligent and less impulsive.

It could be argued that these theories have a gender bias. A lot of the research has focused solely on men, and theories have either ignored women, or applied the same theories to them as to men. There has been little attempt to investigate criminality in women, and it may not be appropriate to assume that the reasons women become criminals is the same as men. Theories of crime therefore could be falling for a beta bias.

Sample biases also arise from conducting research in western individualistic cultures where the focus is on the happiness of the individual. In collectivist cultures, where the focus is on the good of the group, the causes of crime may be very different. It may be that in collectivist cultures, crime may be driven less by individual gain, but by the needs of others. It therefore may not be appropriate to generalise the results from one culture to another.
D: Reductionism

A final issue that could apply to each of the theories here is that of reductionism. It could be argued that each theory provides a limited explanation of the cause of crime. Crime is complicated, and given the variety of different types of crime, it is unlikely that one theory will have the explanatory power to account for every type of criminal act.

This is a particular issue with biological theories that ignore the role of society and culture. In biological theories, all individuals are assessed equally, with no regard for socioeconomic background or education level. Are the reasons that a poorly educated, unemployed person becomes a criminal going to be the same as for a well-educated, wealthy businessman?

An ethical issue arising from this is that by placing the blame for criminal behaviour on biological factors, it absolves society and the government from any responsibility. As poverty and poor education have been linked to crime, by only looking at biological explanations we may be ignoring the wider issues.

Biological explanations ignore the role that environmental factors such as poverty can have on crime. http://upload.wikimedia.org/wikipedia/commons/e/ef/Slum_in_Jakarta_Indonesia.jpg?uselang=en-gb

Exam Hint: These evaluation issues can be applied to any of the biological explanations. Look carefully at what the exam is asking of you. If you only need to discuss one explanation, these evaluation points can be applied specifically to that theory. If you need to talk about two or more explanations, it may be wise to leave these evaluation points until the end as they can apply to all theories. This will save you from repeating yourself.

GLOSSARY

Atavism: An evolutionary throwback. Behaviour and physical traits characteristic of an earlier stage of evolutionary development.

Beta Bias: Any theory which minimises or ignores differences between groups of people, e.g. men and women

Collectivist: Cultures where the emphasis is upon co-dependence and the needs of the group. Opposite to individualistic cultures.

Concordance rate: A number expressed as a percentage which shows the probability that a pair of individuals will both have a certain characteristic, given that one of the pair has the characteristic.

Criminology: The scientific study of crime and criminals.

Determinism: The argument that all behaviour is caused by something else (such as genes, environmental influences). Determinists see free will as an illusion

Extraversion: A personality type characterised by outgoing, talkative and energetic behaviour. Opposite to introversion.

Free Will: The argument that humans are free to choose their own behaviour and actions, free of any deterministic forces.

Individualistic: Cultures that emphasise the rights and happiness of the individual. Opposite to collectivistic cultures.

Introversion: A personality type characterised by reserved and solitary behaviour. Opposite to extraversion.

Investigator effect: When the behaviour or views of the investigator has an effect on the results gained.

Meta-analysis: A research method which involves collating the results of many other studies and looking for overall trends.

Neuroticism: A personality type characterised by anxiety, moodiness, worry, envy, and jealousy. Opposite to stability.

Prenatal environment: The environment that an infant has before birth in the womb.

Psychoticism: A personality type characterised by aggression and hostility.

Reductionism: The view that the best way to explain behaviour is to break it down to the smallest unit of explanation.

Sample Bias: When a sample of participants in a study may not be representative of the target population the results will be applied to.

Self-fulfilling prophecy: A prediction that directly or indirectly causes itself to become true.

Self report data: Data that relies upon the participants recording their own thoughts, feelings and views.

Social Constructionist: A view that there is no objective truth to human behaviour, and that all behaviour can only be understood by looking at the culture in which it occurs.

Somatotype: A category to which people are assigned according to their body type.

Stability: A personality that is able to cope with the demands of life and accurately perceive the weights of a task. Opposite to neuroticism.
1. Why could it be argued that Lombroso’s research into atavism was unscientific?

2. One of the big problems with many theories into the causes of crime is that of cause and effect. Explain why this is an issue with reference to at least one of the theories described in this FS.

3. Explain why genes cannot provide a full explanation of criminal behaviour.

4. Why is there a sample bias inherent in any investigation into criminal populations?