Title: Social

Essay title: Discuss biological explanations for schizophrenia. (Total 16 marks)

There are different biological explanations for schizophrenia, including: genetic explanations, the dopamine hypothesis and neural correlate explanations.

There is considerable evidence which indicates that schizophrenia runs in families and is in part, genetic. Evidence from family studies and twin studies provide support for the genetic explanation of schizophrenia. Research has found much higher concordance rates in MZ twins in comparison to DZ twins. For example, Gottesman and Shields (1972) found a concordance rate of 42% for MZ and 9% for DZ. In addition, a study in London using the Maudley Twin Register by Cardno et al. (1999), found a 40% concordance rate in MZ twins, compared to 5.3% in DZ twins. This research shows that individuals with identical genetic make-up (MZ twins) have an increased risk of developing schizophrenia highlighting a genetic component and providing support for a genetic explanation.

In addition to the genetic link, psychologists have also focused on the role of dopamine. The original dopamine hypothesis stated that schizophrenia was caused by excessive activity of dopamine. This causes the neurons that respond to dopamine to fire too often and transmit too many messages. This message ‘over load’ may produce many symptoms of schizophrenia. The dopamine hypothesis suggests that schizophrenia is caused by a high density of dopamine receptors, and by a high level of sensitivity in dopamine receptors. This causes the messages from neurons that transmit dopamine to fire too easily or too often. According to Snyder (1976) if too much dopamine is released into the synapse it can lead to the onset of schizophrenia.

There is little doubt that genetic factors influence the risk of developing schizophrenia. However, it cannot be the sole factor since the concordance rates for MZ twins, who are genetically identical, are between 40-60%. As the concordance rates are not 100% it means that genes cannot fully explain schizophrenia. It could be that an individual is pre-disposition to schizophrenia, making them more at risk. The evidence certainly suggests that the genetic account cannot give a full explanation of the disorder as by focusing on one factor i.e. genes it has adopted a reductionist approach and not considered any other factors biological or otherwise, such as...
biochemistry or family dynamics. Furthermore, another issue with genetic explanations is that it is difficult to separate the impact of nature and nurture. For example, both family and twin studies investigate individuals who are sharing the same environment, which could be increasing the concordance rates, irrespective of the genes. Possibly the high concordance rates between MZ twins is actually due to them being treated more similarly than DZ twins or ordinary siblings and not in fact due to their genetics. Even MZ twins that are reared apart share the same womb environment before birth. The shared environment could be a confounding variable as we can’t differentiate between genetic and environmental influences.

One strength of the research into the dopamine hypothesis is that it has practical applications and has led to the development of an effective treatments. New drugs have been developed such as Clozapine, which is much more effective than neuroleptics at relieving schizophrenic behaviour. This suggests that psychiatrists can understand the role played by neurotransmitters such as dopamine when treating different types of schizophrenia and thus improve the patient’s quality of life. However, dopamine abnormalities are not present in all schizophrenics, especially those with negative symptoms. Problems with dopamine seem to be associated more with positive symptoms, so it may only explain certain aspects or types of the illness. Davis et al. (1991) argue that the diversity of types and symptoms in schizophrenia implies that there are several neurotransmitters involved and not just dopamine and therefore the dopamine hypothesis cannot provide a complete explanation of schizophrenia.

While both biological explanations (genetics and the dopamine hypothesis) have research support, they are unable to provide a full explanation of this complex disorder and are limited by not taking into account other factors, namely psychological factors that may also play a role.

Examiner style comments: Mark Band 4: A well-detailed an accurate summary of two biological explanations is presented. The evaluation is thorough and effective and the answer evaluate both the genetic explanation and dopamine hypothesis by exploring a range of supporting evidence and limitations. The answer also makes good use of issues and debates.