# Biological and genetic explanations for mental illness

# Introduction

The aim of this essay is to discuss and compare the extent of biological genetic relating to mental illness, the stigma and all the factors who might cause it.

My argument on this it also be backup with the ‘ Mental illness and poverty: How class gets ‘ under our skin and into our brain’ article from the online Journal News.

What is a social stigma? Why do people stigmatise? What mechanisms are involved in the process of stigmatisation, that is, what are the gains for those who defame and what consequences for those who are stigmatised? Does biological genetic factors influence on mental illnesses? While the study of social stigma deserves the most significant importance in order to point out ways to better understand and change this human phenomenon, this essay intends to focus on the perception of oneself in the face of personal experience of feeling stigmatized due to the fact of having a mental illness.

To what extent do biological and genetic explanations sufficiently account regarding the causes of mental illness?

Social stigma negatively affects and in many ways the lives of many People with mental illness. On the one hand, more visibly, through a limiting their social opportunities, and has therefore also been recognised as the leading cause of discrimination and social exclusion of these people (WHO, 2005); on the other hand, in a process relatively invisible, complex and therefore difficult to decipher and refers to its internalisation.

Rogers & Pilgrim, (2014), stated that the defence of the biological hypotheses on the determination of the mental disorders was accompanied by the weakening of the other discourses directed to the understanding of the mental health pathology. Until then, psychological and environmental explanations about the formation of disorders predominated in the psychiatric field, with a small reference to the biological determinants (Rogers & Pilgrim, 2014).

Psychoanalysis, psychiatry, and other psychological and sociological theories that served as the primary reference for the explanation of mental illness until the 1980s were intensely questioned from the rise of early neuroscientific approaches (Koekkoek, Meijel, & Hutschemaekers, 2006).

However, despite the relevant technical, social and subjective impact of more objective and direct biological explanations on the mental phenomena, new hypotheses have been highlighted in the field of biomedical research. For complex pathologies, such as the vast majority of chronic diseases, and for those involving behavioural disorders, such as mental disorders, the simplest deterministic hypotheses are proving to be insufficient.

It is a process of modifying the models of biopsychosocial knowledge that characterized the understanding of diseases throughout the XX century and that tend to be overcome from the 21st century, (Levant, 2004).

The gene identification or set of genes as the source of a pathological mental process was among one of the main ambitions of biological psychiatry. For decades, it was thought that the lack of knowledge about the cause of the disorders would be overcome with the emotional and technological

advancement and the research possibilities arising from it. From the development of advanced techniques of genetic research, the chance of finding the possible gene responsible for the development of a particular mental disorder has become essential.

In the heart of the human genome mapping project, the aim was to analyse the genetic architecture of the human body to identify the causal links between genetic inheritance and the emergence of diseases, propitiating the construction of more effective therapeutic and preventive interventions (Schadt et al.). In this context, several types of research have had been made to finding the gene responsible for the cause of schizophrenia, bipolar disorder, autism.

The biological terms of epigenetics correspond to the genes alteration, which leads, to a modification of the effects produced in the organism from the activation of this gene. The results are related to the production of proteins from the specific information contained in each segment of the DNA (2017), which output will be responsible for the metabolic effects generated in the body and, consequently, the formation of the phenotypes. Activation or inactivation of a gene is a common phenomenon in development, whereby cells differentiate during the embryonic process and, as a consequence, acquire specific characteristics in each tissue and organ of the body (Bailey et al., 2000).

If simple genetic mechanisms cannot be verified in the case of mental disorders, what would be the participation of the genetic inheritance in the formation of the disease? How to investigate the contribution of our most

primordial biological structure to an aetiology that is supposed to be multifactorial. This was in this context the notion of epigenetics was introduced in the psychiatric field, proving to be useful both as a research hypothesis and as an argument that justifies the disappointment of more deterministic bias studies in psychiatric genetics, (Charlesworth, 2010).

The epigenetic mechanisms are presented as the way of interaction between the genome and the environment, explaining in biological terms how the influences coming from the external environment and the genetic load of the individuals combine. This conjugation would have as the main consequence the production of variations in the risk of each for the development of mental disorders, which may lead to an increase in vulnerability to the disease or, conversely, to greater resilience, which disadvantages the onset of the disease.

The biological terms of epigenetics correspond to the alteration in the expression of a gene, that is, to a modification of the effects produced in the organism from the activation of this gene. That results are related to the production of proteins from the specific information contained in each segment of the DNA, which output will be responsible for the metabolic effects generated in the body and, consequently, the formation of the phenotypes. Activation or inactivation of a gene is a common phenomenon in development, whereby cells differentiate during the early process and, therefore, acquire specific characteristics in each tissue and organ of the body.

The epigenetic mechanisms affected alteration which would result not from processes internal to the organism itself, but the action of external agents, from the environment, on cellular functioning. External influences would act by allowing or inhibiting the expression of a gene, in addition to regulating the intensity with which speech occurs. In this way, the environment would serve as a filter, which allows the activation and functioning of one or sets of genes or, conversely, works in a way that a gene or set of genes becomes inactive, altering the molecular effects that would be produced from this portion of DNA and, consequently, the expression of a specific fragment of genetic inheritance.

In the other, with the notion of epigenetics, the wish to understand the interaction between environmental factors and genetic disposition would not only advance to a new level of understanding of the molecular mechanisms of brain functioning, but would also gain new contours, since the interaction occurs in a way that does not guarantee the appearance of the disease, but results in probabilistic and individualized variations for the pathological formation.

Landecker & Panofsky (2013), also refer that, the epigenetic model offers a general explanation for the gradual construction of vulnerability, which begins the exposure to a harmful environmental factor in early developmental periods, through the modification of the genetic expression as a function of this exposure and leads to changes in physiology cellular activity and the functioning of the organism which confer an increased risk for the formation of the disease,

The epigenetic hypothesis appears here as the researchers' main bet to explain how environmental effects alter development and imprint chemical marks on the brain, influencing individual health. As Murgatroyd & Spengler stated " epigenetic changes offer a plausible mechanism by which early experiments could be integrated into the genome to program the adult's hormonal and behavioural responses. Because these mechanisms are relatively stable, since modifications in the molecular functioning of the brain are long-lasting, the epigenetic hypothesis would explain how environmental influence remains present and has effects in later life, when the environment is no longer acting itself.

Weaver et al. showed that increased maternal care in the first week of life – in this case, breastfeeding, licking and carrying the baby – produced changes in DNA methylation in the hippocampus of the offspring. These changes resulted in differential responses to stress and were stable throughout development, influencing the behavioural patterns exhibited later. Also, pups of the little rodents, when separated from the biological mother and raised by another effectively, showed biological transformations adjusted to the care pattern of the adoptive mother, changes that have remained stable throughout adult life.

Thus, there would be an association between the quantity and quality of the maternal care offered in the initial moments of life, the neuronal development and the tendencies of response to stressful events in adult life. However, only the identification of adverse factors does not guarantee the understanding of their impact and, mainly, of the type of consequence that results.

Thus, early exposure to modest stress can cause resilience, while exposure to severe or chronic stress can trigger mechanisms that contribute to vulnerability to mental disorders.

Therefore, the quality of the environmental factor can drastically change the type of response that emerges socially. Besides intensity, temporality, that is, there is a period of life during which there is contact with an environmental influence is also variable and determinant for the type of consequence that has arisen (Cairns, 2003). Although neuroplasticity lasts throughout life, each region of the brain has critical development windows that occur at specific times. This specificity was considered strategic for the researchers in find details to understanding the phenomena involved in it could give rise to early interventions, preventive or stimulate the development of diagnostic tools and more effective therapies, (Cairns, 2003).

Although mental health is complex and displayed, researchers have found many common mental health disorders, just like other aspects of wellbeing, social, economic and political forces show it mentions the article ‘ Mental illness and poverty: How class gets ‘ under our skin and into our brain’ by Michael Dulaney ( 2018), who study a case from an immigrant student who seen himself struggling financially and that leads him to be mentally ill and has nothing to do with biological bond.

The case refers to a student who could not afford to pay and live where he was living, because his bursary was called cancel in some point, and for that cause him a mental breakdown, and for that a mental disorder, he could blame that situation, to be genetic, but he later realize that the position he

was living cause that and have nothing to do with the heritage or gained from his parents, in his word, he said not having a control of over our lives can destroy our mental and physical wellbeing.

He was living miserable and blaming the disorder he gained, but only for the external factors which make his life does not look good, and by the time he gains that control, stabilising his life, he saw that he could go over it. Being mentally ill and being pushing away from the society is the major problem, from those who suffer for it (2018).

Certain treatment contexts can be extremely stigmatising. The desire to keep a social distance from these people seems to be triggered by stereotypes that they, ‘ the mentally ill people, are seen as bizarre, unpredictable, irrational, dangerous and incompetent (Thoits, 2011)

When a person is affected by a mental health problem, he usually wages a battle for his physical, psychological, social, spiritual, that is, human integrity. That is, it is your total person who is at risk and not the part of you supposedly disturbed.

Conclusion

In conclusion many people who suffer the stigma of mental illness experience diminished self-esteem and deterioration of their quality of life. However, the relationship between stigma of being ill and self-esteem and domains that make up the quality of life remains to be investigated, although numerous clues in the literature point to its potential importance.

Social stigma negatively affects the lives of many people with mental illness in multiple ways. On the one hand, more visibly, through an apparent limitation of their social opportunities, and has therefore also been recognised as the leading cause of discrimination and social exclusion of these people.

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