



**RESEARCH ARTICLE**

**MENTAL HEALTH CONDITIONS: A MINI REVIEW**

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**ABSTRACT**

Mental illness is common. Anxiety and depression are the most general troubles, with around 1 in 10 people affected at any one time. Anxiety and depression can be severe and long-lasting and have a big impact on people's ability to get on with life. These review pay attention on special research methods to give an insight into various gene and protein expression, neuroplasticity and neurotransmission, as well as many other areas. The aim of this review to summarize the available data on the depression and suicide, to provide an overview of main research directions and the most up-to-date findings, and to indicate the possibilities of further research in this field.

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**INTRODUCTION**

Suicide is a potentially avoidable public health hazard [1]. In 2012, the statistics are offered; suicide was the 10th leading cause of death in the U.S [2]. That year, there were nearly 37,000 suicides, and 1 million people attempted suicide, according to the Centers for Disease Control [2]. Even though most people who are miserable do not kill themselves, untouched depression can boost the risk of probable suicide. It is not infrequent for dejected individuals to have feelings about suicide whether or not they propose to act on this judgment [3]. Rigorously depressed people frequently do not have the power to hurt themselves, but it is when their depression lifts and they grow amplified energy that they may be more likely to endeavor suicide [4]. Studies of family risk, of twin concordance, and of adoptees and their families have contributed to this consensus [5]. In the case of suicide, completed or attempted, the evidence is less clear.

Suicide is well thought-out a probable obstacle of severe depressive illness in amalgamation with additional threat factors because suicidal thoughts and behavior can be symptoms of sensible to rigorous depression [6]. These symptoms classically counter to appropriate treatment, and generally can be avoided with early involvement for depressive illness. Any concerns about suicidal risk should always be taken gravely and evaluated by a skilled professional immediately [7]. Some risk factors vary with age, gender and ethnic group and may even change over time. The risk factors for suicide commonly occur in amalgamation. Research has shown that 90 percent of people who kill themselves have acute and severe depression or another diagnosable psychological or substance abuse disorder [8]. In addition, research has shown that alterations in neurotransmitters such as serotonin are associated with the risk for suicide [6].

Diminished levels have been found in patients with severe depression, impulsive disorders, a history of violent suicide attempts, and also in postmortem brains of suicide victims.

**Different Factors**

Over the last few years data have accumulated signifying that there may be genetic and neuro biologic risk factors for suicide [9]. The genetics of some diseases is understandable. This is not the case with suicide. There is no suicide gene. But genetics may have an impact. The impacts of genetics on suicide are owing to inheriting traits and mental illness. Numerous mental illnesses have genetic influences and augment the risk of suicide [7]. A novel report from the Centre for Addiction and Mental Health has established the facts that a definite gene is linked to suicidal behaviour, addition to our information of the numerous multifarious causes of suicide [10]. These include bipolar disease, major depression, schizophrenia and some types of severe anxiety. None of these psychiatric illnesses are completely genetic; they also are due to the psycho-social environment. The science is still in its premature stages. We don't have an apparent thoughtful of the genetics of mental illness. Suicide is also predisposed by traits that are partly genetic [10]. Pessimism or always looking at the negative things is caused partly by genetics. Feeling discouraging is also significant. The genetics of pessimism and hopelessness are not clear but there seems to be a genetic part of these traits [7]. Suicide is often connected with mental disarray, signifying the opportunity of shared susceptibility factors, and current molecular genetic studies have paying attention on serotonin transmission and suicidal ideation [11].

The gene coding for 5HTT (SLC6A4, 37.8 kb at 17q11.1-q12) is one more often examined applicant for studying the genetics of suicide. It is the key target of numerous frequently

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prescribed antidepressant medications. 5HTT expression has been shown to be decreased in prefrontal cortical regions of suicide completers [11, 12], but a number of study findings doubtful these earlier reports [11, 13]. Underlying psychiatric conditions and medications could have contributed to the mixed findings.

It is essential to note that the HTTLPR polymorphism has been associated with copious neuropsychiatric disorders including major depression [14], bipolar disorder [15], child aggression, and alcohol dependence [16] as well as neuroticism. All of these disorders have in turn been associated with augmented suicidality [16].

A number of studies have paying attention on one or several genes at a time, comparing suicide victims with controls. This led to the recognition of genetic predisposing factors, such as WFS1 [17-18] or p75NTR [19] as well as several others. On the other hand, various researchers projected a participation of a entire family of genes or confident pathways rather than just solo genes in the pathology of diverse psychiatric disorders [20-21]. Must *et al.* (2009) established frequent variations in a group of genes located in the 4p locus to be linked to fulfilled suicide in male individuals. However, to verify the biological importance of these studies, it is essential to duplicate the findings in similar and comparable clinical samples with comprehensive coverage of the variants at a particular candidate locus [23].

An association has been originated between a tryptophan hydroxylase (TPH) polymorphism and suicidal ideation, the severity of the suicide attempt and alcoholism [24]. Also, Mann *et al* (1997) have reported positive associations with the same polymorphism among suicide-attempting depressed patients

The dopamine system has not been a most important object for suicide genetic research. There have been hardly any studies looking into altered dopamine (and norepinephrine) levels in brain tissues of suicide victims [25] and cerebrospinal fluid (CSF) of suicide attempters [26-28]. Dopamine has also been associated with impulsivity, a personality trait that is implicated in suicide.

The expression studies facilitate a comprehensive explanation of gene expression patterns characteristic for various brain regions. In order to obtain trustworthy results, it is vital to match the groups of studied subjects and controls according to age, sex, ethnic background and post-mortem intervals. A hopeful move toward for gene expression studies is the use of oligonucleotide microarrays for the analysis of mRNA levels in the brain tissue.

Kim *et al.* [29] compared gene expression levels among suicide completers vs. nonsuicide groups within two diagnostic groups, namely schizophrenia and bipolar disorder. Among schizophrenia samples, 70 genes and among bipolar samples, 13 genes were found to be differentially expressed. According to real-time quantitative PCR data, PLSCR4 and EMX2 were significantly down-regulated in the schizophrenia suicide completers, but not in patients with bipolar disorder. One of the genes found to be upregulated in the bipolar group was gamma-amino butyric acid A receptor, 5 subunit (GABRA5), which, similarly to the finding of GABRA1 up-regulation by Sequeira *et al.*, [23] indicates a possible involvement of the

GABAergic neurotransmitter system in suicide. The authors concluded that, since the overlap of genes among the two diagnostic groups was small, a larger number of disorder-specific genes were found. This suggests that disorder-specific pathways dominate over common pathways at the molecular level.

One more facet of potential genetic risk factors for suicide relates to the association between alcohol consumption and suicide. In countries such as Sweden the suicide rate is more greatly associated with utilization of alcohol than in countries such as France [30]. Certainly, the association between alcohol consumption and the suicide rate is not clear-cut. Wine-producing countries with high alcohol consumption tend to have low suicide rates (e.g. Portugal, France and Italy) [30]. A brief examination of the history of vine-growing in Slovenia allows a possible explanation in terms of gene-environment interaction.

## CONCLUSION

We believe that there is enough confirmation to carry the need for more genetic research into suicide. To date, this has been a moderately under-investigated area of research. The suggestion that there is a genetic aetiological factor to suicidal behaviour does not indicate that psychosocial and additional risk factors also are not significant. If anything, it would build it even more essential to organize ecological risk factors in populations of high genetic risk. However, we contend that unless both genetic as well as environmental risk factors are taken into account it is unlikely that any suicide reduction intervention will be effective. A fundamental reorganize of research strategies is required and it is our view that molecular genetics research is an obvious next move, because this may allow targeting of psychosocial or pharmacotherapeutic interventions at persons of high suicide risk.

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None

## Conflict Of Interest

The authors hereby declare no conflict of interest.

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