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MOLECULAR AND NEUROPHYSIOLOGICAL  
COMMENTARIES ON THE MAIN ISSUE OF SUICIDE

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*The suicide phenomenon is considered within anthropological, psychological, philosophical, ecological, and socio-psychological science contexts. However, the most modern approach is to the brain's processes at molecular level, especially, with special reference to the dopamine and particularizing the changes associated with serotonin mediators, combining them with different manifestations of individual aggressiveness, and the peculiarities of XYY syndrome.*

*The present research covers the reasons of suicide within molecular realm, as well as neuropsychological and psychological theories. The suicide has different manifestations: it is socio-psychological destructive disadaptation during which some marginal psychological symptoms are noticed in patient's conduct: narrowness mental sensitive enhanced with depression and self-aggression, memory, thinking and self-awareness destruction which is observed, in fact, in pre-suicide and during which the suicidal thoughts transfer to suicidal decision. Within the complex of asocial behavior among the teenagers, the suicide has its special role acting as a kind of deflective behavior.*

**Key words:** *suicide, suicidology, depression, self-aggression, destructive disadaptation, asocial behavior.*

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The term suicide derives from Latin words: sui - "of oneself" and caedere - "to kill". It is perceived as a phenomenon, as a form of self-expression, a manifestation of behavior, a lifelong psychiatric situation. Suicidology is the scientific study of suicidal behavior.

**Suicide has been considered and studied since ancient times - involving its nature, growing trend, and prevalence. This surreptitious phenomenon has been interpreted by philosophers, sociologists, doctors, and representatives of literature and arts. Thus, the theory of suicide derives from the complex, global and multilayered nature of suicidology.**

The study of suicide objective is very complex as the research object does not appear explicitly in this case. In order to solve this problem, the researchers make use of different approaches, each if which has its inevitable drawbacks. On one hand, they use the retrospective analysis of psychological autopsy during which some study is carried out about the previous life stretch of the person who committed suicide, most frequently, going through his/her diaries, notes made before his/her death, as well as, through the analyses of the data received from the relatives and friends. However, not all the suicidal cases are possible to investigate in this way as only 12-45% of people leave a suicide note before committing it. Therefore, it is also necessary to use the second approach: the study of those who have made an attempt of committing suicide, as they have also found themselves in the same psychological conditions.

Some research experiments have been implemented at the Office of Criminal Justice in Abovyan (Republic of Armenia) with teenage and female criminals who were proved to be healthy and guilty. The criteria adopted by World Health Organization have been accepted as an index of psychic health. The pathological- anatomical indexes have also been the topic of our research. The implemented research shows that

1. In some cases, the genetic factor appears to be the reason. It turned out that one of the parents of 6% respondents committed suicide have been suicides. Our research has been conducted in families in charge of childcare. [1] For instance, the research found 19 couple single egg and 58 multi egg twins – with one of the twins who committed suicide. Among four identical twins, the second one also committed suicide. At the same time, it is also necessary to highlight the modeling role in which parents, relatives who have already attempted suicides, become the “models” to mirror. The scientists of Biochemical and Genetic Research Institute at Ufa of the National Academy of Sciences of Russian federation have detected six genes in the human genotype which explain the human inclination for suicide. The genetic theory of the suicide confirms the example of Ernest Hemingway’s family: his father, brother, grandson as well as the writer himself ended their lives committing suicide. The well-known suicidologists John Mann and Victoria Arango also admit that suicidal behavior is motivated by genetic factors [2, p. 49].

2. The pathological anatomical indexes of those committing suicides confirmed the biological aspect of suicides. The low level of serotonin is detected in those committed suicide. The idea of this correlations was first suggested by Mary Iceberg in 1976. She studied 68 people suffering from depression. The quantity of serotonin among 20 of them was very low. It appeared that 40% of those with high level of serotonin and 15% of those with low level of serotonin wanted to commit a suicide. Thus, the low level of serotonin is considered as a decisive factor for committing suicide [3]. The further research showed that those having low activation of serotonin tend to repeat the attempt of committing suicide ten times frequently than those who have high level of serotonin. The first impression hints that those investigations are to prove that people with depression show a great tendency towards suicides, moreover, the depression prompts low activation of serotonin, too. In some cases, the low activation of serotonin resulted in committing suicide but does not necessarily mark depression. So, how does the low activation of serotonin lead to the probability of suicidal behavior? In this regard, it is necessary to mention the factor of aggression. It has been stated that the level of serotonin is low in aggressive people—among those who have shown aggressive conducts as setting fire or murdering. From the above-mentioned facts we may infer that the low level of serotonin contributes to aggressive feelings and impulsive behavior. Such kind of people tend to cling to suicidal thoughts and actions, consequently, becoming dangerous both for themselves and for their environment.

3. In the scientific literature, we come across the idea that the organisms of suicides contain low quantity of noradrenalin. Biochemist-clinicians have found lack of 5-HIAA in the organisms of those who have committed suicides.

4. The role of dopamine remains still inexplicable in suicidal behavior, as there hasn’t been made sufficient number of investigations in suicides.

5. The role of dopamine in suicidal behavior remains unclear, as so far no sufficient quantities of research have been conducted in a relevant person addicted to suicide. Some researchers claim that high levels of dopamine in the brain result in schizophrenia and self-destruction. However, it has been proved that with toxoplasma Gondii infection, the amount of dopamine in the body increases, as the resulting mice and rats are not afraid of cats and they are looking for places where cats have urinated. This behavior is effective for the parasite, because if the cat eats its owner, it will be sexually transmitted. Such cat parasites are able to make changes in human behavior (when they penetrate into the body), causing them to commit suicide, in particular, increasing the respective risk for people: it is manifested through a decreased resistance, a high probability of crash, distrust, anxiety, suspicion, neuroticism. Men are less likely to see interest in the news, and women have great

sincerity and suspicion. In case of toxoplasma infection, the astrocytes in the brain are damaged. Similar changes in astrocytes are observed in schizophrenia. This was stated by Theodore Postolachy, MD of the University of Maryland Medical School, and the role of toxoplasma and other infectious in the schizophrenia was studied by American psychiatrist Fuller Torrey. If a pregnant woman is infected with *Toxoplasma Gondii* parasite, she is likely to have a baby who can give birth to a dead baby or to a parasite if the baby has been infected. child's brain damage. However, research conducted with the participation of 45,000 women has also been revised in their brains. According to scientists, the risk of suicide increases by 1.5 times in the infected. About one third of the country's population is infected with *Toxoplasma Gondii*. In case of infection, the parasite may appear in entire body, covering areas from the brain to the muscles and the intestine. And when the parasite deepens into the nervous system, it causes fear, depression, and, consequently, suicide [4-11].

6. Some studies have found that B-group biotin vitamin deficiency also results in suicidal tendency because the absence of this vitamin is accompanied by depression and hallucinations [12, p.223].

7. Some investigations prove that the lack of biotin vitamin of group B also leads to the tendency of committing suicides, as the lack of this vitamin results in depression and hallucination.

8. Thus we find that the suicide is a result of psychological disadaptation when the person, finding himself in the psychological marginal state voluntarily and outer instincts, commits auto destructive actions. The suicidal behavior among the psychologically healthy people are defined as the result of continuous disadaptation which reaches its lethal end. It is considered to be as a way out of the situation, punishing another person, drawing a kind of attention but not an unconscious and unconditioned tendency towards death.

The act of committing suicide is connected with obligatory and additional factors. Its process and its commitment depend on genetic tendency, the stress of person's character, abnormal (psychopathic) development, some depressing events.

All above mentioned factors prove that the suicide is not a monocasual (having only one reason), monopathogenic (running only one mechanism) phenomenon. A number of factors contribute to its genes, so it should be classified in the system of polygenesis (comprising number of reasons).

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## ԱՄՓՈՓՈՒՄ

**ԻՆՔՆԱՍՊԱՆՈՒԹՅԱՆ ՀԻՄՆԱՀԱՐՑԻ ՄՈԼԵԿՈՒԼԱՅԻՆ,  
ՆԵՅՐՈՖԻԶԻՈԼՈԳԻԱԿԱՆ ՄԵԿՆԱԲԱՆՈՒԹՅՈՒՆԸ  
Վարդանյան Կ.Ե., Տիգրանյան Տ.Գ., Դազարյան Ա.Ա.**

**Հիմնաբաներ.** Ինքնասպանություն, ինքնասպանագիտություն, դեպրեսիա, ինքնազրեհիստ, ասոցիալ վարք

Ինքնասպանություն երևույթը բնութագրվում է մարդաբանական, հոգեբանական, փիլիսոփայական, էկոլոգիական, սոցիալ-հոգեբանական գիտությունների համատեքստում: Սակայն առավել արդիական մոտեցում է մոլեկուլային մակարդակով գլխուղեղում ընթացող գործընթացները, հատկապես դոֆամին, սերոտոնին միջնորդանյութերի հետ կապված փոփոխությունները, դրանց զուգակցումը անձի ազդեցիկության տարբեր դրսևորումների հետ, ХУУ համախտանիշի դրսևորման առանձնահատկությունները:

Աշխատանքում ուշադրություն է դարձվում նաև В խմբին պատկանող բիոտին վիտամինի պակասի հետ կապված ինքնասպանության նկատմամբ հակմանը: Մարդկանց և կապիկների օրգանիզմում հայտնաբերվել է Mir-1202 մոլեկուլը: Որքան փոքր է այդպիսի մոլեկուլի խտությունը, այնքան մեծ է դեպրեսիայով տառապելու և աուտոագրեսիա իրականացնելու հավանականությունը:

## РЕЗЮМЕ

### МОЛЕКУЛЯРНОЕ И НЕЙРОФИЗИОЛОГИЧЕСКОЕ ИНТЕРПРЕТАЦИЯ ПРОБЛЕМЫ СУИЦИДА

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**Ключевые слова:** самоубийство, суицидология, депрессия, само-агрессия, асоциальное поведение

Явление суицида характеризуется в контексте антропологических, психологических, философских, экологических, социально-психологических наук. Но наиболее современными представлениями являются процессы, происходящие в мозге на молекулярном уровне, в особенности модификации, связанные с медиаторами дофамин, серотонин, их сочетание с различными проявлениями агрессивности человека, особенности проявления синдрома ХУУ.

В работе внимание уделяется также склонности к самоубийству тех людей у которых дефицит витамина "биотин" (группа В). "Молекула Мир-1202" была обнаружена у людей и обезьян. Чем меньше концентрация такой молекулы, тем больше вероятность депрессии и совершения аутоагрессии.

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