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Psychological Grounds of Suicidal Ideation Amongst Adolescents and Youth and Methods for Its Avoidance: A Review

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ABSTRACT

Psychopharmacology is the study of substances that influences behavior or mental state. It is the combination of psychology and pharmacology. There are various psychological reasons that can influence a person's mind and can lead them to suicidal ideation. Suicide is a fatal, self- injurious act with few evidence of motive to die. It is the deliberate killing of oneself. Youth and adolescence are the time of development in which children hatch out from their protective shell and begin to fly in the world of reality and dreams. They are the future of the world. But there are various factors which affect these individuals which are known as the risk factors. It can be due to their high expectations towards life or other factors. Such situations inevitably lead to some level of helplessness, insecurity, stress and a sense of loss of control. These can have a negative impact in their lives and can lead to suicidal ideation. So, initiatives should be taken to identify these youngsters and provide the support they need for defeating all these negative factors and rise them high in their lives. It can be done only with the help of their parents, teachers, friends and the society along with suicide preventing resources.

Keywords: Psychopharmacology, suicide, risk factors, protective factors, prevention

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INTRODUCTION

"To anyone out there who's hurting- it's not a sigh of weakness to ask for help. It's a sign of strength".

Did you know that suicide is the second leading cause of death among adolescents and youth? Yes, it is, each year more than 80,000 people die due to suicide worldwide.

Suicide is the deliberate killing of one self. Suicidal comments, self-harming behavior and suicide attempts can be associated with various negative problems such as mental disorders, poor educational and vocational outcomes, etc. In this review article, i would like to explain the psychological reasons and risk factors that can lead a person to suicidal ideation and also the preventive and protective measures that can done as parents, friends and society to help them overcome their situation.

Psychopharmacology

Psychopharmacology is the study of substances that influence behavior or mental states. It is the combination of psychology, which involves the scientific study of behavior and pharmacology, which is the science of how drugs act on biological systems and how the body responds to the drug[1].

Figure 1: Introduction to Psychopharmacology

Psychopharmacology involves the medications that are involved in the treatment of conditions such as psychosis, depression and anxiety. If a drug changes the way we think or feel or our perception, such drugs exert an effect on our brain and nervous system[1]. These drugs are known as psychoactive or psychotropic drugs. They either increase (agonist) or reduce (antagonist) the activity at the synapse[7,9].

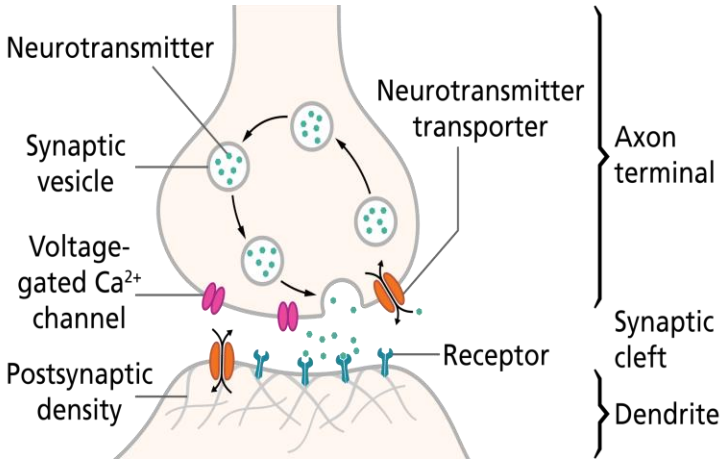

Figure 2: The presynaptic neuron (top) releases a neurotransmitter, which activates receptors on the nearby postsynaptic cell (bottom).

The psychoactive drugs which have an impact on the manner we think does this by altering how the neurons communicate with each other. Neurons communicate with each other by releasing a neurotransmitter (a chemical) across the synapse. The neurotransmitters bind to the postsynaptic receptors after crossing the synapse and the messages get transmitted[8].

The neurotransmitters include:

Table 1: Neurotransmitters and associated behaviors or diseases

Neurotransmitters	Behaviors And Diseases in Relation To Neurotransmitters
Acetylcholine (ACh)	Learning and memory Alzheimer's disease
Dopamine (DA)	Mood regulation, appetite, ability to store and recall memory Parkinson's disease Schizophrenia
Norepinephrine (NE)	Mood regulation , ability to concentrate ADHD, depression
Serotonin (5HT)	Depression Aggression Schizophrenia
Glutamate (GLU)	Learning Parkinson's disease Alzheimer's disease
GABA	Anxiety disorders Epilepsy
Endogenous opioids	Pain Analgesia

The psychoactive drugs can be mainly of four types:

1. Depressants
2. Stimulants

3. Opioids
4. Hallucinogens

Depressants

Depressants can lead to reduced tension, decreased anxiety and muscle relaxation. Depressants include: Benzodiazepines, alcohol, cannabis, etc.

Stimulants

Stimulants can lead to elevated alertness, more prominent energy, excitability, euphoria, elevated heart rate and blood pressure. Examples include: Caffeine, nicotine, cocaine, amphetamine, etc.

Opioids

Opioids are obtained from poppy plants or synthetically. They can lead to confusion, euphoria, drowsiness, relief from pain. Examples include: Morphine, codeine, etc.

Hallucinogens

Hallucinogens can lead to depersonalization, paranoia, elevated blood pressure and heart rate[6].

Examples include: Psilocybin from mushrooms, ketamine, dextromethorphan Peyote (mescaline)

HISTORY OF PSYCHOPHARMACOLOGY

Beginning Of the Term Psychopharmacology

The term psychopharmacology was first proposed in the year 1548. It was a revived term which was used by Reinhard Lorichius in 'Psychopharmakon, hoc est Medicina animae' (Wolman 1977). Then 400 years later, i.e., in 1920 the complete term psychopharmacology was first used by a pharmacologist, D. Macht who worked at Johns Hopkins. He conducted pharmacologic experiments using opium narcotics and coal tar analgesics etc., much as Krapelin as early in 1883 has done with alcohol and caffeine in Wundt's laboratory and called it Pharmacopsychologie. In 1931, W. Freeman wrote a general paper in the journal of the American Medical Association which was called Psychochemistry[4]. Then in 1935, first paper resembling the modern concept of 'Psychopharmacology of Sodium Amytal in Catatonia' was published, which described the use of sodium amytal that led to pupil constriction, fall in temperature and blood pressure in catatonic patients[4].

Prehistory of Modern Psychopharmacology

Psychopharmacology emerged in the early nineteenth century with the experimental and recreational human use of organic drugs and medicines. The asylum physicians of the nineteenth century were famous for their liberal utilization of sedatives and hypnotics. These included drugs such as narcotics, bromide, hyoscine, chloral hydrate, paraldehyde, etc. Physicians hardly ever claimed that these medications really treated mental illness, instead they sedated and calmed.

Occasionally, specifically at its initial introduction, one reveals an enthusiastic document based on the effects of a specific sedative drug. For example, the effects of hyoscine were written by Drapes (1889, p. 942) as: "It is incomparably superior to the older sedatives, such as morphine and chloral, and none of the newer ones, in my opinion, approach it in value as a remedy for controlling paroxysms of furious excitement and turbulent maniacal outbreaks". But this enthusiasm for hyoscine became short lived. Henry Maudsley, the well-known late nineteenth century British psychiatrist wrote that: "the reports of its successes, when examined, are mostly naive reports of its success, not in curing but in quieting the patients"[2,3].

Emil Fischer and Joseph Von Mering in 1903, discovered barbiturate acid and its derivatives. These barbiturates were among the first new psychotropic drug discoveries in the twentieth centuries. In the 1930s and 1940s, the researchers became progressively interested in the synthesis of antihistamines. In 1947, Charpentier developed promethazine and in 1950, December 11 he synthesized R.P. 4560 (chlorpromazine)[2].

The Golden Age of Psychopharmacology

1950 marked the beginning of modern psychopharmacology with the synthesis of chlorpromazine[10]. It was the first psychoactive drug that the psychiatrists believed truly treated mental illness instead of simply masking the underlying diseases. During this decade more psychotropic drugs such as antipsychotics, anxiolytics, antidepressants, etc., were synthesized and marketed by the pharmaceutical industries.

Another drug with similar clinical properties as that of chlorpromazine was synthesized by Ciba in 1953 and was named as reserpine. It was derived from the active salt of plant Rauwolfia serpentina which was commonly used in India for centuries mainly for snake bites, fever, hypotension, etc. More than a dozen of phenothiazine such as Sparine, Vesprin, Tentone were synthesized, tested and brought into market by pharmaceutical industries in 1964[2].

In 1956, Heinz E. Lehmann coined the word 'antipsychotics'.Geigy introduced the drug imipramine, which is a tricyclic antidepressant, in 1957 in Switzerland and in 1958 first American publication appeared in relation to imipramine by Ronald Kuhn.

In 1951, minor tranquilizer meprobamate was synthesized and was launched in the trade name Miltown. One of the most famous drugs, diazepam, which belonged to the class of benzodiazepines, was synthesized on October 26, 1959 by Strenbach.

Over these decades the prescription of these antianxiety, antidepressant and antipsychotic drugs became a common practice among the psychiatrists. The next thirty years had been committed to medical trials to illustrate the effectiveness of every class of drug and drug sub category. After the

1960s, the field of psychiatry shifted to include the indications for and effectiveness of pharmacological treatments and began to target the use and adverse effects of these medications.

The 1970s and 1980s began to include a better understanding of the mechanism of action of each and every medication[2].

In 2002, clozapine was approved for the treatment of recurrent suicidal behavior in case of schizophrenia by FDA. The proportion of suicidal behavior was found to be reduced after the usage of clozapine as per the two years follow up report and in 2019, FDA approved eskatamine which is an NMDA antagonist, an intranasal formulation of ketamine, for using in combination with newly synthesized antidepressants for treatment resistant depression in adults[5,20].

Adolescent and Youth Suicides

WHO defines 'Adolescents' as individuals, who belong to the age group of 10-19 years and 'Youth' as the ones who belong to the age group of 15-24 years. While 'Young People' are included in the age group of 10-24 years. From the 6.7 billion of the total world's population, more than 1.5 billion people belong to the age group of 15-24 years.

Adolescence is a critical period, which is marked by physical, psychological, cognitive, behavioral and social transitions. It is the link between childhood and adulthood. Along with these transitions various psychiatric disorders are also associated with adolescence, i.e., greater risk of sexual and mental abuse, depression, anxiety, sleeping and eating disorders, embarrassment, etc. Similarly, Youth is also a time of development in which children break their protective shell and begin to fly in the world of hope and dreams. They are the future of the world. But there are various factors which affect these individuals too. These can have a negative impact in their lives and can lead to suicide ideation.

Figure 3: Silent suffering

Suicide is a fatal, self-injurious act with few evidence of motive to die. The word 'Suicide' is derived from the Latin word suicidium, in which Sui means 'of oneself' and Cidium means 'a

killing'. That is suicide means the deliberate killing of oneself. The main intention of suicide is to end one's life permanently. Self-injurious behaviors may lead to suicides accidently even the intension was not suicidal[23].

Suicide is more common among older people than among younger people, but remains the second leading cause of death among the adolescents and youth. Each year more than 80,000 people die due to suicide worldwide. In 2015, the suicide mortality rate was about 10.7 per 100,000, that is, in every 20 seconds death occurs and in 2016, it was the leading cause of death. Among the total population about 2.5% attempt suicide during their life time, that mostly include youth than adults.

Suicidal thoughts may be either temporary or chronic, that include people with passive suicidal thoughts for many years without trying to do so. Suicidal comments, self-harming behavior and suicide attempts can be associated with various negative problems such as mental disorders, poor educational and vocational outcomes, etc. So, it is important to take effective measures for its prevention and provide awareness.

INTERNATIONAL APPROACHES FOR UNDERSTANDING SUICIDES

Almost 100 years ago, a most comprehensive definition was designed for suicide by Emile Durkheim, i.e., "Suicide is any death that is a direct or indirect result of a positive or negative act committed by the victim himself, if the victim knew about the expected results". In 1897, he conceptualized suicide as the result of four different factors which include ideas of community integration, sacrifice, lack of understanding values and principles of life and desperation.

In 1897, E. Durkheim was the first to study about suicidal behavior. According to him, there existed three types of suicidal behaviors:

1. Anemic suicidal behavior - which is associated with the life situation, crisis and personal tragedies.
2. Altruistic suicidal behavior - which is conducted for the benefit of others.
3. Selfish suicidal behavior - which is due to conflict, interpersonal and within personal reasons.

He also divided suicidal manifestations as: suicidal tendencies, suicide attempts and completed suicides.

Russian psychological science includes various interesting approaches explained by A.G Ambrumova, N.D. Kibrik, E.M. Bruno based on youth suicides. They provide significant difference between adolescent and adult suicide:

1. Lack of actual desire and truly understood cause of suicide. That is, children or adolescents are not able to explain the motive which made them choose that decision.

2. Lack of ability to express their own feelings and experience with others and inability to respond. This leads to increased negative thoughts and results in depression[11].

As noted by Yu.V. Popova in her research, prolonged stress, negative atmosphere within family and lack of positive energy can end up by self-destructive behavior which is a temporary way to solve problems and in future adolescents react to any problem in the similar way.

In Russian Suicidology, the theory of A.G. Ambrumova (1983) is mostly considered. It includes the features of suicidal behavior in adolescence:

1. Insufficient evaluation of the result of auto aggressive action.
2. Insignificance of motives especially from the point of view of adults, maybe a great reason of adolescence suicides.
3. There exist a connection between attempted suicide and deviant behavior such as alcoholism, conflicts with parents, truancy, drug addictions, etc[11].

Also, there are many promising approaches which particularly focus on the area of prevention.

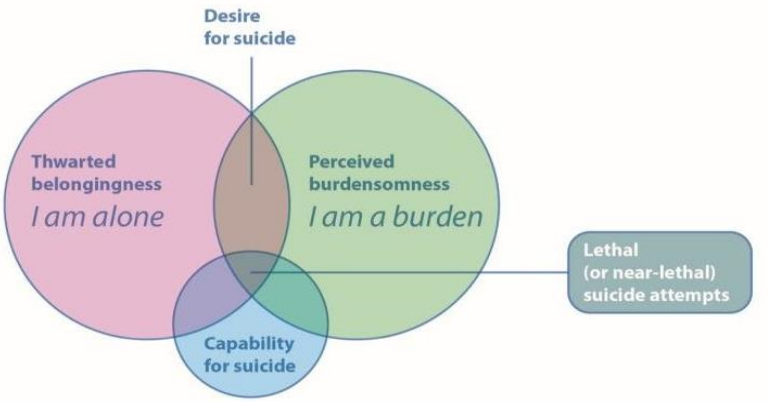

Figure 4: The psychology of suicidal ideation

PSYCHOLOGICAL REASONS AND RISK FACTORS FOR SUICIDE MOTIVATION IN

Adolescents and Youth

The young people, especially during the period of adolescence, by nature are vulnerable to mental health problems. During this period, they need to additionally cope with new demanding situations with reference to constructing their personal identity, growing self-esteem, obtaining increasing independence and responsibility, constructing new intimate relationships, etc., because meanwhile they are subjected to ongoing change in psychological and physical processes. In addition, they often face high, sometimes excessive, expectations from significant relatives and partners. Such situations inevitably lead to some level of helplessness, insecurity, stress and a sense of loss of control. To cope with these demanding situations and efficiently deal with these emotions, youth

should have access to significant support resources, such as a stable living situation, close friendships, a structural framework and financial resources.

Figure 5: Understanding Suicide

Risk factors are the factors that support these resources. Whereas protective factors strengthen, protect and defend these resources and provide support against these risk factors. There are numerous factors that contribute to suicide, and ultimately each suicide occurs to highly unique, dynamic complex interplay of genetic, biological, psychological and social factors. However, it is possible to spot the different types of factors that can lead to youth suicide thus can be highly relevant to take preventive measures[22,28].

There are multiple factors that can trigger suicidal behavior commonly in adolescents and youth:

In accordance with the Government of India (NCRB, 2014), the major cause of suicide i.e., about 21.7% and 18.0% of total suicides, include 'other family problems' and 'illnesses'. Other reasons include 'love affairs' (3.2%), 'drug abuse or addiction' (2.8%), 'failure in examination' (1.8%), and 'unemployment' (1.7%)[23].

Figure 6: Suicide Risk Factors

The most common factors are:

1. Psychiatric disorders
2. Previous suicidal behavior
3. Family issues
4. Hopelessness
5. Psychosocial factors
6. Physical and sexual abuse
7. Contagion-imitation
8. Specific life event-traits
9. Neurological factors
10. Accessibility of means
11. Personality traits
12. Hormones

Psychiatric Disorders

According to most of the studies, the majority of adolescent and youth suicidal tendencies are linked with psychiatric illness. It contributes to 47-74% of the total suicide risk. Affective disorders are the major disorders that are associated with suicidal behavior, which commonly include bipolar illness and depressive disorders. In females, depression is found in about 50-65% of suicide cases. Whereas, in males, mostly substance abuse, addiction and alcohol misuse are associated with suicides.

Attention deficit disorder, major depressive disorder, bipolar depression, post-traumatic stress disorder and conduct disorders are included in the risk factors of suicidal behavior. Borderline or antisocial personality disorders are also a major risk factor. According to various studies, it was found out that three out of four individuals who suffer from borderline personality disorder will engage in suicidal behavior[21]. A wide range of mortality have been reported due to borderline personality disorder as per the report of psychological autopsies. Individuals with this disease try to attempt suicide at least three times in their lifetime and 10% of the patients will complete suicide[21].

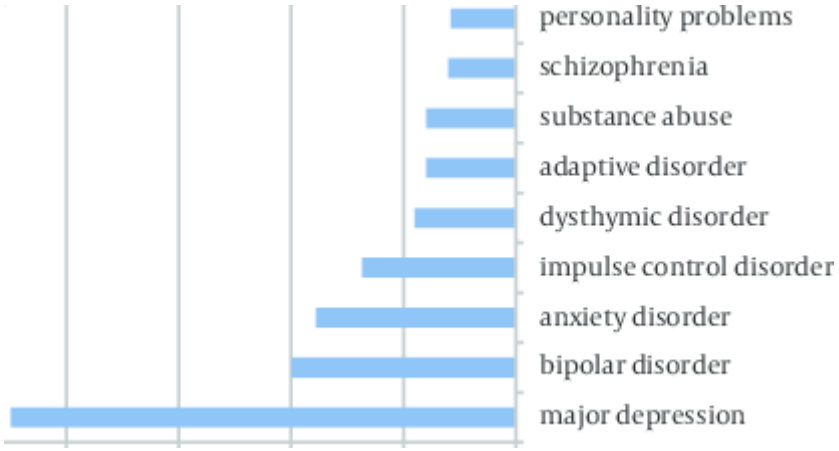

Figure 7: Psychiatric Disorder in Suicide Attempters

Suicide is also a reason for death in young people with eating disorder, anorexia nervosa, schizophrenia. Persons suffering from schizophrenia commonly choose a nonviolent method for attempting this particular point was supported by Symond and his colleagues (2006) in their work. Connections have been found between suicide and anxiety disorders but the influence of mood and substance abuse disorders that are often present in these cases are difficult to assess[24]. As reported by Brent et al. (1988) about one third of the adolescent suicide victims had undergone some mental health treatment and this may be due to problems in school and with family[26].

Previous Suicidal Behaviours

One of the best predictors of suicidal death is a previous suicide attempt. Many studies indicate that suicide attempters or persons with the history of self-harm are more likely to commit or attempt suicide in future. About 25-33% of all the suicide cases are preceded by a previous suicide attempt, which is more common among boys than girls. They show a 30-fold increased suicide risk when compared with boys those who have not attempted suicide. As per the prospective study report it was found that, among the people attempting suicide 1-6% die by suicide in the first year itself [21,26].

Family Issues

According to various studies several risk factors in relation to family structure and processes have been linked to suicidal behavior. Mental disorders can be evolved in children as a result of family members who have committed or attempted suicide. In 50% of the youth suicide cases, it is estimated that the influence of family factors is high.

Lack of communication with the child or about the child's problem within the family is seen in many suicide cases. Direct conflicts with parents can also be a reason. Violence at home can be found in the background history of most cases. Parental divorce may be associated with financial

and socio-economic issues when living in a single parent background. It can mentally affect a child's behavior and also there may be chances of feeling embarrassed when being with other children and these reasons can also be a suicide motivator[21,26].

Hopelessness, Loneliness, Alienation and Communication Difficulties

According to Rudd et al. (1994), hopelessness is a major factor which connects depression and suicidal intend. It gives a feeling of being defeated and weak which makes them say no escape from their worries. People who are able to share their feelings with their friends, family members or others have benefits in various ways. Communication helps in enhancing relations, reducing the level of stress and traumatic events. But when communication fails, the risk of suicide increases[23]. According to various studies, suicidal behavior and communication difficulties such as loneliness, social withdrawal, lack of support is isolation are related. Joiner (2005) in his well-known interpersonal theory explain the relationship between mental pain and communication difficulties which can lead to suicidal behavior [22,27].

Psycho Social Factors

Alcohol and drug abuse can be seen as a major factor which affect cognitive, familial, social and behavioral functioning and can lead to suicide motivation. After facing major stresses youngsters tend to depend on alcohol and drugs and it becomes a habit, which builds and indirect relationship between suicide. Therefore, increase in psychological stress and stressful life events are also the reasons for suicide ideation. Hopelessness, negative self-concept hostility and isolation are also among the major risk factors[21,26].

Physical and Sexual Abuse

Exposure to child physical and sexual abuse can lead to a noticeable increase in the occurrence of poor mental health such as suicidal ideation and behavior commonly among the age group of 16-25. Studies explains that, approximately 50% and 30% of suicide attempts are due to physical and sexual abuse, witnessed domestic violence, etc. According to Brezo et al. non-fatal suicide behavior is more among abused children when compared in non-abused children[26].

Contagion-Imitation

Spreading of infectious diseases are meant by contagion. Younger people are more prone to contagion by the behavior of others. It is more commonly seen in youngsters than in older people.

Imitation means learning by modeling or copying a model's behavior by observing them. The imitating effects depend on various factors:

Initially, the characteristics of the model are vital. That is, there exists a strong similarity between the model and the young person such as age, life events, gender, background situations, mood status, etc.

Second, the behavior of the model towards these events does matter. The more the behavior of the model remains positive, admirable, brave and appreciable, young people tend to imitate it.

Third, the frequency and the manner of expressing the model's behavior is also important. This includes the size and number of headlines, number of repetitions, etc[21,26].

Specific Life Event-Traits

Some specific life events are important risk factors associated with suicide mostly in youth. As we know, youth is a period which includes new challenges, building their own identity, intimate relationships, establishing self-confidence and so on. During this period there may be interpersonal losses such as relationship breakups, rejection from peer groups and death of friends or family members, which will show a great impact in their lives. About one fifth of the youth suicide cases are based on these reasons[21,26].

School and family are also seen as an important domain linked to suicide related stressors. 14% of suicide cases are reported on the basis of academic stress and school problems. Acute conflicts with parents or other family members are also a reason for 40% of cases. Other most commonly seen stressful events include mental or physical or sexual abuse, bullying, cyber bullying, etc.

Neurological Factors

Kamali, Oquendo and Mann (2001) found out that deficient serotonergic function is a reason for high bond between impulsive aggression and suicides. It is also reported that, suicide attempts using lethal methods are often associated with low serotonin activity[23].

Accessibility of Means

Availability or accessibility of means for committing suicide determines the lethality of the action. Children usually commit or attempt suicide by hanging, poisoning by using already saved drugs, running into traffic or by jumping from heights, which can be due to an availability of these means. Also, usage of firearms is commonly seen. Cognitive availability of detailed suicide reports can also be a factor. According to some studies it is said that restricting the availability of these means can be a method of preventing suicide attempts[20,26].

Personality Traits

According to various studies it is said that there is a relation between impulsivity and aggression with suicidal behavior. Persons with impulsive aggressive behavior are found to use a violent method for suicide and is most commonly seen among males than females. Gender is also a factor

that relates suicide attempts and lethality of the attempts. It is commonly seen that suicide is more prevalent among men and non-fatal suicidal behaviors are more prevalent among women. Suicidal behavior can also be associated with antisocial personality disorder and borderline personality disorder. Persons who have suicidal tendency are seen more rigid and external events influence their decisions[26].

Hormones

According to various studies, it is found that higher level of serum progesterone is related to suicidal risk. It is said that the risk of suicide in women is more when the level of progesterone or estrogen is low. Also, it is reported that, the level of Corticotrophin releasing hormone is high in the brain of people who die by suicide[25].

MEANS ADOPTED FOR COMMITING SUICIDES

1. Hanging
2. Poisoning
3. Drowning
4. Jumping from heights
5. Consuming sleeping pills
6. Self-inflicting injury
7. Firearms
8. Railways or running vehicles
9. Fire or self-immolation
10. By other means

Figure 8: Loop of rope for suicide

According to NCRB data (2014) the methods adopted for committing suicide were hanging (41.8%), poison consumption (26.0%), fire/self-immolation (6.9%) and drowning (5.6%)[23].

WARNING SIGNS OF SUICIDE AMONG ADOLESCENTS AND YOUTH

- Making comments based on being helpless, hopeless or worthless
- Feeling empty or a feeling of unbearable emotion
- Feeling of depression
- Withdrawal from family, friends or community
- Talking about being a burden to others
- Hurting oneself
- Sudden change in mood, personality, etc.
- Threats
- Increased drug or alcohol abuse
- Change in eating or sleeping pattern
- Previous attempts
- Usage of suicidal themes
- Self-laceration
- Writing suicide notes[18,29]

Figure 9: Suicide: Suicidal Signs, Behavior, Risk Factors

STATISTICAL EVALUATION

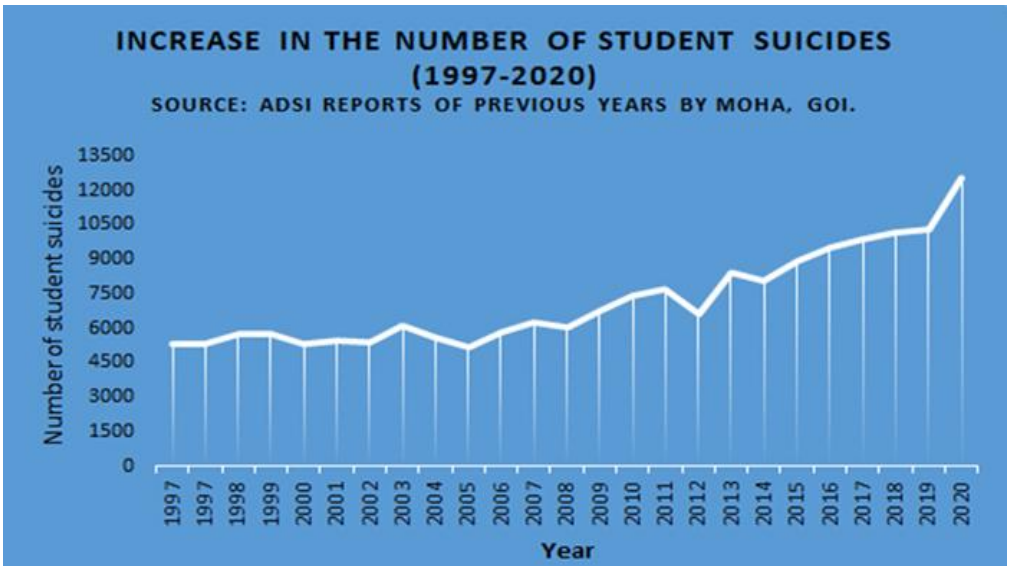

Figure 10: Statistics of student suicides

The rate of adolescent and youth suicides are being increased year by year. In 2013, the total number of suicides was about 46,368 which raised to 54,100 in 2014 i.e., there is a percentage increase in the number of suicides from 2013 to 2014. As per studies it is said that, the rate of suicide among the age group of 15-25 will increase in the further years**.**

Causes of Suicides

Among the total suicides in 2020 about 33.6% and 18.0% are due to 'family problems' and 'illnesses'. 6.0% of the suicide rate are due to 'drug abuse', 5.0% are due to 'marriage related issues', 4.4% are due to 'love affairs', 3.4% are due to 'indebtedness', 2.3% are due to 'unemployment', 1.4% are due to 'failure in examination', 1.2% are due to career problem and 1.2% are due to 'poverty' [30,31].

Contributing Factors	Percentage (%)
family problems	32.4
Illness	17.1
Drug abuse/alcohol addiction	5.6
Marriage related issues	5.5
Love affairs	4.5
Bankruptcy or indebtedness	4.2
Failure in examination	2.0
Unemployment	2.0
Professional/career problem	1.2
Property dispute	1.1
Death of dear person	0.9
Poverty	0.8
Suspected/illicit relation	0.5
Fall in social reputation	0.4
Impotency/infertility	0.3
Other causes	11.1
Causes not known	10.3

Figure 11: Percentage Share of Various Causes of Suicides during 2019

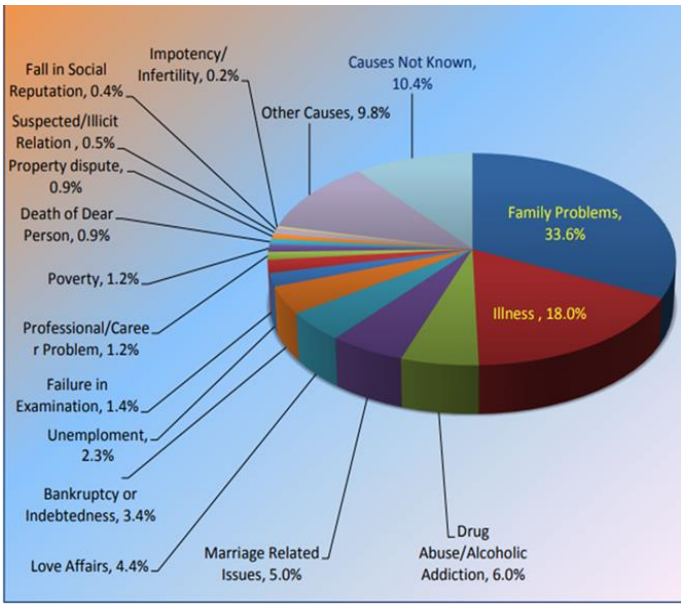

Figure 12: Contributing factors to Suicides in 2019

MEANS ADOPTED FOR COMMITTING SUICIDE

The means adopted for committing suicide varies depending on the availability of means and the mindset of a person[31].

SL.	Means/Mode Adopted	Percentage & Number	
		2019	2020
(1)	(2)	(3)	(4)
1	Consuming Sleeping Pills	0.5% (753)	0.6% (882)
2	Drowning	5.2% (7,208)	5.2% (7,977)
3	Fire/Self Immolation	3.8% (5,234)	3.0% (4,603)
4	Firearms	0.3% (428)	0.3% (444)
5	By Hanging	53.6% (74,629)	57.8% (88,460)
6	By Poison	25.8% (35,882)	25.0% (38,336)
7	By Self inflicting Injury	0.6% (828)	0.3% (457)
8	By Jumping	1.5% (2,034)	1.2% (1,843)
9	By Coming under Running Vehicles/Trains	2.4% (3,337)	1.7% (2,626)
10	By Touching Electric Wire	0.5% (752)	0.4% (629)
11	By Other Means	5.8% (8,038)	4.4% (6,795)
12	**Total**	**100.0**	**100.0**

Figure 13: Percentage of means/mode adopted by victims commits suicide during 2018-2019

MEASURES FOR YOUTH SUICIDE PREVENTION

Protective Factors in Suicide Prevention

Protective factors are the positive factors that reduces the tendency of attempting suicide. These factors are skills, strengths or resources that make people deal with their stressful events more effectively[12,13.28]. These include personal and environmental factors.

Figure 14: Protective Factors

Internal / Personal Protective Factors

- Dominant attitudes, norms and values prohibiting suicides
- Life skills such as good decision
- Life skills such as good decision making, anger management and problem solving
- Optimization for future
- Good friends and supportive family members
- Maintaining good health
- Strong feeling of self confidence
- Cultural, religious or spiritual ideology which discourage suicide
- Good impulse control
- Aim for life

External/Environmental Protective Factors

- Maintaining a strong interpersonal bond mainly with parents, family members and other caring elders
- A stable environment
- Improved participation in school in school or community activities
- Restricted access to lethal means
- pets

Protective factors play a major role in decreasing suicide risk and maintaining these factors throughout the life will help in improving the approach towards stressful events. But these

protective factors are not only enough for providing resistance against suicidal behavior. So, programs that support and maintain suicide prevention should be conducted[17].

Role of School in Prevention of Youth Suicides

Schools are recognized as a logical place for promoting suicide prevention. It is the place for supporting, identifying and studying youth who need mental support. According to Kalafat, school is the place which is responsible for education, socialization and protection of youth. So, it is the responsibility of the school system to provide activities related to suicide prevention and also provide a caring and positive atmosphere that promote interpersonal connection, positivity and mental well-being which acts as the protective factors. One of the most important goals of the school philosophy and all teachers, who work with youth is to protect their mental and physical health and also conduct activities which discourage substance use, bullying, violence and academic failures.

Figure 15: Toolkit for Mental Health Promotion & Suicide Prevention

According to the law of the Russian federation, the school psychologists are primary involved in suicide prevention in schools. Psychologists can act by interactions with the entire system of school and also by interagency interaction with social, medical or other authorities. The aim of an effective psychological work should be to understand himself, improve self-confidence, identify his own emotions and enhance active communication with colleagues and fight his problems with courage. Therefore, to improve the psychological competence of teachers it is essential to conduct workshops and lectures for teachers based on suicide and its prevention[11].

Some students may seek the help of teachers who they trust the most, so these psychologists/teachers/social workers should have access to all related information and should help that particular student by reducing their risk. They should invite their parents independently day and should inform them about these risk factors and together they should help the student out. So, educational programs based on these topics should be conducted for parents/guardians to educate them. Counselling the students along with their parents should also be conducted[14].

In an educational system, classmates are the ones who can easily identify the changes in mood, gloominess, withdrawal, fresh cuts, etc., of a student. So, providing knowledge to the students based on these types of behaviors can help them identify the students who are at risk and provide help to them and thus inform their respective teachers.

The main objectives initiated for suicide prevention in schools include:

1. Conduct evaluation to identify students at risk and graduate them and to ensure that teachers and psychologists have all information for them.
2. Training programs should be conducted for teachers and other staff to identify the students who are at risk and are problematic.
3. Training programs should be provided for parents.
4. Training programs for school partners such as police officers and social workers should also be conducted[11].

ROLE OF PARENTS IN PREVENTION OF YOUTH SUICIDES

Figure 16: Help Prevent Suicide

Parents can do several things for preventing youth suicides. A young person who has a great bond or relationship with their parents will be less prone to the risk of suicide. A good relationship between the youth and his/her parents will open up a good communication between each other. This communication can be life saving for the depressed or troubled teenagers.

Parents can help their children by:

- Providing a safe, stable physical and emotional home environment
- Spending more time with them
- Listening to them
- Encourage them to show all their emotions such as happiness, sadness, excitement, anxiety, etc., both their positive as well as negative feelings should be accepted.
- Make them feel comfortable
- Respond with empathy and understanding
- Resisting the availability of means

- Seeking the help of a psychologist

Resources for Suicide Prevention

Figure 17: Suicide prevention and resources

- National Suicide Prevention Lifeline
- American Foundation for Suicide Prevention
- Veteran's Administration Suicide Prevention
- Suicide Prevention Resource Center
- Indian Health Suicide Prevention Program
- American Foundation for Suicide Prevention
- American Association of Suicidology
- Society for the Prevention of Teen Suicide
- International Association for Suicide Prevention
- Suicide Risk Factors, Substance Abuse and Mental Health Services Administration
- World Health Organization - Suicide Prevention
- Suicide & Self Harm Injury Data, Centers for Disease Control and Prevention.
- Crisis Text Line
- The Dougy Center- The National Center for Grieving Children and Families
- How to Talk to a Child about a Suicide Attempt in Your Family (Rocky Mountain MIRECC)
- The Jed Foundation
- The Jason Foundation
- Mental Health America
- Man Therapy
- Lifeline Chat
- National Action for Suicide Prevention

- National Suicide Prevention Lifeline
- National Organization for People of Color Against Suicide
- Now Matters Now
- Safety Planning Tools
- SAVE
- The Society for the Prevention of Teen Suicide
- Suicide Prevention Resource Center
- Teens's Health
- The Trevor Project
- Stop Bullying
- The Tyler Clementi Foundation
- Veterans Crisis Line
- Wounded Warrior Project
- BeThe1To
- IMAlive
- Worldwide Suicide Prevention Chats
- THRIVE app
- National Institute of Mental Health
- National Child Traumatic Stress Network
- U.S. Department of Defense Suicide Prevention
- National Action Alliance for Suicide Prevention
- U.S. Department of Veterans Affairs (VA) Suicide Prevention
- SAMHSA's National Helpline (Substance Abuse)
- Better Help
- To Write Love on Her Arms
- Mayo Clinic

MEDICATIONS FOR AVOIDING SUICIDAL RISK

There are various protective factors, resources and suicide prevention programs which promote suicide prevention. Along which all these factors, medications also play an important role in avoiding the risk of suicide. Although there are only limited evidence of reduced suicidal behavior or thoughts after the usage of psychiatric medications such as neuroleptics, lithium,

antidepressants, etc., a decrease in the long-term suicide risk is observed in patients with mood disorders[15].

Lithium

Lithium is an important mood stabilizing agent. It is said that, the anti-suicidal effects of lithium are by reducing the changes in mood and also by reducing the risk of suicide and self-harm. It is mainly prescribed for patients diagnosed with unipolar depressive disorder and bipolar disorder. While prescribing lithium, it is important to avoid or use caution for patients diagnosed with impaired renal function.

Antidepressants

Suicide tendency can be due to poor mental health, mood disorders, etc., Antidepressants are one of the most important medications which is mainly suggested for a patient who show suicidal risk as a part of depression. In prior to prescribing these medications, it is essential to diagnose the patients with depression.

Benzodiazepines

Benzodiazepine is the choice of drug for helping suicidal patients with high level of anxiety and agitation. But there is a chance of developing tolerance with time. So, for avoiding tolerance, longer acting drugs like clonazepam are mostly suggested.

Antipsychotics

These are not often used for acute suicidality but have a remarkable role in reducing acute symptoms which cause emotional dysphonia. The most commonly used drugs include clozapine, which is FDA approved and used for patients with schizophrenia developing suicidal behavior[16].

CONCLUSION

Suicide is a complex and a concerning problem that rise due to the interaction of various factors. It occurs most commonly among older people but still it is the second leading cause of death among adolescents and youth. Therefore, it is important to study about the risk factors that can lead to suicide and initiate prevention strategies such as awareness programs, improving care for persons who are at risk, etc., for reducing the risk of suicides.

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