DIFFERENT METHODS OF SUICIDE: A REVIEW
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ABSTRACT: There are different ways for suicide, which widely varies from one region to another. Among the world, India still is the single largest country to face large number of suicide cases. Being a forensic expert, knowledge of different methods of suicide as well as to differentiate suicidal deaths from other types of death like homicidal and accidental death is essential. Programmed death chooser can use various methods viz. physical as well as chemical to end their own lives. Attempted suicide is an unlawful act and a person is held responsible for the immediate consequences of the act. A thorough review has been made to provide a brief explanation of each of these methods along with its medico-legal impact.

KEY WORDS: Forensic, Suicide, homicidal, physical, Chemical, Medico-legal.

INTRODUCTION: Intentional taking of one’s own life is suicide. As per data available in National Crime Records Bureau (NCRB) report for the year 2011, it is estimated that over 100,000 people die by suicide in India every year. The suicide rate in India has been increasing steadily and has reached 11.2 (per 100,000 of population) in 2011 registering 78% increase over the value of 1980 (6.3). Pattern of suicide in one particular region depends upon various factors like age, sex, availability and access of methods, the socio economic condition as well as prevailing culture and religious customs. By knowing the different methods of suicide in particular region we can prevent various death by giving training to health personnel as well as to suggest preventive measures for such.

It is utmost important for investigating officers to be aware of such common scenarios, risk factors, methods and victims as well as pitfalls that may be encountered during the process of investigation. Shooting, hanging, stabbing are a ‘hard’ way of committing suicide and are typically a male choice; while poisoning and drowning are ‘soft’ ways of committing suicide. Frequently encountered methods of suicide which we meet regularly in medico-legal practices are broadly categorized into physical methods and chemical methods (poisoning). Generally suicide use one method but some of the suicide use combination of both methods. Below a brief of different methods for suicide along with its medico legal values are highlighted.
DISCUSSION:
SUICIDE BY PHYSICAL METHODS:

HANGING: Hanging is a common method of committing suicide. It is a form of violent asphyxial death where death occurs due to constriction of air passage at the level of neck by suspension of body with the help of ligature around it, the constricting force being the weight of body as a whole or a part of it. It differs from strangulation by ligature, where neck is constricted by some external forces. It is very important for autopsy surgeon to differentiate hanging from strangulation by ligature, as hanging is ordinarily presumed to be suicidal unless the circumstance and other evidences are strong enough to rebut the presumption and strangulation is usually homicidal.  

Very often a suicide failing in other methods may lastly resort to hanging. In such cases evidence of some other adopted means like cutting of wrist, poisoning etc may be forthcoming. corroborative evidence in favor of suicidal hanging may be gathered from the facts like presence of suicidal notes in the handwriting of deceased, place of occurrence being a secluded place, easily approachable point of suspension and easily accessible ligature material usually some household articles or belongings of the victim.

Although hanging is a popular means for suicide in India, the attempt frequently does not result in death. A study conducted at Manipal, India, twelve cases of hanging were studied during the period of 1985-90, where eleven suicidal, among them ten recovered completely.

Although strangulation by ligature is commonly homicidal; it may be suicidal in few cases. The application of ligature with several turns, whether closed with a half-knot or even a complete knot is consistent with suicide. The ligature mark in hanging can almost always be distinguished from ligature strangulation unless under rare circumstances where the ligature breaks at a point between the knot and point of suspension and the victim is found in some open space under a tree or something like that. In case of hanging the loop is likely to slip up until it is held by the jaw and therefore the location of the mark is above larynx in a vast majority of cases.

Sometimes a cord may be tied around the neck and twisted tightly by means of stick or some other solid material used as a lever. When consciousness is lost, although a grip on stick is released, the ligature will not become loose as it get arrested against some body part. This is called "Spanish windlass Technique". This is usually suicidal.

The sexual asphyxia or masochistic must be carefully evaluated from suicide and homicide. Victims are usually adolescent males, usually nude or wearing female clothing's at times mirrors or cameras may be used to see the event by themselves. Nude photographs, pornographic literature may be found at place of occurrence. Such a thing tells about some form of sexual perversion and mental eccentricity and in most of the cases death are accidental. Mislabeling the same a suicide may have implication in insurance and inheritance.

Burn: suicide by burn is prevailing our country since long time in the form of SATI. Suicidal bride burning have presently taken a new magnitude and it seems to be becoming more and more popular day by day though this methods is very painful one. In India suicide by immolation in domestic environment is much more common in female. These are generally committed inside kitchen, bathroom or bedroom. In such suicidal burn usually some inflammable fuel like kerosene, Petrol is used. In one case of postmortem examination performed at Kolkata (The then Calcutta) Police morgue the mouth of deceased was seen to be gagged by piece of napkin apparently to prevent herself from crying herself during the process of immolation. A study conducted at New Delhi on pattern of suicide had resulted that the
number of female suicides was more than male and the most common methods adopted was self-immolation. Some of the emotional people commit suicide impulsively by self immolation in protest against some social injustice at open public places. These are regularly highlighted in various mass media in these days.

**DROWNING:** It is a form of violent asphyxiation where air entries into the lungs are prevented due to submersion of mouth and nostrils into water or any other fluid medium. Drowning was the commonest mode of committing suicide. Suicidal drowning is very common in India especially by the women-folk in the rural side and more particularly in the localities nearby sea, river, pond and canals. Some of the suicide may tie his/her hands and legs together (more common in swimmer) or attach heavy weight with the body before immersion. suicidal drowning may be preceded by swallowing of the poison, cutting the throat or other suicidal attempts.

Complete submersion is not necessary, only submersion of nose and mouth alone for sufficient period can cause death from drowning. If a dead body found in water is attached with heavy weight to it, case may be either homicide or suicide; and with children homicide alone. In about 10%-20% of deaths due to drowning no water is found in the lungs during the postmortem examination. These are the cases where death actually occurs due to drowning yet lungs remain dry. This may be either due to laryngeal spasm or if death occurs due to vagal inhibition of heart before complete submersion of body in water.

During the autopsy diagnosis of drowning can pose problem, as findings are often minimal, obscure or completely absent. Drowning is one of the most difficult modes of death to prove at postmortem especially if body is not examined in fresh condition. Diagnosis is basically one of exclusion, when all the findings including toxicological analysis are negative, cause of death may be given as “consistent with drowning” or even to admit the cause of death is “undetermined”.

**FIREARM INJURIES:** Even if all the information like autopsy findings, the investigation of scene of death and circumstances of shooting is made available, sometimes distinction between Suicidal, Homicidal and Accidental shotgun injuries cannot be made through it is one of the important questions asked by investigating officers. Suicidal gunshot wound are commonly located on easily approachable areas of body like over temple (about 60%); centre of forehead, root of mouth, behind the chin and pericardium. Suicides usually use short hand-rest Weapon. Evaluation of range of fire is important, as distant shot are generally not self inflicted unless especially designed for that purpose. A contact wound is possibly suicidal unless found on a part of body which is not easily reached by deceased. Suicides usually pull the cloths aside to expose the skin before shooting. When multiple suicidal wounds are fired serially, the injury by the first shot do not incapacitate the victim immediately. In these cases degree of incapacitation result from each shot must be determined so as to mark out the fatal shot.

The gun may be held in the tight grip in state of Cadaveric spasm of the hand used indicting suicide. In every firearm injuries the motive of a person who commits suicide photograph of scene, the body & the gun must be taken into consideration before deciding the nature of wound in firearm injury.
“Russian roulette” is a potentially lethal game of chance in which a player places a single round in a revolver, spins the cylinder, places the muzzle against his head, and pulls the trigger. "Russian" refers to the supposed country of origin, and roulette to the element of risk-taking and the spinning of the revolver’s cylinder being reminiscent of spinning a roulette wheel. Because only one chamber is loaded, the player has only one in \( n \) chance of hitting the loaded chamber, where \( n \) is the total number of chambers in the cylinder. Few authors considered the death here as accidental, but Spitz and Fisher opines these deaths as suicidal\(^\text{17}\).

**SUFFOCATION:** It is a form of violent asphyxial death in which death occurs due to prevention of entry of air in the lungs by any means other than construction of neck or drowning\(^\text{24}\). Suffocation & Plastic bag suicide greatly increased in these days in U.K. as the means being easily available. These types of suicidal deaths are commonly encountered depressed person and in prisoners\(^\text{18}\).

**STABBING & CUTTING:** It becomes very difficult to say stabbing and cutting are suicidal as most of these injuries are homicidal unless the contrary is proved. Meticulous examination of position, characteristics of injuries and circumstances of injuries must be evaluated in the mind before committing the manner as suicidal. Even after this it may not be possible for autopsy surgeon to give opinion in this regard in every case. These types of suicidal wounds are generally found over accessible areas of body. Wounds found on the part of body usually covered by clothes without corresponding cuts or rents on them are commonly suicidal. Suicidal wounds are usually incised or punctured rarely lacerated. In case of cut throat injuries it is situated high up in the neck along with presence of hesitation or tentative cuts. “Hara-Kiri” is an unusual type of suicide was practiced in Japan in which they commit suicide by inflicting single large wound on the abdomen with short sword while in sitting position or falls forward upon a ceremonial sword and pulls out intestines\(^\text{15&16}\).

**JUMPING FROM HEIGHT:** Jumping from height also known as Precipitation, is another common method of suicide. In these cases of suicide also, apart from autopsy findings, circumstances are very important\(^\text{15}\). When falling from a high building, the displaced air tends to act as a cushion which drives the body from the wall. A simple fall can result in a body impact some distance from the foot of building, which is not an evidence of a push or of a deliberate jump\(^\text{15}\). These factors must be outweighed in the mind while distinction has to be made between suicidal jump and accidental fall. It has also been observed that generally elder person prefers these methods than younger person.

**RAILWAY INJURIES:** In the large railway network in India, there are many places where unprotected rail road crossing are to be seen in spite of large number of causalities there. Though these causalities are generally considered as accidental but many cases of suicide over railroad are reported. A common way of suicide is by laying oneself in front of running train. Sometimes the person may jump in front of high speed train. Generally in cases of Railway injuries the body is highly mutilated with presence of grease and dirt materials on body surfaces\(^\text{14}\). Sometimes amputated as well as decapitated body may be found. Sometimes criminals may put dead body of homicide victim over rail track to simulate these with Suicide or accident. So if a dead body recovered from rail track autopsy surgeon must be careful and able
to distinguish postmortem injuries from ante-mortem ones. Circumstances evidence has a corroborative value in these cases also\textsuperscript{15}.

**MOTOR VEHICLE INJURIES:** with increasing nos. of vehicles and their easy availability numbers of death from vehicular impact injuries are increasing day-by-day, among them most are accidental but cases of suicide are not uncommon. Though it is more likely to be based on circumstances rather than autopsy findings. Circumstantial evidence such as family quarrel history of depression, previous suicidal attempts etc are important. The characteristics of suicidal death by a driver is head on collision with a road side object, pole or bridge support at high rate of speed without evidence of an effort to apply breaks or to evade striking the object. Rather it is very difficult to prove in absence of evidence\textsuperscript{15}.

**SUICIDE BY CHEMICAL METHODS:** poisoning both accidental and intentional is significant throughout the world. The exact incidence of poisoning in India in uncertain due to lack of data at Central level as most cases are not reported, and mortality data are a poor indicator of incidence of poisoning\textsuperscript{15}. Suicidal cases of poisoning are common in India; as poison can be easily obtained and many poisons plant grow wild eg. Dathura, Aconite, Nux-vomica etc. This could be from self-administration of an over dosage of a medicinal drug, pesticides or a cleaning solution used at homes\textsuperscript{20}. Many Indians consider the taking of life by bloodshed a greater crime than poisoning, Strangulation etc. Suicide by chemical can be obtained from ingestion, injection or inhalation of poison.

**INGESTION:** This is one of the commonest route by which poison in taken for suicidal purposes. Suicides often take the chemicals which are easily available to them and routinely found in their daily life. In our part of country most deaths due to poisoning are from the insecticides as now a days wide range of insecticides are easily available in market which are dispensed without any restriction for agriculture purposes. Sometimes person suffering from chronic debilitating disease becomes hopeless and take overdoses of medicines to kill own-self. Definitely autopsy has to be performed meticulously so that autopsy surgeon could reach the probable poison by external as well as internal findings like smell, colour etc.

"Cyanide Capsules" carried by some of the terrorist organization may be sometimes used for suicide to evade interrogation and punishment from law enforcing authorities; though death are not always instantaneous in cyanide poisoning. Cyanide Salt ingestion causes death in several minutes or hours where as it may prove fatal much easier inhalation\textsuperscript{21}.

**INJECTION:** When poison in administered by this route death is more rapid especially if taken intravenously. These routes are preferred for suicides mostly by doctors, Nurses and Paramedical staffs. Chief chemical taken by this route are barbiturates and other sedatives. Diabetic person may take overdose of insulin due to easy availability to them. \textbf{Queen Cleopatra} who is reputed to have committed suicide by getting herself bitten by venomous snake, as asp which is an exotic variety of viper\textsuperscript{6}.

**INHALATION:** In India suicide by inhalation of CO is rare and possible if person is seated in his Car with a tube leading from the exhaust into passenger compartment or he may lie on floor of
Garage near exhaust pipe with doors and window closed. Sometimes turning on the gas jets of an over inhalation might be possible.

**SUICIDE BY MISCELLANEOUS METHOD:** Electrocutation is an infrequent mode of suicide. The victim usually winds wire round the wrist or other body parts, makes their connection with the wall socket and switches it on. A case was reported in the Times of India (14th April 1962), narrating suicide by a college lecturer by wrapping his wrists with naked wires and connecting them to electrical plug. Death due to starvation may occur in mentally ill person when they refuses to take food or in cases of long hunger strike. Apart from these, suicide by farmer’s in our country is increasing and gaining a new trends. To minimize suicide by farmer’s our Honourable Prime minister Manmohan Singh visited Vidarbha and promised a package of Rs.110 billion to be spent by the government in Vidarbha.

**CONCLUSION:** Autopsy surgeon along with investigating agencies should and must be well acquainted with different methods adopted for committing suicide in the particular areas; as any of the methods adopted for suicide may either be accident or homicide. In such cases the report from an autopsy surgeon as well as circumstantial evidences become important in deciding the manner of death as suicide. Governmental agencies are also required to take necessary steps in time against farmer’s suicide, so that this new emerging trends are to be stopped at its early phase otherwise it may become a large toll in India. Marketing of pesticides should be strictly under licence so as misuse of it should be minimized.

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## Trend in Rate of Suicides in India (2000 to 2011)

### Incidence and Rate of suicidal deaths in India (1989-2011)

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