

## Suicide Attempts by Ingestion of Drugs in Adolescents in Mexico

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### Abstract

**Aim:** To determine the frequency of suicide attempts by the use of drugs in adolescents in a tertiary care hospital and to identify the causes.

**Methods:** A retrospective and descriptive study was performed considering socioeconomic, cultural and biological issues related to the use of drugs for suicide attempts in adolescents who were attended from January 1995 to March 2005, at the National Institute of Pediatrics, Mexico City.

**Results:** A total of 141 drug intoxication cases were detected among which 40 were suicide attempts with 22 of them being girls and 18 boys, median age of 13 years. The most frequently used drugs for the suicide attempt cases were analgesics in 18, and antidepressants in 11. In 14 of the cases, parents' divorce and family dysfunction were found to be the risk factors provoking the suicide attempt.

**Conclusion:** Analgesics and antidepressants are drugs commonly used in suicide attempts. Suicidal behavior in adolescents can be caused by psychological and social factors, which in most cases, is preceded by depressive disorders.

**Keywords:** Suicide Attempt; Intentional Intoxication; Adolescence; Drug Ingestion; Suicidal Behavior

### Introduction

Suicide is a complex behavior with biological, psychological and social causes, with predisposing family factors such as domestic violence, psychiatric disorders, and alcohol abuse by parents [1,2].

According to statistics, suicide in adolescents has increased in the last decades, and today, it is regarded as the third most frequent cause of death [3]. In Mexico City the mortality by suicides in adolescents between 10-14 years old, represent 21.9 % respect to the rest of the all country [4,5].

According to the National Institute of Statistics, Geography and Computer Sciences (INEGI, Spanish acronym), in 2003, the method employed in suicide attempts was mostly drug ingestion. The ratio of adolescent boys and girls between 10 and 14 years old involved in suicide attempt is 1:1.3, while the ration of those in the same age range that successfully committed the suicide was 5 males:1 female. The most frequently used drugs in suicide attempts are tricyclic antidepressants, psychoactive drugs, such as anxiolytics, and analgesics [6].

Forty percent of committed suicides are preceded by other suicide attempts and depressive disorders. In one third of the suicide cases, a parent, sibling or other first-grade relative has a history of suicide behavior. In adolescents, revenge or hostile thoughts directed against themselves or to an external target were the most noticeable. These thoughts are present in at least half of the youngsters who committed suicide [7,8]. Psychiatric disorders with high risk of suicide include depression and major affective disorders, alcoholism or substance abuse, and psychosis, especially with death-related hallucinations [9].

The serotonergic system in patients with suicide behavior has been found to be altered. Serotonin levels and its metabolite (5-hydroxyindolacetic acid) are decreased in the brain of suicide victims. The serotonin receptors in brainstem and prefrontal cortex could be deteriorated, which is manifested in the individual by non-conformity and dissatisfaction with his/her life-style [10-13].

The aim of this study was to determine the frequency of suicide attempts using drugs in adolescents in a tertiary care hospital and to identify the causes.

### Methods

#### Setting

A retrospective and descriptive study was carried out considering socioeconomic, cultural, and biological issues related to suicide attempts by intentional ingestion of drugs in adolescents population attended from January 1995 to March 2005 at National Institute of Pediatrics (INP, Spanish acronym). INP is a pediatric specialist teaching hospital with an Emergency department, and gives not only medical but also psychological attention to a wide range of patients. In the period studied, a total of 141 cases were reported as drug intoxications. 40 of the cases corresponded to patients who intentionally ingested drugs for suicidal purposes. The median age of the 40 cases was 13 years (10 - 17 years).

Records of diagnoses of drug intoxication were obtained from the hospital database and Clinical Archive. The diagnoses were established based on the criteria of International Statistical Classification of Diseases and Related Health Problems [14]. Codes X60-X84 and Y87.0 of this classification which classify self-infringed drug injuries and drug poisoning were considered.

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## Outcome measure

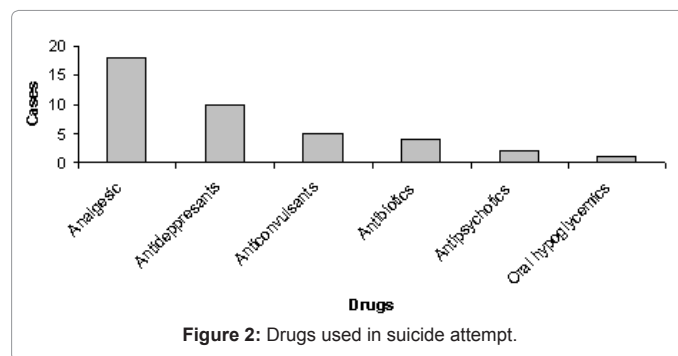
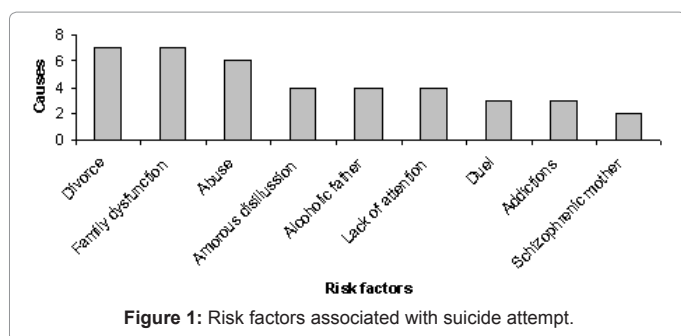
Likewise, the emergency control notebooks at first contact and immediate management in relation to drug intoxication diagnoses were reviewed. However, it should be borne in mind that due to short stay (approximately 4-8 hours) of the patients in the Emergency service, some data were found to be scarce. Moreover, it was difficult to follow up the cases for the mere fact that the duration of clinical notes in the Emergency room service is only 3 months.

The data from the clinical record reviewed were integrated according to the Mexican Official Standard on Clinical Records [15], considering a complete clinical record, emergency department admission statement, hospital admission statement, if required, and evaluations performed by medical specialty departments, especially Psychology, Psychiatry, Intensive Care Unit, Cardiology and Pneumology, along with the social work evaluation, which is normally based on a study of the housing conditions, family dynamics and socioeconomic level. The information was enough to reach the objective of this study.

## Results

A total of 141 records with drug intoxication diagnosis were reviewed, from which 28.37% (40) was found to be intentional ingestion with the purpose of committing suicide, but in which the ultimate objective, death, was not achieved. Of the 40 patients, 22 were girls and 18 were boys, with a median age of 13 years (10 - 17 years). Demographic, biological, social and psychiatric aspects of each patient under study were recorded. The risk factors observed were primarily parents' divorce in 7 cases, and family dysfunction also in 7 cases, followed by abuse in 6 cases, father's alcoholism in 4 cases, romantic disappointment in 4 cases, addicted in 4 cases, lack of family child attention in 3 cases, mourning of departed loved in 3 cases and mother's psychiatric disorders such as schizophrenia in 2 cases (Figure 1). Of the 40 patients with suicide attempts, 2 of them relapsed in the attempt and only one had a relative with suicidal history.

The most frequently used drugs in suicide attempts are analgesics, (paracetamol, acetylsalicylic acid, naproxen and tramadol) ingested by 18 patients; antidepressants (alprazolam, diazepam and clonazepam) by 10 patients; antiepileptics (carbamazepine) taken by 5 patients, antibiotics (ampicillin, cloramphenicol and amoxicillin) ingested by 4 patients, antipsychotics (trifluoperazine and haloperidol) by 2 patients; and hypoglycemic agents (glibenclamide and metformin) taken by 1 patient data observed in the Figure 2. During the first hours of hospital stay, suicide attempt patients were subjected to gastric lavage with activated charcoal. Once stabilized, patients were referred to the Psychiatry department for analysis.



## Discussion

In Mexico, there are no representative data among adolescents on the prevalence and risk factors for suicide and suicide attempt despite recent increase in deaths by suicide.

Research findings have consistently demonstrated that suicidal behavior in adolescents is complex, and can be provoked by psychological, social and biological factors. These factors are in accordance with our results, since the main cause of suicide attempt in adolescents was lack of attention; where the first cause was parents' divorce and romantic disappointment; although in most cases the low socioeconomic level and consumption of narcotics contribute to generate suicidal thoughts. Our results are in accordance with previously reported data regarding the type of drug used, because for the last 10 years, analgesics and antidepressants have been the most commonly used drugs in suicide attempt in adolescents.

It has been reported that 90 % of adults engaged in suicide suffer one or more mental disorders at the time of suicide, and although this is not a definite factor determining suicidal thoughts in the younger population, it was associated only with the presence of schizophrenia in one of the parents. In our study, we found that only 2 cases had schizophrenic mothers.

In adolescents at INP the 40 cases of suicide attempts through drugs, none resulted in death. Our study revealed that the presence of genetic and family factors, such as suicide attempts or suicide deaths in immediate or distant generations, increases the risk of suicidal behavior in adolescents.

Although the number of suicide attempts by intentional ingestion of drugs does not show a high incidence at the National Institute of Pediatrics, a tertiary care hospital, this reflects the measures of control and security of drugs in our country. There is a Clinic for Attention of Battered Children at the Institute, with programs addressed to protect their health and rights. This must be complemented considering socioeconomic, cultural and biological issues in order to prevent suicide attempts and suicide deaths.

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