

Prevalence of Chemical Poisoning for Suicidal Attempts in Karachi, Pakistan

Fauzia Imtiaz¹, Mukaram Ali² and Lubna Ali³

¹Department of Biochemistry, Dow University of Health Sciences Karachi, Pakistan

²Department of Forensic Medicine, Dow University of Health Sciences Karachi, Pakistan

³Department of Gynaecology and Obstetrics, Dow University of Health Sciences Karachi, Pakistan

*Corresponding author: Fauzia Imtiaz, HOD, Department of Biochemistry, Dow University of Health Sciences Karachi, Pakistan, Tel: 0300-2116211; E-mail: f.imtiaz@duhs.edu.pk

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Abstract

Objective: To determine the prevalence of suicide in local population of Karachi due to chemical poisoning.

Study Design: A retrospective study.

Methodology: The study was conducted during the year 2011. The total no of 11925 cases were studied from the record provided by police surgeon office Karachi. A questionnaire was filled which comprises of bio data and details of suicide agent used.

Results: The prevalence of suicide by chemical poisoning in the sample population of Karachi was calculated as 11 in 10,000 among them 66% females and 34% were males. The ages range from 14 to 22 years. The most common chemical used for suicide was typhone a insecticide (40%) followed by kerosene oil (23%). Finis (insecticide) (22%) and a group comprises of different chemical agents (15%). The treatment outcome showed survival of 82% of cases while 18% died.

Conclusion: The prevalence of suicide attempt was 11 in 10,000 in the population of Karachi, Pakistan. The most commonly used chemical for this purpose are insecticide (typhone, finis) and kerosene oil.

Keywords: Suicide; Chemical poisoning; Insecticide

Introduction

Suicide in Pakistan, as compare to the western hemisphere is a big problem. Commonly attempted by young adults due to interpersonal and relationship problem. There are many commonly tried methods, some of which include the abuse of therapeutic drugs as suicide agents. These include sedatives, e.g., antidepressant group (valium, laxotil, Xanax) etc. About one fourth of all these suicides are due to the over dosage of these drugs.

Suicide is defined as “to kill oneself and in the act of a human being intentionally causing one’s own death”. Suicide is often committed out of despair, or attributed to some underlying mental disorder which includes depression disorder, Schizophrenia, alcoholism and drug abuse. Self-poisoning with agricultural pesticides represents a major hidden public health problem. It is one of the most common forms of self-injury in the global souls. The WHO estimates that 300,000 people die from self-harm each year in the Asia Pacific region alone [1].

Most causes of international pesticide poisoning appear to be impulsive cuts undertaken during stressful events and the availability of pesticides strongly influences the incidence of self-poisoning. The common suicidal insecticides used in our part of world are Organophorous compounds dichlorodiphenyltrichloroethane (DDT) it is used as rat and bug killer, an insecticide with a local name of Finis and pestisides etc.

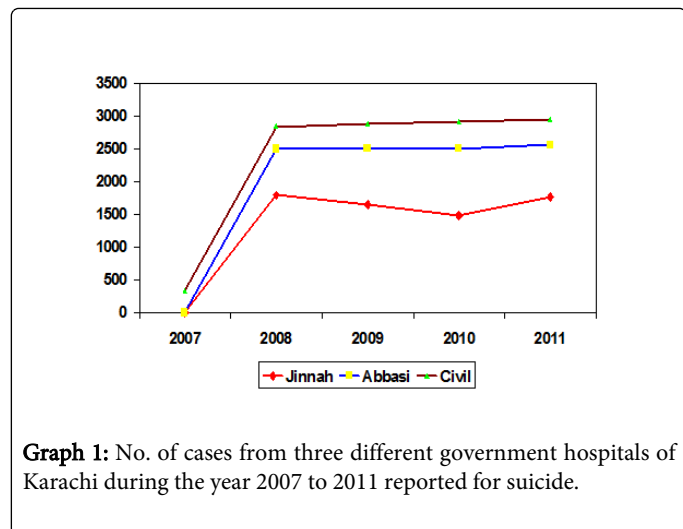
Methodology

We retrospectively reviewed the record from police surgeon office Karachi for the duration of year 2007 to 2011. The data comprises of biodata of individuals (age, Gender, etc.) and information about the poison used (type, dose, etc.), and the outcome of treatment. The temporal gap between the ingestion and medical evaluation was 1.5 to 2 hrs. The history from the record also told us about the quantity of chemical ingested. The retrieved data was analyzed by SPSS version 16.0 for frequency, mean and Chi Square t test for significance.

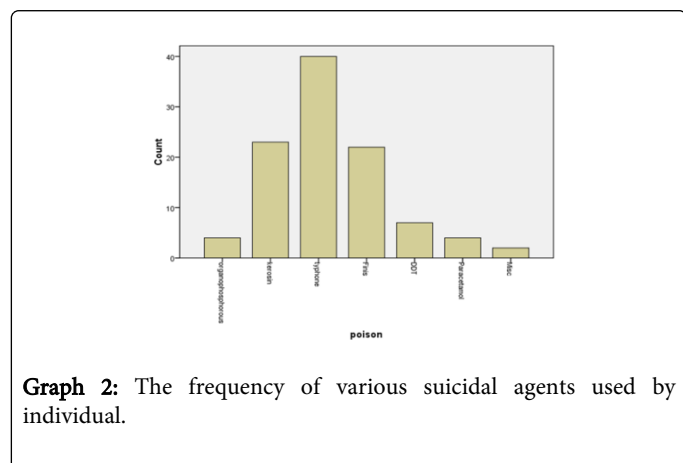
Result

Between the years 2007 to 2011, a total of 11925 cases were reported from three government hospitals to Police Surgeon office (Medico legal department) Karachi (Graph 1). The age range from 14-22 yrs. The prevalence of suicide observed in the sample population was 66% female and 34% males. The various suicidal agents used by subjects were shown in Graph 2. The most common route used for poison administration was oral. The various poisons and their average doses used are shown in Table 1. The chemical agents used for the suicide purpose was insecticide (typhone) (40%) followed by kerosene oil (23%), insecticide (finis) (22%) and others (15%). The significant dose which was effectively used by most of the subjects (40%) was approximately 300 to 400 ml. The survival of individuals depends on the temporal gap (time of ingestion of poison and reaching to the hospital as soon as they were taken to the emergency department of the hospital. The chance of survival depends on the temporal gap as

this gap is short it increased the survival. It was observed that 82% of the people taken to the hospital immediately were survived while 18% was died. The prevalence of suicide by chemical poisoning in the sample population of Karachi was calculated as 11 in 10,000.



Graph 1: No. of cases from three different government hospitals of Karachi during the year 2007 to 2011 reported for suicide.



Graph 2: The frequency of various suicidal agents used by individual.

Name of Poison	No of Individuals (%)	Ingested chemical Dose (ml/mg)	Fatal Dose (ml/gm)
Organophosphorous	04	200	25
DDT	04	200	113
Kerosine	23	500	20
Finis (Insecticide)	22	500	10
Paracetamol	03	20	12
Typhone (Insecticide)	40	300	10
Various other chemicals	04	200	-

Table 1: Chemical agents, their doses used for suicide.

Discussion

In Asia suicide is widely recognized as a compelling problem, most of the time the death occurs without medical certification of the cause and may be reported by the family members or other lay people who do not wishes to acknowledge suicide for fear of stigma or shame [1]. Individual of different countries tend to adapt different methods for committing suicide like jumping from building is common in Hong Kong [2]. Suicide rate have increased in many countries especially developing countries but the reported rates are misleading due to unreliable ties of population count. Identification of suicide is problematic due to inefficient civil registration system, none reporting of death and other issues in their countries suicide rates were between 8.1 and 58.3/100,000 population for different parts of India [3].

Incidence of suicide is usually reported as rate/100,000. In our study rate of suicide was calculated as 11 to 12/100,000. Suicide rate observed in India was about 10 to 11/100, 000 [4]. Countries like Srilinka, Lithuania & Latvia was considered to have high rate of suicide (30/100,000); China, Slovenia and Japan as middle rate (10to 29/100,000). However Egypt and Jordan has low rates (<10/100,000) [5].

The age group observed in our study was between 14 to 22 yrs. Most of the countries like Thailand also reported the age group of 15 to 24 yrs [6]. However the prevalence of female towards suicide was more as compare to male. In some parts of India the suicide was committed more by the older citizens as compare to younger [3]. The mode of suicide which we observed in the present study was chemical poisoning it was also the most prevalent mode in India besides hanging. The chemical used for self-poisoning was pesticide [7]. This study also showed high burden particularly in age group between 15 to 29 yrs. Another study conducted in Karachi women were found mostly to attempt suicide as compare to men due to the factors including family conflicts, problems with their mother-in- law and domestic violence [8].

Conclusion

The prevalence of suicide attempt was 11 in 10,000 in the population of Karachi, Pakistan. The most commonly chemicals used for this purpose were insecticides, and kerosene oil.

Limitations

As this is the retrospective study so some information about the factor related to chemical poisoning was missing. Like the exact doses we record it from data not asking the patients or their attendants directly. The temporal time was also taken from history record.

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