## Attempted Suicides in Kurunegala District - Circumstances and Risk Factors

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### Abstract

#### Objective

To identify the circumstances and risk factors of attempted suicides in Kurunegala district, with special emphasis on mental health status.

#### Methodology

Three hundred and ninety six persons who attempted to commit suicide were studied using a descriptive and a case control approach. Interviews and clinical assessments were used as data collection methods.

#### Results

Main precipitants of attempted suicide were related to domestic and personal problems. Younger age, depressive illness, alcohol abuse, family problems, poor income, parental deprivation, exposure to suicidal acts by others, past suicidal attempts were identified as the main risk factors of attempted suicide. Nearly half of the study subjects were found to be depressed. Of them, a substantial proportion attempted suicide without any antecedent or precipitating event.

#### Conclusions

Depressive illness and alcohol abuse were significant contributory factors for which preventive programmes could be targetted. Adolescents and youth deserve special attention in programmes aimed at prevention of suicide.



#### Declaration of interests

This study was funded by the UNFPA.


#### Background

Suicides and attempted suicides that could be collectively identified as suicidal acts are important public health problems in many countries. Approximately 400,000 deaths and 4,000,000 attempted suicides are reported during a year worldwide(1). Sri Lanka was identified as the country to report the world's' highest female suicide rate and the 10th highest male suicide rate in 2001[2]. Even though high rates of suicide have been reported in Sri Lanka as early as 1978, the efforts to reduce this problem have not met with much success. Lack of adequate information has been identified as a major constraint in formulating effective control programmes[3,4].

Attempts to understand and prevent the occurrence of suicidal acts require the assessment of epidemiology of the problem in a given setting(5). Suicidal acts are usually studied either by carrying out psychological autopsies on completed suicides or by studying the self expressed accounts of those who survive after attempting to kill themselves (6,7) . The second approach is based on information available directly, from persons who attempted a suicidal act.

Mental disorders are considered an important risk factor of suicidal acts (6). The limited number of studies carried out in Sri Lanka on suicides has mostly focused on sociological aspects, with minimal attention paid to variables related to mental health(3,8). This study was carried out to assess the risk imposed by a multitude of factors on suicidal acts, using a descriptive and an analytical approach with special emphasis on the variables related to mental health.

#### Methodology

The study was carried out at the General Hospital, Kurunegala. It included a descriptive component that described the circumstances and the mechanism of attempted suicides, and a case control component that assessed risk factors.

**Descriptive component:** A person whose attempt at suicide required him to be admitted to the General Hospital Kurunegala was considered as the study unit. An "attempted suicide" was defined as a *non-fatal* act that is deliberately initiated and performed by the person him or herself in the knowledge or expectation of its fatal outcome(1). Detailed information about the suicidal attempts and their accompanying circumstances were obtained using an interviewer administered questionnaire. The study sample included 396 persons admitted to the hospital after an attempted suicide during a period of 6 months.

**Case - Control Component:** The first 200 persons identified in the descriptive component were included in this component, along with 200 hospital based unmatched controls. A control was identified for each 'case' as the person who

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had been admitted to a medical ward in the same hospital followed by the case, due to an illness other than attempted suicide. If a control so selected was not available for some reason, the next patient in the admission list was selected as a control.

Data related to demographic and socio-economic characteristics, physical health status, problems related to family and personal life, sexual dysfunction, (existence of suicidal thoughts,) previous attempts at suicide and exposure to suicidal acts of other persons, were collected from cases and controls using an interviewer schedule. Presence or absence of depression, schizophrenia, abuse of alcohol (harmful use and alcohol dependence syndrome), were clinically assessed. The diagnoses of mental illness were made according to the standard diagnostic criteria for research, adopted in the ICD10 classification of mental and behavioral disorders by the World Health organization [9]. The history taking and mental state examinations were done according to standard guidelines.

All interviews included in both components of the study and the clinical assessments were carried out after the respondents' medical condition became stable. One investigator (NIT), who had received a special training in clinical assessment of mental illnesses carried out all assessments. Data collection was carried out after obtaining informed consent, in surroundings that ensured privacy.

**Data analysis**

The qualitative data obtained from the open-ended questions of the descriptive component were coded taking into consideration, the possibility of categorizing them into similar themes. The events that led to suicidal attempts and the sequence in which those occurred were identified. Flow diagrams indicating the events that were preceding the attempted suicides were drawn for each subject. Based on the common patterns in the time sequences of the events a schematic presentation indicating a possible causal pathway was developed.

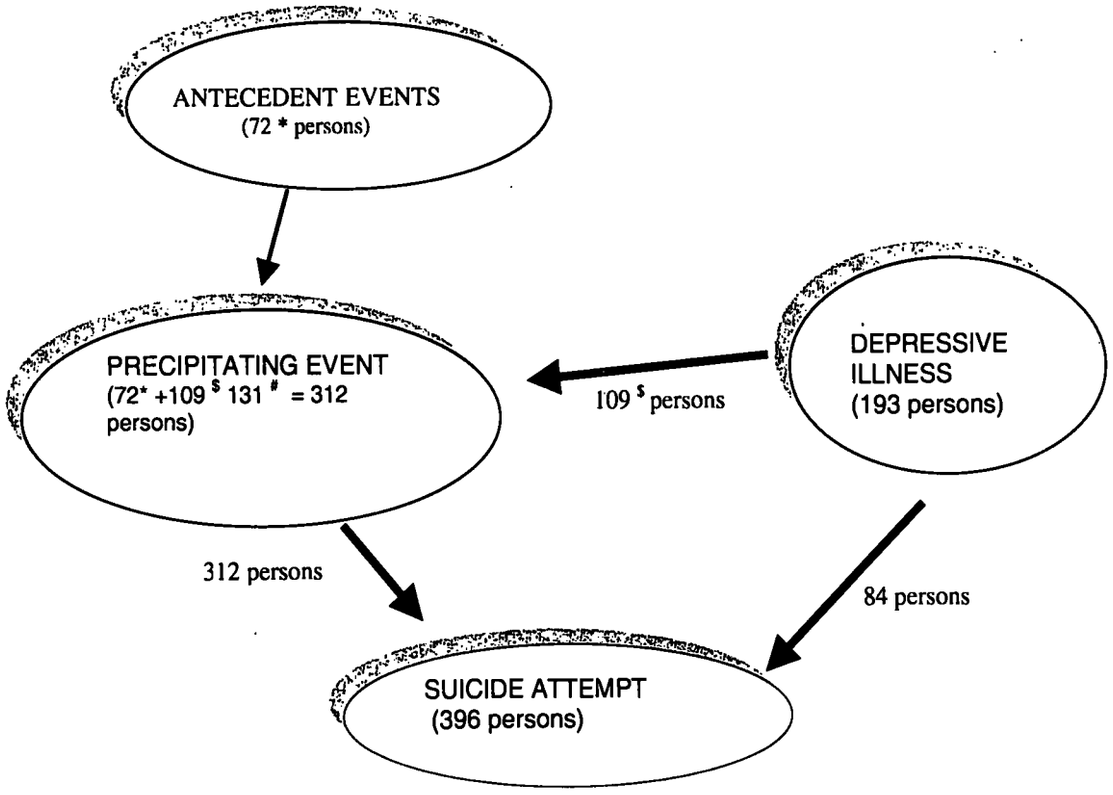
Table 1 : Precipitating events leading to attempted suicides.

| Major category | Detailed category | Frequency | % |
|---|---|---|---|
| Problems related to or with in the family life | Argument or fight with a family member other than the spouse | 55 | 17.63 |
| | Punished or blamed by parents, guardians or teachers | 50 | 16.03 |
| | Unable to supply the basic needs of the children or other loved ones | 8 | 2.56 |
| | Maltreatment of the wife by the husbands relatives | 4 | 1.28 |
| | Family opposing the decision important to the subject | 3 | 0.96 |
| | Argument between husband & wife | 32 | 10.26 |
| Conflicts in marriage | Being beaten by husband | 24 | 7.69 |
| | Spouse leaving the family resulting in a broken marriage | 17 | 5.45 |
| | Unfaithfulness of the spouse | 14 | 4.49 |
| | Being forced to marry an unwanted person | 1 | 0.32 |
| Conflicts between lovers | Separation | 25 | 8.01 |
| | Family opposing an affair | 4 | 1.28 |
| Problems with self | Strong disappointment | 11 | 3.53 |
| | Unable to bear the physical pain or illness | 10 | 3.21 |
| Problems linked to outsiders | Loss of self respect | 37 | 11.86 |
| | Arguments or conflicts with employer | 5 | 1.60 |
| | Loss of money or being in debt | 4 | 1.28 |
| | Fear of an offence committed or failing in responsibility | 5 | 1.60 |
| | Fight with outsiders or / relatives who are not family members | 3 | 0.96 |
| **Total** | | **312** | **100.00** |

Table 2 : Depressive illness among those who attempted suicides

| Type of depression | Frequency | % |
|---|---|---|
| Mild depression | 11 | 2.8 |
| Mild depression with somatic syndrome | 4 | 1.0 |
| Moderate depression | 20 | 5.1 |
| Moderate depression with somatic syndrome | 29 | 7.3 |
| Severe depression | 107 | 27 |
| Severe depression with psychotic symptoms | 7 | 1.8 |
| Bipolar illness- current attack mild /moderate depression | 2 | 0.5 |
| Bipolar illness- current attack severe depression | 7 | 1.8 |
| Bipolar illness- current attack severe depression with psychotic symptoms | 6 | 1.5 |
| Not depressed | 203 | 51.3 |
| **Total** | **396** | **100.0** |

Figure 1 : Relationship among antecedent and precipitating events and depressive illness




# Not depressed with no antecedent events.
* Not depressed with antecedent event.
$ Depressed with precipitating event

In analyzing the results of the case control component, unconditional logistic regression analysis was performed on the significant associations identified after a detailed bivariate analysis. SPSS10 statistical software was used for analysis.

## Results

**Profile of the Sample :** Among the sample of 396, the highest average, 65.6%, was in the 15-29 year age group with males accounting for 53.8% of the group. Distribution of the study group by ethnicity and religion were comparable to those of the district of Kurunegala (10). The majority (57.8%) of the

Table 3 : Association between predisposing factors and attempted suicide

| Risk factor | COR (95% CI) | Risk factor | COR (95% CI) |
|---|---|---|---|
| Age group | | Member of a social | |
| Less than 19 years | 19.98 [9.86-40.46] | organization | |
| 20-29 years | 13.51 [7.21-25.31] | Yes | 1 |
| 30- 39 years | 5.84 [2.97-11.47] | No | 2.145 [1.43-3.21] |
| 40 years & above | 1 | | |
| Marital status | | Success of married life | |
| Married | 1 | Successful | |
| Unmarried | 4.08 [2.64-6.30] | Not successful | 1 |
| Divorced & widowed | 1.6411 [0.67-4.04] | | 21.72 [ 6.3 –74.9] |
| Educational status | | Unfaithfulness of the | |
| [Less than grade 5 | 1 | spouse | |
| Grade five & above | 1.80 [ 1.12- 2.88] | Present | 10.97 [3.06 – 39.26] |
| | | Absent | 1 |
| Monthly income | | Marital problems | |
| < 6000 rupees | 1.73 [1.06-2.83] | Present | 7.44 [3.65- 15.16] |
| > = 6000 rupees | 1 | Absent | 1 |
| Depressive illness | | Mental stress due to family | |
| Depressed | 11.40 [6.52-19.91] | discord | |
| Not depressed | 1 | Present | 5.7540 [3.35-9.89] |
| | | Absent | 1 |
| Use of alcohol | | Feeling of domestic | |
| No abuse | 1 | harmony | |
| Harmful use | 8.70 [2.57- 29.46] | Poor | 3.75 [1.98-7.09] |
| Alcohol dependence | 1.71 [ 0.59-4.89] | Good | 1 |
| syndrome | | | |
| Physical abuse | | Family history of suicide | |
| Present | 2.75 [ 1.24-6.11] | Present | |
| Absent | 1 | Absent | 2.33 [1.40-3.86] |
| | | | 1 |
| Parental deprivation | | Suicidal thoughts [with in | |
| Present | 2.32 [1.52-3.56] | past 6 months] | |
| Absent | 1 | Present | |
| | | Absent | 2.84 [1.84- 4.39] |
| | | | 1 |
| Size of the family | | Communication of suicidal | |
| Small | 2.2497 [1.26- 4.01] | intention | |
| Large | 1 | Yes | 2.84 [1.63-4.94] |
| | | No | 1 |
| Feeling lonely | | Past attempted suicides | |
| Yes | 4.62 [2.92-7.31] | Present | 1.59 [0.77- 3.31] |
| No | 1 | Absent | 1 |
| Involved in welfare | | Exposure to others suicidal | |
| activities | | acts | |
| Yes | 1 | Yes | 3.58 [2.31-5.54] |
| No | 1.998 [1.31-3.40] | No | 1 |

sample was unmarried, while 38.9% were married, 2.8% were divorced and 2.8% widowed. Of the 396 persons, 18.4% were unemployed while 14.6% 12.7% and 14.1% were housewives. school children and unskilled labourers respectively.

*Circumstances leading to attempted suicides: Information obtained through the descriptive component revealed that the circumstances preceding the attempted suicides included a number of events. These events could be identified as precipitating factors or antecedent factors, depending on the chronological sequence and the nature of linkages among them.*

***Precipitating events*** were defined as the immediate reasons that led a person to attempt suicide. 312 of 396 (79 %) persons reported precipitating events. Precipitating events were categorized into five groups i.e. problems related to or with in the family (30.3 % ), conflicts in marriage (22.3%), conflicts among lovers (7.3%), problems related to the individual per se (5.3%) and problems linked to outsiders (13.7%). (Table 1)

Precipitating events to occured as single episodic events or accompanied by ***antecedent events*** (train of events leading to a precipitating event). Out of the total sample, 72 (18 %) experienced antecedent events that ultimately led precipitating events.

***Depressive illness among the persons who attempted suicide:*** Symptoms and signs of depressive illness preceding the suicide attempts were present in 193 out of 396 (48.7%) persons. Table 2 presents the distribution of this group, by different categories of depressive illness. A substantial proportion (32.1%) of those who had depression had severe depression.

Of the group who were depressed, 21 % ( 84 out of 396) suicide was attempted without any precipitating or antecedent events. Among the depressed,i.e.109, suicide was attempted following a precipitating event. (Figure 1).

**Factors influencing the risk of attempting suicide**

A life event, situation or characteristic of a person, that was not directly leading to a precipitating event but seemed to have influenced the impact of the precipitating event, has defined as predisposing *factors* of suicidal acts. In the case control component of the study, presence of such factors was compared between the cases and the controls. These factors included: age, marital status, education, income, depressive illness, alcohol abuse, physical abuse during childhood, parental deprivation, size of the family, feeling of loneliness, extent of social involvement, success of marriage, unfaithfulness of spouse, marital problems, mental distress due to family discord, feeling of domestic harmony, family history of suicide, presence of suicidal thoughts, communication of suicidal intent, history of attempted suicide, and exposure to others suicidal acts. The results of this analysis and the unadjusted odds ratios of these factors are given in Table 3. Based on the biivariate analysis, 22 variables significantly associated with attempted suicides were selected. These included socio demographic factors such as age, marital status, education, income, mental health variables such as presence of depression, alcohol abuse, exposure to suicidal acts by others, past suicidal attempts and a number of variables related to marriage and family life.

A direct logistic regression analysis was performed to control the confounding effects of multiple associations. ( All the risk factors that have shown, p values more than 0.2(11) in the univariate analysis were entered to the model at the initial step.) The backward regression model identified six variables as significantly associated with attempted suicide. These include; age less than 29 years, presence of depression, alcohol abuse, monthly income less than 6000 rupees per month, exposure to suicidal acts of a known person and a history of parental deprivation. ( Table 4).

**Discussion**

Study of the nature of suicidal acts by obtaining information from persons who survived attempts at suicides, gives the advantage of having first hand information as opposed to the study of completed suicides based on psychological autopsies(7). This study expected to inquire into the extremely sensitive issues related to the lives of the subjects who have attempted suicide, while they were still recovering from the aftermath of the attempt. In order to improve the validity of the information, data collection from all study subjects was carried out by the same investigator ( NIT) who is medically qualified person, with special training in mental health, who also participated in providing medical care for these subjects.

Table 4 : Results of logistic regression analysis.

| Risk factor | B | S.E. | Wald | df | Sig | OR and (CI) |
|---|---|---|---|---|---|---|
| Age groups | | | 50.609 | 2 | 0.000 | |
| Less than 29 years | 3.446 | 0.548 | 39.588 | 1 | 0.000 | 31.4 (10.7-91.7) |
| 30 – 29 years | 2.841 | 0.424 | 44.900 | 1 | 0.000 | 17.1 (7.5-39.3) |
| Presence of depressive illness | 2.983 | 0.408 | 53.322 | 1 | 0.000 | 19.7 (8.9-43.9) |
| Alcohol abuse | 2.101 | 0.562 | 13.957 | 1 | 0.000 | 8.1 (2.7-24.6) |
| Income less than 6000 Rs. per month | 1.007 | 0.384 | 6.885 | 1 | 0.009 | 2.7 (1.3-5.8) |
| Exposed to a suicidal act of known person | 0.949 | 0.349 | 8.306 | 1 | 0.004 | 2.6 (1.4-4.9) |
| Been deprived of either of parents during child hood ( less than 18 years) | 0.802 | 0.315 | 6.481 | 1 | 0.001 | 2.2 (1.2- 4.1) |

Since, suicidal acts usually occur in quite complex and varied circumstances, relatively open approaches had to be followed when obtaining in-depth information related to these acts. Thus, the information from the descriptive component of the study was used to reconstruct each suicidal attempt in a retrospective manner using a semi structured interviewer guide(12). The case control approach was selected to identify important risk factors of attempted suicide since the method is more economical in assessing a relatively large number of risk factors simultaneously(12).

As reported by other researchers, young persons were shown to be at a higher risk and seemingly trivial domestic problems such as arguments with family members, punished by parents or guardians, argument between spouses seemed to be the precipitating events of most suicide attempts(3,6,7,8,13). Though not easy, these problems are amenable to control through health promotion programmes. Such approaches include improving the coping skills of adults and adolescents in facing 'day to day' problems, creating public awareness about the possible disastrous outcomes of 'mishandling' such events thereby motivating them to take more flexible approaches in solving emotional problems especially when dealing with young persons(13,14).

In this study, depressive illness was identified as the strongest correctable risk factor (OR 19.7) of attempted suicides. Considering the relatively high prevalence of depression in Sri Lanka(8), effective management of depressive illness could be expected to reduce the number of attempted suicidal acts. At the community level, depression is often not recognized as an illness that requires treatment, thus requiring proactive approaches to identify depressed persons.

Currently, the resources available for provision of mental health services through the state sector are limited. Psychologists and counsellors are even more scarce. Sri Lanka has one of the best systems of field level health workers working in the community. Provided these personnel are adequately trained, they can be used to identify those likely to have depressive illness in the community, while attending to their day to day work. A system of effective management of identified persons has to be developed by enhancing the capability of non-specialist medical officers of managing such situations backed up by an effective referral system.

Reducing the stigma, and improving community awareness on depressive illness and its importance could be a method of enhancing the ability of the health system to identify and treat depressed persons. Such programmes could be

aimed at special groups such as school teachers, selected personnel at workplaces, Grama Niladharies, Samurdhi Niladharie, as well as the community in general.

Abuse of alcohol was also identified as an important predisposing factor of attempted suicides. Considering the high prevalence of alcohol consumption in the country(15), prevention activities aimed at alcohol use might have a complementary effect in reducing suicidal acts.

In the present study, low income was associated with a higher risk of attempted suicide. Even though no reported studies were available to assess the influence of income, previous studies have reported a preponderance of attempted suicides among lower social classes which could be considered as a proxy variable for income (6,7).

Parental deprivation was a significant risk factor for attempted suicide. In the Sri Lankan context, the phenomenon of Middle East migration especially of mothers, could have important implications in the long term, taking into consideration the socio-economic environment of such families. The effects that such deprivations could have on children in these families need to be considered both in the short and long term. The health system could make a useful contribution to reduce the effects of the problems faced by these children, especially through the field services. .

The problem of suicide has continued to be an important health problem in Sri Lanka. Paying attention to the development and implementation of a well organized suicide prevention programme through the existing health system, supported by other inter-sectoral programmes, is a timely need.

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**References**

1. WHO(World Health Organization). Guidelines for the primary prevention of mental, neurological and psychological disorders. Geneva, WHO, 1993.
2. WHO (World Health Organization). Suicide rates. 2001 (online), Available from, http//www.int/mentalhealth/Topic_suicide/suicide_rates.html
3. De Silva P.(ed.). *Suicides in Sri Lanka*, Institute of Fundamental Studies, Kandy, Sri Lanka 1989.
4. Presidential Committee on Prevention of suicide. National policy and action plan on prevention of suicide. Sri Lanka: Presidential Secretariat; 1997.
5. WHO(World Health Organization). Prevention of suicide: Public health papers 35 . Geneva : WHO ;1968.
6. Roy A. Emergency Psychiatry. In: Kaplan HI., Sadock BJ, editors. Comprehensive text book of Psychiatry. Volume 2, 5th Edition. Baltimore : Williums & Wilkins;1989.p.1414-27.
7. Stengel E. Suicide and attempted suicide. Great Britain, Penguin books;1964.
8. Abeysinghe R. Suicides in Sri Lanka. The Kandy Medical Journal. 1997 ; (2): 32-4.
9. WHO(World Health Organization). The ICD10 classification of mental and behavioural disorders- diagnostic criteria for research. Geneva : WHO ;1993.
10. Kahandaliyange HAP. A study on the by-pass of primary level health care services in the Kurunegala district. [Dissertation].Post Graduate Institute of Medicine : University of Colombo ; 1993.
11. Hosmer DW, Lemoshow S. Applied logistic regression. New York, John Wiley & Sons; 1989.
12. Abramson J.H , Abramson Z.H.. Survey method in Community Medicine. Epidemiological research, program evaluation, clinical trials , 5rd edition; Edinburough, Churchill Livingston;1999.

13. Commonwealth Department of health and Aged Care. Promotion, prevention and early intervention for mental health – a monograph. Canberra : Mental Health and Special Programs Branch, Commonwealth Department of Health and Aged Care;2000.

14. Vic Health. Mental health promotion plan, Foundation document :1999-2002. Carlton South, Australia :Victorian Health promotion Foundation ;1998.

15. Samarasinghe DS,Dissanayake SAW, Wijesinghe P. Alcoholism in Sri Lanka : an epidemiological survey. Br J Addiction 1987 ; 82:1149-53.