INCIDENCE OF SUICIDE ATTEMPTS AND ITS ASSOCIATED FACTORS AT THE PROVINCIAL GENERAL HOSPITAL BADULLA, SRI LANKA

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ABSTRACT: Suicide rate in Sri Lanka is higher compared to some countries. It is about 40 per 100,000 compared to 8 per 100,000 in developed countries .This is due to different methods of suicide such as use of pesticides. Therefore prevention of suicide and deliberate self-harm is a priority in the health services in Sri Lanka.

It is important to recognize and understand factors associated with suicidal behaviour when planning interventions and preventive strategies. These are different from one region to another and from one country to another. Even though there are studies done in some parts of Sri Lanka, no studies were found in Badulla district of Sri Lanka which is in central part of the country. This study was a retrospective cross-sectional study. The study was carried out at the Provincial general hospital Badulla, Badulla district, Uva province, Sri Lanka. All patients who were admitted to Provincial general hospital Badulla, Srilanka with suicide attempts between 1st January 2008 and 31st December 2008 were included in this study. There were 391 patients admitted with suicide attempts. Data were collected from patients' medical notes using a data collection tool. Results showed that about 369(94.4%) of the people who took an overdose of pesticide and drugs were below the age of 30. There was a small male preponderance. One ethnic minority (Indian Tamil) seems to have a higher incidence of suicide attempts compared to the percentage of that ethnicity in the study population. More than 50% of suicide attempters were single. Out of the sample size of 391 patients, 369 patients who performed suicide attempts were by poisoning. Interventions to reduce suicide attempts should focus on the high risk groups such as people with mental illnesses, alcohol use, and family history of suicides, younger age and certain ethnic minorities. These interventions need to be specifically designed for this population as the study population in this study was different to rest of the country in socio demographic factors. Further studies needed to explore reasons behind high suicide risk in some ethnic minorities.

Keywords: suicide attempt, suicide, Self harm, Sri Lanka

INTRODUCTION: Asia accounts for 60 percent of the world's suicides, so at least 60 million people are affected by suicide or attempted suicide in Asia each year (Beautrais, 2006).Suicide remains one of the three leading causes of death among people aged 15-34 years(WHO 1999). Until recently, suicide has been a main cause of death among the elderly, but it has now been predominating among younger people in a third of all countries (WHO 1999).

MATERIALS AND METHODS: This study was conducted in the Provincial general hospital Badulla, Badulla district, uva province, Sri Lanka, located about 230 km away from Colombo towards the eastern slopes of central hills of Sri Lanka. During 1st January 2008 to 31st December 2008, all patients who were admitted to Provincial general hospital Badulla, Srilanka with suicidal attempts was included in this study.

Total 391 patients who fit into the inclusion and exclusion criteria were selected using a structured data collection tool and patient medical records. Inclusion criteria was Resides in Badulla district, according to the address recorded in the patient history files and admitted to the provincial general hospital Badulla with suicide attempts during the period of 1st January 2008 to 31st of December 2008. exclusion criteria was Does not reside in Badulla district, according to the address recorded in the patient's history file.

Data were checked and coded according to Patient Data and Information Sheet manual. It was then entered into SPSS v. 17. Chi-square tests were

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used to see the association between independent and dependent variables.

RESULTS: The results were acquired by analyzing demographic, behavioral, Scio-economic, physical and mental factors related to suicidal attempts in consisted of 391 patients admitted to Badulla Provincial General Hospital during the 1st January 2008 to 31st December 2008.The results shows that out of a of 391 patients, a considerable number of 143 patients (36.6%) and 128(32.7%) patients were under the age groups of 20-29 years and 10 – 19 years respectively. Data gathered on gender showed a higher frequency of 224 (57.3%) suicide attempts in males when compared to that of 167 (42.7%) in females. On ethnic related suicide attempts, Sinhalese showed the highest frequency of 245 (62.7%). Buddhism and Hinduism showed the highest rates in religion related suicide attempts with frequencies 230 (58.8%) and 99 (25.3%) respectively. Suicide among single and married groups showed comparatively high frequencies, 215 (55.0%) and 143 (36.6%) respectively. Families with no children show the highest suicide frequency of 242(61.9%) when compared to families with 1to 6 children.

Patients who don't use alcohol showed the highest frequency of 278 (71.1%) in suicide attempts when compared with patients who consume alcohol 113(28.9%). The data showed a high frequency of 280 patients (71.67%) attempting suicide while not being influenced by alcohol as opposed to patients under the influence of alcohol. Patients using illicit drugs 56(14.3%) showed a lower frequency of suicide attempts when compared to considerably high frequency of 335 (85.7%) patients who do not use illicit drug.

Table 1: Demographic Factors (N=391)

Demographic characteristics		Number	%
Age			
	10-19yrs	128	32.7
	20-29yrs	143	36.6
	30-39yrs	50	12.8
	40-49yrs	47	12.0
	50-59yrs	16	4.1
	60 yrs above	7	1.8
Gender			
	Male	224	57.3
	Female	167	42.7
Ethnicity			
	Sinhala	245	62.7
	Lanka Tamil	31	7.9
	Lanka Muslim	28	7.2
	Indian Tamil	73	18.7
	Burger or Malays	14	3.6
Religion			
	Buddhism	230	58.8
	Christianity	37	9.5
	Hinduism	99	25.3
	Islam	25	6.4
Marital Status			
	Single	215	55.0
	Married	143	36.6
	Divorced	20	5.1
	Separated	2	.5
	Widowed	11	2.8
No. of Children			
	No children	242	61.9
	1 child	33	8.4
	2 children	43	11.0
	3 children	40	10.2
	4 children	17	4.3
	5 children	13	3.3
	6 children	3	0.8

Patients with an average education level up to Ordinary Levels showed the highest frequency of 148 (37.9%) suicide attempts. Suicide attempts were more common among the unemployed persons with a frequency of 244(62.4%) as opposed to employed persons with a frequency of 147 (37.6%). In occupation related suicides, the highest attempts were seen in unemployed persons with a frequency of 179 (45.8%) when compared to employed patients. The highest frequencies of suicide were seen among families with average incomes between 5,001 to 10,000 Rupees and between 10,001 to 15,000 Rupees with a frequencies 175 (44.8%) and 121 (30.9%) respectively.

Table 2: Data relating to Behavioral factors

Behavioral Factor	Number	%
Alcohol Consumption		
YES	113	28.9
NO	278	71.1
Under the Influence by Alcohol		
YES	111	28.4
NO	280	71.6
Use of Illicit Drugs		
YES	56	14.3
NO	335	85.7

Suicide attempts related to the history of chronic diseases were low with a frequency of 88(22.5%), when compared to that of patients with no history of chronic diseases with a frequency of 303 (77.5%). Psychiatric diseases had the highest attempts of suicide with a frequency of 297 (76.0%) as opposed to patients with a history of psychiatric diseases. Patients were suffering from depression were 75 making it the top psychiatric disease related to suicide with a frequency of 79.8%. Patients with no family history of psychiatric problems revealed the highest attempts of suicide with a frequency of 253 (64.7%). Patients with no family history of suicide attempts showed the highest frequency of 238 (60.9%). Patients with no history of suicide attempts showed the highest frequency of 301 (77%) when compared to patients with a family history of suicide attempts.

Table3: Data relating to Socio-economic Factors

Socio-economic Factors	Number	%
Level of Education		
No school education	101	25.8
School education (till grade 5)	84	21.5
School education (above grade 5 to Ordinary Levels)	148	37.9
School education (above Ordinary Levels – Advanced Levels)	57	14.6
Bachelors Degree & higher	1	0.3
Employment Status		
YES	147	37.6
NO	244	62.4
Occupation		
Professional, Technical & related	6	1.5
Clerical & related	30	7.7
Sales workers	9	2.3
Agricultural, & related	73	18.7
Production & related	23	5.9
Armed Services, Police	5	1.3
Students	61	15.6
Unemployed persons	183	46.8
Workers not classified	1	0.3
Family Income		
< Than 5,000 Rs	32	8.2
5,001 - 10,000 Rs	172	44.0
10,001 - 15,000 Rs	125	32.0
15,001 - 20,000 Rs	52	13.3
>than 20,001 Rs	10	2.6

Table 4: Data relating to Physical & mental factors

Physical & mental factors	Number	%
Chronic Diseases		
YES	88	22.5
NO	303	77.5
Psychiatric Disorders		
YES	94	24.0
NO	297	76.0
Type of psychiatric disorders		
Psychosis	14	14.9
Depression	75	79.8
Bipolar disease	4	4.3
Others	1	1.1
Family History of Psychiatric Problems		
YES	138	35.3
NO	253	64.7
Family history of Suicide attempts		
YES	153	39.1
NO	238	60.9
History of suicide attempts		
YES	90	23.0
NO	301	77.0

From the 391 patients, 369 (94.4%) attempted suicide by using poison.

Table 5: Types of suicidal attempts

Types of suicidal attempts	Number	%
Method used in the Suicidal Attempt		
Poisoning	369	94.4
Setting fire to Oneself	2	0.5
Hanging	15	3.8
Drowning	5	1.3

The use of pesticides and drugs have reached its maximum at 168 (45.5 %) for pesticides and 177 (48.5%) for drugs by making the other aspects barely noticeable.

Table 6: Type of Poisoning

Type of Poisoning	Number	%
Pesticide	168	45.5
Drugs	177	48.0
Eating natural poison	7	1.9
Others	17	4.6

The results showed that the most popular type of pesticide used was Organophosphate with a frequency of 126 (75%).

Table 7: Type of Pesticide

Type of Pesticide	Number	%
Organophosphate	126	75.0
Carbanate	20	11.9
Paraquat	9	5.4
Others	13	7.7

In the type of drugs used, Paracetamol was identified as the most commonly used drug with a percentage of 47.5 %.

Table 8: Type of drug used in suicidal attempt

Type of drug used	Number	%
Paracetamol	84	47.5
Chlorpheniramine	12	6.8
Salbutamol	16	9.0
Diazepam	19	10.7
Others	46	26.0

The association between age and type of attempt were statistically significant. The association between age and marital status with history of past suicidal attempts was statistically significant. The association between age and marital status with history of psychiatric diseases was statistically significant.

Cumulative incidences of suicidal attempts in Badulla general hospital were 4.4 / 1000 per year (2008).

Table 9: Associations between selected Demographic Factors, Behavioral factors, Socio-economic factors and Physical & mental factors.

	x^2	DF	P value
Type of Suicide by:			
Gender	0.031	1	0.860
Employment	3.745	1	0.069
Age	5.919	1	0.017
Marital Status	0.856	1	0.355
Past suicidal Attempted by:			
Age	10.181	1	0.001
Marital Status	15.854	1	0.000
Gender	0.019	1	0.892
Psychiatric Diseases by:			
Age	12.064	1	0.001
Marital Status	4.271	1	0.039
Gender	0.985	1	0.321

DISCUSSION: Studies done in Sri Lanka have shown that risk of deliberate-self-harm was greatest in the younger age group. Samarasinhe (1991) in a study done in the Colombo south hospital reported that the majority (81%) were below 30 years of age, the findings of which are very similar to this study.

In the present study more males attempted suicide compared to females (Male: Female (1.34:1). Other studies from Sri Lanka have shown either male or female preponderance among suicidal attempters. Samarasinhe (1991) reported a male to female ratio of 1.1:1.

The study showed that 25% of participants did not have school education. However there are no data on educational level of the population in Badulla district. Therefore, it is difficult to make conclusions on relationship between educational level and suicidal attempts as this distribution of educational level may also be found in normal population of this area. However the large number of patients with minimal or no education raises the possibility if suicidal attempt is a maladaptive measure of coping with difficulties.

More than half of the suicide attempters in this study were single. Incidence of suicide attempts among widowed, separated and divorced was low which is different to previous findings. Even though been single, widowed and divorced are considered to be high risk factors, high incidence of married people attempting suicide suggests the possibility of other factors which increase the risk of suicide. Studies have shown those unmarried's are at a greater risk of suicide attempts (Talagala 2000, Samarasinghe 1991, Kathriarachchi 1996). In the West, single people and the divorced have high rates of deliberate self-harm (Gelder et al. 2006).

Use of pesticides has been recognized as a common method of suicide in Sri Lanka leading to high mortality and highest bed occupancy in medical wards (Eddleston 1998). Out of the pesticides, paraquat and organophosphate were commonly used chemicals. As Badulla is an agricultural area, there is easy access to these pesticides. When planning suicide prevention methods these findings need to be considered carefully. Out of the drugs, Paracetomol accounted for nearly half of the suicidal attempts. Paracetomol overdose is a common method of attempted suicide in western world. Measures taken such as reducing the number of tablets sold to one person at a time have lead to

decreased suicidal rates in the UK (Hawton et al. 2004). Considering these measures to reduce the accessibility for drugs and poisons need to be further assessed.

Majority of people who attempted suicide were Sinhalese. 26% of suicidal attempters were Tamils. However Tamil only contributed to 11% of the population in Badulla district. This highlights the higher incidences of suicidal attempts by Tamils mainly among Indian Tamils as two thirds of those Tamils who attempted suicide were Indian Tamils.

Nearly 50% of study participants were unemployed in the present study. Unemployment has been recognized as a high risk factor for suicide (Morrell et al. 1998). The other two large groups identified by this study were students and agricultural/ animal and related forestry workers. Availability of suicidal methods such as chemicals used in agriculture may explain high incidence of suicide among agricultural workers with suicidal attempts. 24% of participants reported to have a past history of psychiatric disorders. Out of those psychiatric disorders, history of depression was present in nearly 80% of patients. High incidence of past history of depression among suicidal attempters needs to be taken seriously as this may lead to self harming behaviours and suicidal ideas. Recognition and treatment of depression can lead to reduction of suicide attempts. In this study, history of psychiatric illness was looked at, Therefore it is difficult ascertain whether these patients were suffering from a mental disorder at the time of suicidal attempt.

Family history of psychiatric problems and family history of suicide attempts seem to be present in about one third of participants. The associations between family history of suicide and suicidal attempts have been shown in studies (Beautrais, 2003).

CONCLUSION: The factors responsible for attempted suicides were in the age group of 20-29yrs, male sex, low education level, low socio-economic status and illness.

One of the limitations in the study is that Badulla district is covered by few other hospitals. Hence the data on patients attending this hospital does not give an overall picture of suicide attempts in the Badulla district.

Effective suicide preventive and control measures need to be taken in the form of early identification of suicide-prone individuals. Micro-level analysis of suicides and suicidal attempts are required to identify high risk population. Apart from strengthening poverty improvement programs, input from Department of Community Medicine in medical colleges are required to develop understanding in sociology, mental health and community health development. Local NGOs can make a significant contribution in this direction.

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