SUICIDE INTENT, LETHALITY AND LIFE STRESSES IN SUICIDE ATTEMPTERS WITH AXIS I DISORDERS

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BRANCH - XVIII

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CERTIFICATE

This is to certify that this dissertation entitled "**SUICIDE INTENT, LETHALITY AND LIFE STRESSES IN SUICIDE ATTEMPTERS WITH AXIS I DISORDERS"** is the bonafide original work of **Dr. M. THENRAL** in partial fulfillment of the requirement for MD (Branch XVIII) Psychiatric examination of the **Tamil Nadu Dr. MGR Medical University** to be held in March 2009.

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DECLARATION

I, **Dr. M. THENRAL**, solemnly declare that this dissertation **"SUICIDEINTENT LETHALITY AND LIFE STRESSES IN SUICIDE ATTEMPTERSWITH AXIS I DISORDERS "** is a bonafide record of work done by me in the Department of Psychiatry, Government Stanley Medical College and Hospital, Chennai under the guidance of **Prof. Dr. M. THIRUNAVUKARASU**, **M.D.D.P.M,** Head of the Department, Department of Psychiatry, Government Stanley Medical College and Hospital, Chennai – 600 001.

This dissertation is submitted to the Tamilnadu Dr.M.G.R.Medical University, Chennai in partial fulfillment of the University regulations for the award of MD Degree (Psychiatry) Branch-XVIII, Psychiatry Examination to be held in March 2009.

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Date: **(Dr. M. Thenral)**

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CONTENTS

INTRODUCTION

“Life is a stage with one entrance but many exits”

Will Durant (1954).

Suicide is a psychiatric issue by itself and is also associated with other psychiatric illnesses. Though fatal outcomes in suicidal attempts are not seen in hospitals in our set up, other factors of rescue do play a part in hospital attendance.

Suicidal acts with non-fatal outcome are labeled suicide attempts, attempted suicides, Parasuicide, or acts of deliberate self harm. These terms are used to describe behaviors, through which people inflict acute harm upon themselves with a non fatal outcome. These behaviors are some how linked to, but do not result in death.

According to WHO/EURO multi-centre study on Para suicide, it is defined as "An act with non fatal outcome in which an individual deliberately initiates a non habitual behavior, that without intervention from others will cause self harm, (or) deliberately ingests a substance in excess of the prescribed (or) generally recognized dosage, and which is aimed at realizing changes that the person desires via the actual (or) expected physical consequences".

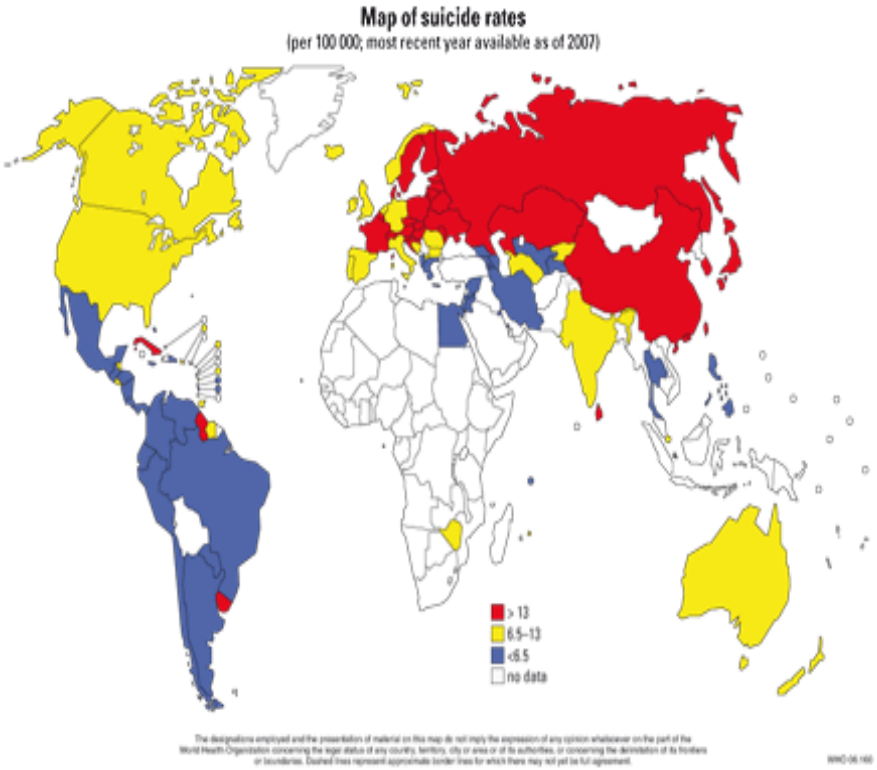
Hence, non- fatal suicidal attempts can have different motivations, varying from an intention to die or a cry for help. These attempts may be well prepared or carried out impulsively. The degree of lethality and the degree of

medical seriousness thus depend upon intention, preparation, knowledge and expectations of the method chosen and sometimes upon coincidental factors, such as intervention from others.

Risk and protective factors are associated with suicidal behaviors in young females, including stressful life events, mental disorders and hormonal factors. Risk and protective factors suggest potential pathogenic mechanisms and indicate the need for efficient method to reach these people at risk.

As per the WHO statistics, in the year 2000, approximately one million People died from suicide: a "global" mortality rate of 16 per 100,000, or one death every 40 seconds. In the last 45 years suicide rates have increased by 60% worldwide.

Suicide is now among the three leading causes of death among those aged 15-44 years (both sexes); these figures do not include suicide attempts up to 20 times more frequent than completed suicides. Suicide worldwide is estimated to represent 1.8% of the total global burden of disease in 1998, and 2.4% in countries with market and former socialist economies in 2020. Although traditionally suicide rates have been highest among the male elderly, rates among young people have been increasing to such an extent that they are now the group at highest risk in a third of countries, in both developed and developing countries.



Ettlingers (1964) in his review reports, 1-2% of those who attempt suicide eventually complete suicide annually. For every single successful suicidal attempt 5-10 persons attempt but do not succeed.

Mental disorders (particularly depression and substance abuse) are associated with more than 90% of all cases of suicide; however, suicide results from many complex sociocultural factors and is more likely to occur particularly during periods of socioeconomic, family and individual crisis situations (e.g. loss of a loved one, employment, honor).

Though there were observations about suicide and suicidal behavior in ancient times, the studies on attempted suicide and suicide have gained impetus in the recent past. Such studies have lent credence to the theory that the suicidal state appears to a large extent, a potentially recognizable and preventable one.

Due to expansion of the problem of attempted suicide, major research effort has been directed towards investigation on the characteristics of people who attempt suicide and is given a high priority in suicide prevention. At risk population for suicide and attempted suicide is a group which has to be identified and intervened to prevent death from this eminently preventable cause.

The aim is not only to achieve a fall in rate of suicide but also to restore the individual's mental health, the sources of emotional sustenance, which is necessary for survival and to maintain the dignity of human life.

REVIEW OF LITERATURE

Suicide is apparently a preventable volitional act. The first step towards prevention is to identify at risk population. The psychiatrically ill are at high risk of suicide.

The role of mental illness, especially depression in the causation of suicide has been recognized for a long. Describing clinical features of melancholia and the predisposition to self- destruction, Freud (1917) remarked "this picture of delusional belittling is completed by an overthrow, psychologically very remarkable of that instinct, which constraints every living thing to cling to life. Benjamin Rush mentions the depressive's self destructive tendency, 'as a symptom of despair that often drives the distracted subject of it to precipitate the slow approaches of death with his own hands"

The stress diathesis model states that the diathesis of longitudinal stress may lower or raise the threshold, to engage in suicidal behaviour. Stress may be a trigger which can precipitate this behaviour. The stressors can include mental disorder or physical illnesses, alcohol and other substance abuse and personal loss or rejection. Clearly these issues are not independent or not mutually exclusive.

As to the locus of pathology whether is in man or in society, a number of psychological and social concepts are said to play a role in understanding

suicidal behaviour. Ringel evolved the concept of pre-suicidal syndrome characterized by a state of constriction- which can be situational, affective, and dynamic, of defense mechanism and of human relation.

Suicide is not a merely statistically analyzable event but a Human cessation, an expression of personal agony. In the assessment of suicide risk the precipitating factor, the intensity of suicidal intentions, the patients' motivation for suicide and the lethality of the attempt have to be taken into consideration.

Attempted suicide is not only a major risk factor for subsequent completed suicide, but also a morbid health event that results in personal suffering, Rosen (1976).It is an indicator of the fact that one’s physical or mental health or social situation is unsatisfactory –Kotila & Lonnquist (1987).

I. PSYCHIATRIC MORBIDITY AND SUICIDE ATTEMPTS

Suominen K et al. (1996), has found that in 98% of the cases at least one Axis I diagnosis was made. Depressive syndromes were more common among females (85%) than males (64%). A high proportion of suicide attempters (82%) suffered from co morbid mental disorders.

In Keith Hawton et al, (1987) study, 90% of cases were diagnosed to have psychiatric disorder. Of this 46% had personality disorder and 44% had co morbid psychiatric and personality disorder. Depression, Neurotic Disorder, Alcohol Dependence was the commonest diagnosis. Further Co morbidity characterizes an important subgroup of suicide attempters the significance being they have a risk of repeated suicidal behavior.

Camill Haw et al,(2001) in his study found, 92% have psychiatric diagnoses. Single diagnosis found in 45.3% of cases, 2 diagnoses in 36.5% of cases, 3 or more diagnoses in 10% of cases.

H.Gethin Morgan et al (1975). reported, 52% had neurotic depression, 29% had personality disorder, and 10% had alcohol dependence.

Gomez A et al, (1973) found that 50% of female suicide attempters had major depression.

Jon Ennis et al. 31% had major depression, but many had moderate depression.

Norden Toft et al and Ennis et al diagnosed psychiatric disorders in 85% of cases. Found depression in 31%, personality disorder in 57.7%, and alcohol dependence in 33.8% and adjustment disorders in 9.9% of cases.

Gupta and Trezepac reported psychiatric morbidity in 96% of cases. 37.2% had depression, 35.8% had adjustment disorders.

According to Gregory most suicide attempters had depression. In the study of S.C.Gupta, Harjeet Singh,(1981) psychiatric morbidity was found in 62% of cases. Neurotic depression was the main category.

Unni et al (1995) described, "Wish to change group" were common among attempters. Only 23% of these had definite psychiatric diagnosis. Where as 75% in "wish to die group" had psychiatric diagnosis.

N.Subramanian, P.N.Suresh Kumar found depression in 35.2%, adjustment disorder in 29.2%, drug /alcohol dependence in 12% .Further 96% had more than one diagnosis.

According to A Venkoba Rao, physical and mental illness and socio economic factors were the causes of suicide attempts in majority of cases. 12.2% of persons had psychiatric morbidity.

Alcohol abuse had been the causative factor in 10.4% of cases. 13.95% had been suffering from psychiatric ailment – Ponnudurai et al.

Nisha cyriac et al and Nimesh Parish found more adjustment disorders in attempted suicide.

Shoba Nair et al. reported borderline personality disorder as the commonest one, also they had past history of one attempt.

Bagardia et al., Desai et al., Sethi et al, Sathyavathi, Venkaba Rao, and Chinnayan and most of them suggested high incidence of psychiatric illness among attempters.

Annette L. Bentrais, M.A. et al,(1996). diagnosed mental disorders in 90.1% of serious suicide attempters. 56.6% had two or more disorders. They found higher number of mood disorders.

II .SUICIDE AND INTENT

Kumar CT et al (1996) reported that high intent suicide attempts are associated with distinct socio demographic profiles and psychiatric morbidity. Mann JJ et al. (1999) found higher scores on subjective depression, higher scores on suicidal ideation and fewer reasons for living in suicide attempters. Nandhini V. (2006) attempts with psychiatric disorder had high suicidal intent score and current suicidal risk.

K. Krishnamurthy et al (2004) found that younger age group and males were frequently associated with schizophrenia than depression. The suicide Intent score, which was of medium severity, was found to be higher in schizophrenic group (50%) as compared to depression (25%). The risk of repetition was found to be present in 6.67% of Schizophrenia.

Unni Kes & Mani AJ (1996) found depression (59.74%), substance abuse and psychosis each (9.74%), neurotic disorder (7.14%) and bipolar disorders (9.09%) among the suicide ideators.

C.T. Sudhir Kumar and R.Chandrasekaran (2006) found 64.86% of adolescent patients had psychiatric disorder. Depression was the main diagnosis. Degree of depression, hopelessness, suicidal intent is significantly high among adolescence.

Polewka A et al. (2005) reported that in 65% of the patients, the suicide attempts were acts of impulsive behavior and usually made in another person's presence or in a situation where another person's intervention was highly probable. Such attempts had the character of "a cry for help" and were armed at effecting some change or at manipulating the environment. Though they acted with a conviction that their act was a serious attempt at ending life and maintained such opinion, they rarely expressed further suicidal intent.

By contrast, the remaining 35% of the patients had attempted suicide with the evident intention to kill themselves, they had taken full precautions against being discovered and had planned suicide carefully to eliminate the smallest possibility of intervention. In the majority of cases, they still maintained the wish to die after the attempt.

Plutchik R et al. (1989) reported that both depression and impulsivity correlate positively with the strength of the intent to commit suicide, but found no correlation between measures of intent and seriousness of the attempt.

Fierria de Castro et al., (1998) found a positive correlation between high parasuicide intention and co morbidity of alcohol dependence and major depression. Suominen K et al. (1999) in a sample of 114 consecutive cases of attempted suicide compared pure depressives without alcohol dependence, pure alcohol dependants without depression and alcohol dependents with depression. They found a higher suicidal intent and lower impulsiveness in cases of major depression without alcohol dependence than with alcohol dependents without depression.

Oquendo et al (2000) reported that bipolar subjects with a history of suicide attempt experience more episodes of depression, and react to them by having severe suicidal ideation. Mayfield and Montgomery (1972) hypothesized that the relationship between alcoholism and suicide may actually be an association between alcohol intoxication and suicide. The intoxicated suicidal attempt is an abreactive one where the attempt is said to occur at the onset of drinking or at the time of rapid increase in the level of intoxication in the context of interpersonal interaction and the concomitant behavior observed aggression and hyperactivity.

According to Nielson (1993) who discussed the relationship between intention and lethality of attempts, although alcohol dependent patients made highly lethal attempts, they score relatively low on the suicidal intent scale, i, e., they are nonetheless at a higher risk for making fatal suicidal attempts.

Allebeck et al (1987) found that suicidal acts among schizophrenic were often impulsive and difficult to predict. Distribution of age and sex and a history of depressive episodes were factors not associated with increased risk.

Hackany et al. (1999) concluded that most suicide attempts in schizophrenia were of moderate to severe lethality with significant suicidal intent.

Conner et al. (2007) High intent acts of suicide were associated with major depression, chronic stress, and a relative or associate who had a history of suicidal behavior.

III. SUICIDE AND LETHALITY

Pedinielli JL et al. (1989) suggested the existence of relationship between "high lethality" on one hand, and diagnosis of psychosis, depressive symptomatology, high suicidal intent, some conception of death, on the other hand. "A low lethality' is associated without hedonistic conception of death, lack of positive signs of depression, existence of impulsiveness, psychopathic behavior, or lack of established mental disorder.

Power K.G et al (1985) reported that those whose Para suicide resulted in high lethality differed from those showing low lethality in there degree of suicidal intent, but did not differ in life stress or age.

Lecrubier et al (2001) suggested that Depressive disorders are the major risk factor, a risk probably linked to current episode. The number of associated disorders linearly increases the probability of attempting suicide and is the only significant predictor for lethality.

According to Nielson although alcohol dependent patients made highly lethal attempts, they score relatively low on the suicidal intent scale. They are at a higher risk for making fatal suicidal attempts.

Harkavy et al. (1999) concluded that most suicide attempts in schizophrenia were of moderate to severe lethality, with significant suicidal intent.

Jri et al (1990) - Psychiatric patient's risk of suicide is 3 to 12 times greater than that of non - patients.

Nakagawa et al (2008) found that seriousness of suicide attempt planning correlated well with lethality of suicidal acts. Co morbid anxiety disorder and anxiety has a negative Correlation with suicide planning, specifically with panic disorder.

Mitrev et al. (1996) are of the opinion that suicidal risk was higher in chronic adjustment disorder and patients with previous suicide attempts. Highest suicide risk was found in the age group of 15-19 years. Also women with impulsive suicide attempt showed a lower risk than women with the non-impulsive attempt.

Soloff PH et al (2000) Co morbidity of Borderline Personality Disorder with Major Depressive episode increases the number and seriousness of suicide attempts. Hopelessness and impulsive aggression independently increase the risk of suicidal behavior in patients with Borderline Personality disorder and in patients with Major Depressive Disorder.

Baca - Garcia et al (2001) found a paradoxical relationship between impulsivity and lethality of suicide attempts. They found an inverse association between these two .Further impulsivity of the attempter was not a good predictor of impulsivity of the index attempt. Also impulsive attempts were associated with low lethality and lack of depression.

IV .SUICIDE-INTENT AND LETHALITY

Studies from India (Kumar, 2000) and abroad (Marzuk et al 1992) have shown a negative correlation between suicidal intention and lethality of attempt. That means that even people with low suicide intention may end up in completed suicide because of using more lethal methods, or due to inadequate

or delay in seeking treatment. Patients with psychiatric disease, especially depression and alcoholism with co morbidity, were more represented in the wish to die group (WD). Wish to change (WC) group had more of adjustment problems than psychiatric disease. These findings were statistically significant - Sadanandan Unni et al.

Zhang et al (2007) found that the choice of suicide means was independent of gender and the lethality of means is positively correlated with the degree of suicide intent.

Norden Toft et al (2007) found that the predictors of suicide were male gender, higher age, previous suicide attempt, serious suicide attempt, alcohol and substance abuse, somatic disease, mental illness and planning of suicide attempt, high suicidal intent score, violent suicide attempt or suicide attempt with severe lethality and ongoing or previous psychiatric treatment .

Stanley B et al (2001) reported that self mutilators perceived their suicide attempts as less lethal, with a greater likelihood of rescue and with less certainly of death. In addition, they had significantly higher levels of depression, hopelessness, aggression, anxiety, impulsivity and suicide ideation. They exhibited more behaviors consistent with Borderline personality Disorder and were more likely to have a history of childhood abuse.

Brown GK et al (2004) suggested that higher levels of suicide intent were associated with more lethal attempts but only for those individuals who have more accurate expectations about the likelihood of dying from their attempts.

V. SUICIDE AND LIFE STRESSES

Srivatsava et al. found stressful life events in the last six months as important risk factors among attempted suicide persons than controls; he noted low prevalence (11.6%) of psychiatric disorders in cases. Familial and environmental stress predisposes individuals to suicidal behavior – Ponnudurai et al. (1986). By applying presumptive stressful life event scale M.K.Srivatsava et al, found stress in 34.3% of cases and 11.75% of controls. Nath et al, state that problems faced in preceding six months, mainly quarrel with family members was the most common precipitating factor.

Jain et al (1990) - Family quarrels was the major precipitating event in 42.9%, which was in the form of confrontation with siblings or with one of the parents. Other main crucial precipitating factors were financial problems (19.7%), examinations (16%), unemployment (10.7%) and problems at the place of job (10.7%).

Studies by Ponnudurai & Jayakar (1980), Hegde 1980, Banerjee et al 1990, Shukla et al 1990 also cited domestic problems as the main cause.

Sex: Women in India are more submissive, Docile and non assertive and these traits have been built into their Psyche with the result that they find themselves unable to deal with their negative feelings adequately. Among stresses, marital ones appear to be the most common. The hostile environment in families is compounded by problems of a difficult husband and dowry demanded by in laws. They fell helpless, as they fear losing their husband's sympathies and often, do not have any one to lean to. This results in the choice of suicide as a way out from psychological pain, anguish and suffering (Venkoba Rao, 1989).

Adolescent suicide attempters reported major negative and exit events compared to controls. – Dalia M et al.

The San Diego study on suicide found stresses like interpersonal loss / conflict, economic problems, illness, legal troubles, voluntary move and family illness emerge as significant factors.

Paykel et al. (1975) found that, when compared with controls depressives who attempt suicide manifested four fold greater evidence of previous stressful life events. Murphy et al. (1979) in his study states that accumulation of loss of interpersonal relationship that too in preceding six weeks of attempts has emerged as an important predictor of suicide among alcohol dependents. Mondal et al, reports recent stress and interpersonal problems, marital conflicts are important predictors.

Chastang et al. Latha et al (1999), Sudhir Kumar et al. are in agreement with recent stressful life events preceding the attempts.

AIM AND OBJECTIVE

To assess the suicidal intent, lethality and life stresses in suicide attempters with Axis I disorders and compare with suicide attempters with out axis I disorders.

HYPOTHESIS

1. The suicidal intent is high in Suicide attempters with Axis I Disorders.

2. The lethality is high in Suicidal attempters with Axis I Disorders.

3. Stress factors play a major role in Suicide attempters with Axis I disorders.

4. Suicidal Intent positively correlates with lethality of attempt in patient with Axis I Disorders.

MATERIALS AND METHODS

SITE OF STUDY:

Medicine and Surgical wards, IMCU, Government Stanley Hospital.

PERIOD OF STUDY:

April 2008 to September 2008

TYPE OF STUDY: CASE CONTROL STUDY

Cases – 30 consecutive patients admitted for attempted suicide fulfilling the inclusion criteria for cases

Controls– 30 patients admitted for attempted suicide fulfilling the inclusion criteria for controls.

INCLUSION CRITERIA:

CASE

1. Age > 18 years

2. Patients who attempted suicide and fulfilling the ICD 10 criteria for Axis I diagnosis.

CONTROLS:

1. Patients who attempted suicide, without Axis I disorders individually matched for each case in respective age (+ or – 2 yrs) and sex.

EXCLUSION CRITERIA:

1. Seriously ill patients among attempters.

2. Un Co-operative patients.

TOOLS USED:

- PROFORMA TO ELICIT SOCIO DEMOGRAPHIC DATA
- MINI INTERNATIONALNEUROPSYCHIATRIC INTERVIEW PLUS (MINI PLUS)
- SCALE FOR SUICIDAL IDEATION (BECK et al)
- RISK RESCUE RATING SCALE (WEISSMAN AND WORDERN)
- PRESUMPTIVE STRESSFUL LIFE EVENTS SCALE (SINGH et al)

I. PROFORMA FOR SOCIO DEMOGRAPHIC VARIABLES

- Information regarding name, age sex, marital status, education, occupation, family system, income and type of Domicile were obtained using the proforma.

II. MINI INTERNATIONALNEUROPSYCHIATRIC INTERVIEW PLUS (MINI PLUS)

The M.I.N.I. was designed as a brief structured interview for the major Axis I psychiatric disorders in DSM-IV and ICD-10.

Validation and reliability studies have been done comparing the M.I.N.I. to the SCID-P for DSM-III-R and the CIDI (a structured interview developed by the

World Health Organization for lay interviewers for ICD-10). The results of these studies show that the M.I.N.I. has acceptably high validation and reliability scores, but can be administered in a much shorter period of time (mean 18.7 ± 11.6 minutes, median 15 minutes) than the above referenced instruments. It can be used by clinicians, after a brief training session. The M.I.N.I. Plus is a more detailed edition of the M.I.N.I. Symptoms better accounted for by an organic cause or by the use of alcohol or drugs.

GENERAL FORMAT:

The M.I.N.I. Plus is divided into modules identified by letters, each corresponding to a diagnostic category.

•At the beginning of each diagnostic module (except for psychotic disorders module), screening question(s) corresponding to

The main criteria of the disorder are presented in a gray box.

•At the end of each module, diagnostic box (es) permits the clinician to indicate whether diagnostic criteria are met.

III. SUICIDE IDEATION SCALE

Beck's suicidal ideation scale to measure the degree of suicidal intent.

The scale has two sections.

1. The first covers the circumstances surrounding the attempt.

2. The second describes the patient's expectations and feelings at the time of attempt

It includes 21 items each one can be scored 0, 1 or 2. The total score ranges between 0-42. High scores correspond to higher suicidal intent.

IV.RISK-RESCUE RATING SCALE

Weisman and Worden's risk-rescue rating scale developed in the year 1972, estimate the risk of Suicide attempt. This scale helps to assess the lethality of a given parasuicide case. It does so by estimating the ratio between risk of the behavior and likelihood of the rescue.

V.PRESUMPTIVE STRESSFUL LIFE EVENTS SCALE

The above scale was developed by Gurmeet Singh et al. in the year 1984. This scale has 51 items and each item has a mean stress score. A cumulative score can be obtained by summing up the individual scores and weighed depending upon the stress caused to the individual. This scale assesses the events in lifetime or within a short span of time.

SELECTION OF SAMPLE AND CONTROLS:

The sample population of the study comprised of 200 patients admitted for suicide attempts in Medicine, Surgical and Intensive Medical Care wards and referred to the Department of Psychiatry for evaluation during the period of April 2008 to September 2008.

Out of 200 patients, 8 patients refused Psychiatric evaluation and 67 patients were below 18 years of age, hence excluded from the study. Then MINI PLUS was administered to the remaining 125 patients. Forty three patients had a Psychiatric diagnosis ,of whom 8 patients had a diagnosis of personality disorder (Axis II Disorder) and 5 patients did not give consent for the study . Therefore 30 patients who fulfilled the inclusion criteria were taken as cases .Of the remaining 82 patients who did not have an Axis diagnosis , 30 age and sex matched patients were taken as controls.

ETHICAL COMMITTEE APPROVAL

The study protocol was submitted before the Ethical committee of Govt. Stanley Medical College, presided over by the Dean & the approval obtained. A copy of the approval certificate is enclosed in the annexure (Appendix - 5).

OBSERVATIONS AND RESULTS

TABLE-1

AGE DISTRIBUTION

Age (Year)	GROUP				Chi-square test
	Case		Control		
	n	%	n	%	
< 20	9	30.0	9	30.0	$\chi^2 = 0$
20 – 30	16	53.4	16	53.4	p = 1
30 – 40	4	13.4	4	13.4	Not significant
> 40	1	3.3	1	3.3	

There was no significant statistical difference among age distribution between cases and control group.

TABLE-2

SEX DISTRIBUTION

Sex	GROUP				Chi-square test
	Case		Control		
	n	%	N	%	
Male	8	26.7	8	26.7	$\chi^2 = 0$
Female	22	73.3	22	73.3	p = 0.29
					Not significant

There was no significant statistical difference between cases and control in sex distribution. Females predominated in the study group (73.3 %)

TABLE-3

RELIGION

Religion	GROUP				Chi-square test
	Case		Control		
	n	%	N	%	
Hinduism	26	86.7	26	86.7	$\chi^2 = 0.533$
Islam	2	6.7	1	3.3	p = 0.765
Christianity	2	6.7	3	10.0	Df = 2
					Not significant

Among religion, there was no significant statistical difference between cases and control group. Hindus constituted highest percentage among cases and control groups.

TABLE-4

MARITAL STATUS

Marital Status	GROUP				Chi-square test
	Case		Control		
	N	%	n	%	
Married	19	63.3	18	60.0	$\chi^2 = 0.070$
Unmarried	11	36.7	12	40.0	p = 0.79
					Df = 1
					Not significant

There was no significant statistical difference between cases and control group in marital status. Majority of the patients in cases and control group were married.

TABLE-5

EDUCATIONAL STATUS

Education	GROUP				Chi-square test
	Case		Control		
	N	%	N	%	
Illiterates	2	6.6	4	13.4	$\chi^2 = 4.65$
Upto 8th Std	5	16.7	8	26.7	p = 0.19
9th-12th Std	18	60.0	17	56.6	Df = 3
Higher Studies	5	16.7	1	3.3	Not significant

There was no significant statistical difference in educational status between cases and controls.

TABLE-6

OCCUPATION

Occupation	GROUP				Chi-square test
	Case		Control		
	n	%	N	%	
Employed	13	43.3	10	33.4	$\chi^2 = 2.627$
Unemployed	9	30.0	6	20.0	p = 0.268
House Wife	8	26.7	14	46.6	Df = 2
					Not significant

There was no significant statistical difference in occupation status between cases and controls.

TABLE-7

FAMILY SYSTEM

Family System	GROUP				Chi-square test
	Case		Control		
	n	%	N	%	
Nuclear	25	83.3	27	90.0	$\chi^2 = 0.576$ p = 0.447 Df = 1 Not significant
Joint	5	16.7	3	10.0	

There was no significant statistical difference between cases and controls in family system.

TABLE-8

SOCIOECONOMIC STATUS

Socioeconomic status (Income/Month)	GROUP				Chi-square test
	Case		Control		
	n	%	n	%	
<Rs.3000	10	33.3	11	36.7	$\chi^2 = 0.0733$ p = 0.786 Df = 1 Not significant
>Rs.3000	20	66.7	19	63.3	

There was no significant statistical difference in socioeconomic status between cases and control population.

TABLE-9

DOMICILE

Domicile	GROUP				Chi-square test
	Case		Control		
	n	%	n	%	
Urban	25	83.3	19	63.3	$\chi^2 = 3.4848$
Sub Urban	5	16.7	10	33.4	p = 0.175
Rural	0	0	1	3.3	Df = 2
					Not significant

There was no significant statistical difference in domicile between cases and control population.

TABLE-10

TYPE OF DWELLING

Type Of Dwelling	**GROUP**				**Chi-square test**
	Case		**Control**		
	N	**%**	**N**	**%**	
Rental	25	83.3	19	63.3	$\chi^2 = 1.269$
Own	5	16.7	11	36.7	p = 0.259 Df = 1 Not significant

There was no significant statistical difference in type of dwelling between cases and control population.

TABLE 11

AXIS – 1 DIAGNOSIS – BREAK UP DETAILS

S. No	AXIS 1 DIAGNOSIS	Cases	
		N	%
1	Major Depressive Disorder	16	53.4
2	Substance Use Disorder	6	20.0
3	Schizophrenia and Psychotic Disorders	2	6.6
4	Adjustment Disorder	4	13.4
5	Mixed Anxiety & Depression	2	6.6

Among the Axis one diagnosis of cases, 16 persons (53.4%) came under

Major Depressive Disorder.

6 persons (20%) belonged to the category of substance use disorder.

4 persons (13.4%) had adjustment disorder.

2 persons (6.6%) suffered from Schizophrenia and Psychotic disorder

2 Persons (6.6%) were found to have mixed anxiety and depression

TABLE 12

COMPARISON OF INTENT SCORE

S .NO	INTENT SCORE	GROUP				SIGNIFICANCE
		CASES		CONTROL		
		N	%	N	%	
1	LOW	13	43.3	30	100	$\chi 2=23.720$
2	MODERATE	9	30.0	0	0	Df=2
3	HIGH	8	26.7	0	0	p=0.0001
						Highly significant

In the sample, all the controls (100%) scored low on suicide intent scale.

Among cases 13 persons (43.3%) had low suicide intent.

9 persons (30%) and 8 persons (26.7%) had moderate and high intent scores respectively. There is high statistical difference between the cases and control in Suicidal intent. This supports the high suicide intent in patients with Axis – 1 Disorders.

TABLE 13

COMPARISON OF RISK – RESCUE FACTORS – LETHALITY OF ATTEMPT

S. No		GROUP				SIGNIFICANCE
		CASES		CONTROLS		
		Mean	SD	Mean	SD	
1	RISK SCORE	2.7667	0.7739	1.9333	0.7397	t = 3.7343 p=0.0004
2	RESCUE SCORE	4.1667	0.6989	4.7333	0.4498	t = 4.2637 p = 0.0001
3	RISK – RESCUE RATIO	39.66	9.1941	28.27	7.9066	t = 5.1426 p = 0.0001 Highly significant

The mean of risk score, rescue score, risk – rescue ratio were found out and the difference of their mean among Suicide attempters with and without Axis 1 disorders was obtained using student 't' test. This shows 'p' value of 0.0001 which is highly significant. This shows the high lethality of the suicide attempts made by patients with Axis -1 disorder.

TABLE 14

COMPARISON OF STRESSFUL LIFE EVENTS - SCORES AND NUMBER OF EVENTS.

S. No		Group				Significance
		Cases		Controls		
		Mean	SD	Mean	SD	
1	PSLE Score	118.13	45.024	52.33	30.069	t= 6.6566 p=0.0001
2	Number of stressful life Events	2.100	0.8030	1.00	0.5872	t= 6.0564 p=0.0001 Highly significant.

This table shows that the cases have signicant life event stressors both as total mean score and number of events. The 'p' value of 0.0001 which is highly significant implies the same in statistical terms.

TABLE 15

COMPARISON OF SIGNIFICANCE OF PSLE- SCORE AND NUMBER OF EVENTS.

S. No		Group				Significance
		Cases		Control		
		N	%	N	%	
1	PSLE Score 1 Significant (>110)	18	60	1	3.3	$\chi 2$= 22.2593 p=0.0001
	2 Not Significant(<110)	12	40	29	96.7	
2	Number of events 1 Significant (>2)	11	36.7	0	0	$\chi 2$= 13.4694 p=0.0002 Highly significant
	2 Not Significant (< 2)	19	63.3	30	100	

On comparing the significance of PSLE Score and the number of life events

Using Chi - square test, the cases had more life stresses compared to controls

as shown in the table.

TABLE 16

CORRELATIONS BETWEEN SUICIDE INTENT, LETHALITY AND LIFE STRESSES. AMONG STUDY GROUP

S. N o	GROUP			Intent Score(IS)	Risk Rescue Ratio	PSLES
1	Cases	Intent Score(IS)	Pearson Correlation	1	.688(**)	.148
			Sig. (2-tailed)	.	.000	.434
			N	30	30	30
		Risk Rescue Ratio	Pearson Correlation	.688(**)	1	-.016
			Sig. (2-tailed)	.000	.	.935
			N	30	30	30
		PSLES	Pearson Correlation	.148	-.016	1
			Sig. (2-tailed)	.434	.935	.
			N	30	30	30
2	Controls	Intent Score(IS)	Pearson Correlation	1	-.330	.101
			Sig. (2-tailed)	.	.075	.595
			N	30	30	30
		Risk Rescue Ratio	Pearson Correlation	-.330	1	-.002
			Sig. (2-tailed)	.075	.	.991
			N	30	30	30
		PSLES	Pearson Correlation	.101	-.002	1
			Sig. (2-tailed)	.595	.991	.
			N	30	30	30

** Correlation is significant at the 0.01 level (2-tailed).

Cannot be computed because at least one of the variables is constant.

Pearson’s correlation coefficient formula was used to study the correlation between suicide Intent, Lethality and Life stresses in cases and controls.

There was significant positive correlation between suicide intent and lethality among cases and a negative correlation between suicide intent and lethality among controls.

DISCUSSION

CLINICO - SOCIO - DEMOGRAPHIC VARIABLES OF CASES AND CONTROLS

Comparing the two groups over socio demographic variables showed no statistically significant difference. This shows that the two groups are well-matched for education, marital status, occupation, income, family system and domicile (Table - 1).

Among cases i.e., suicide attempters with Axis I disorders Major Depressive Disorder was the diagnosis for 16 persons (53.4%). Substance use was found in 6 (20 %), Adjustment disorder in 4 persons (13.4%), Schizophrenia and Psychotic disorder was present in 2 (6.6%) and 2 persons (6.6%) belonged to the category of mixed anxiety and depression.

This finding goes in accordance with earlier studies conducted by Norden Toft et al, Gethin Morgan et al, S C Gupta et al, Jon Ennis et al and others.

HYPOTHESIS I

(The suicidal intent is high in Suicide attempters with Axis I Disorders. in other words people with Axis I disorder have a high intent to die.)

In our study, among cases, 17 persons (56.7%) scored moderate and high scores where as all the controls (100%) score low in suicide intent scale. The difference is highly significant in statistical terms with a p value of 0.0001($p<0.05$).This proves that the hypothesis is true.

The above results conform to the studies by Kumar CT et al, De Castro et al, Plutchik et al, Mann JJ et al, Nandhini V, and Conner et al.

HYPOTHESIS II

(The lethality is high in Suicidal attempters with Axis I Disorders .i.e., People with Axis I disorders make dangerous attempts)

Using the Risk Rescue Rating Scale, Cases had a high mean Risk score (2.76), while controls had a lower mean Risk score of 1.93.

On the other hand, controls scored high (4.73) in Rescue score compared to cases whose mean Rescue score was lower. (4.16).

Taken together cases had a Risk – Rescue Ratio of 39.66, whereas the controls scored 28.27.Though both of them seem to lay within the moderate lethality groups the difference is statistically significant with a high p value of 0.0001.

The above results goes in accordance with the studies of Pedinielli et al , Jain et al , Harkavy et al , Sadanand Unni et al , Nielson et al , Mitrev et al .

HYPOTHESIS III

(Stress factors play a major role in Suicide attempters with Axis I disorders)

Our study has found out that the cases had a significant mean PSLE Score of 118.13 compared to a mean score of 53.33 of controls. Adding to this the cases had a mean of 2.1 for the number of stressful events while the controls had a mean of 1.0. There is a significant statistical difference between cases and controls on the PSLE Scale and this is further strengthened by a high p value of 0.0001 on comparing the significance of the stress score and the number of life events. Thus the hypothesis is proved right.

This finding is contrary to reason where already vulnerability exists in the form of a mental health issue and with this in the background even a mild raise in live events or stress should increase the suicidal intent but a higher number of events are seen in the persons with psychotic disorders.

This may be explained by the reason that persons with mental health issues may have higher life events due to their illness or life events are associated with causation of mental illness and have made an attempt which was more serious but prevented by the rescue factors rather than merely being an

attempt. Another possibility is that in the controls impulsivity may be more and resilience to stressors may be found less in this sample alone

Paykel et al, Murphy et al, Chastang et al and the San Diego study also report similar findings.

HYPOTHESIS IV

(Suicidal Intent positively correlates with lethality of attempt in patient with Axis I Disorders.)

Using Pearson's correlation coefficient formulae, the correlation between suicide Intent, Lethality and Life stresses in cases and controls were studied.

There was significant positive correlation between suicide intent and lethality among cases and a negative correlation between suicide intent and lethality among controls.

Similar findings were reported in studies by Zhang et al, Nordentoft et al, Pedienelli and Power K.G et al.

SUMMARY

Suicide attempts and Psychiatric illness are inter related in a complex and bi directional way such that either of them leaves an impact on the other. People with Psychiatric morbidity are at high risk of attempting suicide. Even though extensive research works have been done in suicide, there is a paucity of studies focusing the mentally ill attempters, especially with reference to Intent and Lethality.

Hence the present study designed to study the various parameters , contributing factors and Risk factors associated with suicide attempts of patient with Axis I disorders and to find out the correlation between suicide intent,lethality and life stressors.

The study subjects of this case control study were recruited from the patients referred to the department of Psychiatry from Medicine, Surgical and Intensive care wards for Psychiatric evaluation. During the period of March 2008 to September 2008, 200 patients were referred from these wards as cases of attempted suicide to our department.

Among 200 patients, MINI PLUS was administered to 125 patients who fulfilled the criterion of age .Out of 125, 30 patients who had Axis I diagnosis as per the ICD – 10 criteria were taken as cases and 30 age and sex matched patients were taken as controls.

After obtaining informed consent the Subjects were interviewed with the following instruments.

Proforma to elicit socio demographic data

Scale for suicidal ideation (Beck et al)

Risk rescue rating scale (Weissman and Wordern)

Presumptive stressful life events scale (Singh et al)

Results indicate that two groups did not differ significantly on Socio Demographic variables. Descriptive analysis of cases shows 53.4% to have depressive disorder, 20 % suffering from substance use disorder, 13.4 % with adjustment disorder and 6.6 % in each of the two categories of Schizophrenia and Mixed anxiety and depression.

The suicidal intent i.e. the intent to die is high in suicide attempters with Axis I Disorder s compared to attempters who do not suffer from any Psychiatric illness. Also patients with Axis I Disorders make lethal attempts compared with the cases whose attempts are marked with low lethality. Compared to attempters without Psychiatric illnesses, the study population with Axis I disorder had more significant life stresses and made more serious attempts. The presence of higher life events in the background of mental illness may have contributed to the higher lethality of the attempt.

Among patients with Axis I Disorder there was a significant positive correlation between the suicidal intent and lethality.

CONCLUSION

1. The suicidal intent is high in Suicide attempters with Axis I Disorders.

2. The lethality is high in Suicidal attempters with Axis I Disorders.

3. Stress factors play a major role in Suicide attempters with Axis I disorders.

4. Suicidal Intent positively correlates with lethality of attempt in patient with Axis I Disorders.

LIMITATIONS AND SUGGESTIONS

1. In this study ,over a period of six months 200 patients who were admitted for attempted suicide were screened for Axis I disorders using MINI PLUS. But only 30 patients satisfied the selection criteria for cases. This may be due to exclusion of adolescent population who constituted a large proportion of suicide attempters. Hence a larger sample , preferably a community based study is suggested.

2. As this is a hospital based study, the finding could not be generalized to the community population.

3. The study doesn't include adolescent population, which may need further research.

4 Axis II Disorder has not been studied in this study population. It is a major limitation considering the fact that co – morbid Axis II Disorders, especially Bipolar and Antisocial personality disorder are more often associated with suicide attempts.

5. Impulsivity has not been measured in this study which might have thrown more light on the persons who did not have any axis I disorder but still attempted with less psychosocial stressors.

6. The study doesn't include completed suicides which may need further exploration.

IMPLICATIONS OF THE STUDY

The current study shows the significant association between Axis I Disorder and suicide. The findings stress the importance of assessment for **Axis I Disorder** especially depression in all parasuicides. This may help in the identification of at risk population and would serve as a mode of secondary prevention of suicide. The study is clinically relevant as it identifies the key variables and various factors associated with suicide attempts in patients with Axis I Disorders. The study can be extended further by evaluating the impact of identification and intervention of suicide behaviour in patients with Psychiatric illness. An intervention strategy based on the data obtained in the study can be designed , implemented and evaluated for its effectiveness.

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APPENDIX 1

PROFORMA

1. Name :
2. Age (years) : (1) < 20 (2) 20 - 30 (3) 30 – 40 (4) > 40
3. Sex : (1) Male (2) Female

4. Religion : (1) Hinduism (2) Christianity (3) Islam
5. Marital Status: (1) Married (2) Unmarried
6. Education : (1) Illiterate (2) Upto 8th STD
   (3) 9th-12th STD (4) Higher Studies
7. Occupation : (1) Employed (2) Unemployed
   (3) Housewife
8. Family system: (1) Nuclear (2) Joint
9. Monthly Income (Rs):
   (1) < 3000 (2) > 3000
10. Domicile : (1) Urban (2) Semiurban (3) Rural
11. Type of Dwelling: (1) Rental (2) Own
12. Suicide Ideation Score:
13. Risk Rescue Ratio:
14. PSLE Score :
15. Number of stressful Life Events :

APPENDIX – 2

Suicide Ideation Scale

I .Characteristics of attitudes towards living / Dying

1. Wish to live

0	Moderate to Strong
1	Weak
2	None

2. Wish to die

0	None
1	Weak
2	Moderate to Strong

3. Reasons for living or Dying

0	Living more than Dying
1	About equal
2	Dying more than living

4. Desire to make active suicide attempts

0	None
1	Weak
2	Moderate to Strong

5. Passive suicidal Desire

0	Take precautions to save life
1	Leave Life or Death to Chance
2	Avoid steps to maintain or save Life

II. Characteristics of Suicide Ideation / Wish

6. Duration of Suicide Ideation

0	Brief or Fleeting
1	More than Brief
2	Chronic / Almost continuous

7. Frequency of Suicidal thoughts

8.

0	Rare / Occasional
1	Intermittent
2	Continuous

Attitude toward Ideation Or Wish

0	Reject
1	Ambivalent
2	Accepting

9. Control Over Suicidal Action Or Acting-Out

0	Sense of control
1	Unsure of control
2	No sense of control

10. Deterrents to active attempt

0	Would prevent attempt
1	Some concern about deterrent
2	Minimal concern about deterrent /none

11. Reason for contemplated attempt

0	Manipulate, get attention, revenge
1	Mixture of both
2	Escape, end, solve problems

III.Characteristics of contemplated attempt

12. Specificity And Planning For Contemplated Attempt

0	None
1	not worked out
2	details worked out

13. Availability or Opportunity for Contemplated Attempt

0	not readily avialable or takes effort
1	method and opportunity available
2	anticipate chance in future

14. Sense of Capability To Carry Out Attempt

0	weak, afraid, incompetent
1	unsure of capability
2	sure of capability

15. Expectancy or Anticipation of Actual Attempt

0	no
1	uncertain
2	yes

IV . Actualization of contemplated attempt

16. Actual Preparation for Contemplated Attempt

0	None
1	Partial
2	Completed

17. Suicide Note

0	None
1	Only thought about started but not completed
2	Completed

18. Final Acts in Anticipation Of Death

0	None
1	Thought about made some arrangements
2	Made definite plans completed arrangements

19. Deception or concealment of contemplated suicide

0	Reveals ideas openly
1	Held back on revealing
2	Try to deceive, conceal, lie

V .Background Factors

20. Previous suicide attempts

0	None
1	One
2	More than one

21.Intent to die associated with last attempt

0	Low
1	Moderate , Ambivalent ,Unsure

2	High

APPENDIX 3

The Risk Rescue Rating Scale

Risk Factors

1. Agent used

1	Ingestion , cutting,Stabbing
2	Drowning, Asphyxiation , Strangulation
3	Jumping, Shooting

2. Impaired Consciousness

1	None in Evidence
2	Confusion , Semicoma
3	Coma , Deep come

3. Lesions /Toxicity

1	Mild
2	Moderate
3	Severe

4. Reversibility

1	Good , Complete Recovery expected
2	Fair, Recovery expected with time
3	Poor ,Residuals expected with Recovery

5. Treatment Required

1	First aid , E.W.Care
2	Hospital admission , Routine treatment
3	Intensive care , Special Treatment

Total Risk points =

Rescue Factors

1 .Location

3	Familiar
2	Non Familiar , Non Remote
1	Remote

2. Person initiating Rescue [a]

3.

3	Key person
2	Professional
1	Passer By

Probability of Discovery by any Rescuer

3	High,Almost certain
2	Uncertain Discovery
1	Accidental Discovery

4. Accessibility to Rescue

3	Asks for help
2	Drops clues
1	Doesn't ask for help

5. Delay until recovery [b]

3	Immediate , 1 hour
2	< 4 hours
1	> 4 hours

Total Rescue points =

a Self Rescue , automatically yields a Rescue Score of five

b There is a undue Delay in obtaining treatment after discovery, Reduce the final rescue score by one point

Risk Score

S.NO	Risk Points	Risk Category	Risk Score
1	13-15	High	5
2	11-12	High Moderate	4
3	9-10	Moderate	3
4	7-8	Low Moderate	2
5	5-6	Low	1

Rescue Score

S.NO	Rescue Points	Rescue Category	Rescue Score
1	5-7	Least Rescuable	1
2	8-9	Low Moderate	2
3	10-11	Moderate	3
4	12-13	High Moderate	4
5	14-15	Most Rescuable	5

Risk Rescue score = A X 100/A + B , where A = Risk score and B = Rescue score

The minimum Risk Rescue score is 17 for a low lethality self harm behaviour

The maximum Risk Rescue Score is 83 for a high lethality Self harm case

APPENDIX-4

PERSUMPTIVE STRESSFUL LIFE EVENTS SCALE (PSLES)

RANK NO	LIFE EVENTS	MEAN STRESS SCORE
1	Going on pleasure trip or pilgrimage	20
2	Wife begins or stops work	25
3	Change in eating habits	27
4	Change in social activities	28
5	Reduction in number of family works	29
6	Gain of new family member	30
7	Birth of daughter	30
8	Change in sleeping habits	33
9	Change in working conditions or transfer	33
10	Retirement	35
11	Begin or end schooling	36
12	Outstanding personal achievement	37
13	Change or expansion of business	37
14	Change in residence	39
15	Unfulfilled commitments	40
16	Trouble with neighbor	40
17	Getting married or engaged	43
18	Appearing for an examination or interview	43
19	Failure in examination	43
20	Death of pet	44
21	Major purchase or construction of house	46
22	Break with friend	47
23	Family conflict	47
24	Minor violation of law	48
25	Marriage of daughter or dependent sister	49
26	Large loan	49
27	Lack of son	51

28	Self or family member unemployed	51
29	Sexual problems	51
30	Conflict over dowry(self or spouse)	51
31	Pregnancy of wife(wanted or unwanted)	52
32	Prophesy of astrologer or palmist, etc	52
33	Trouble at work with colleagues, superiors or subordinates	52
34	Illness of family member	52
35	Financial problem or family loss	52
36	Son or daughter leaving home	54
37	Major personal illness or injury	55
38	Broken engagement or love affair	56
39	Conflict with in-laws(other than dowry)	57
40	Excessive alcohol or drug abuse by family member	57
41	Robbery or theft	58
42	Death of friend	59
43	Property or crop changed	60
44	Marital conflict	61
45	Death of close family member	64
46	Lack of child	66
47	Detention in jail of self or close family member	67
48	Suspension or dismissal from job	72
49	Marital separation or divorce	76
50	Extra-marital relation of spouse	80
51	Death of spouse	95

APPENDIX - 5

ETHICAL COMMITTEE APPROVAL

CERTIFICATE FOR APPROVAL OF ETHICAL COMMITTEE

To
Dr.M.Thenral , PG in M.D(Psy)
Dear **Dr. M.Thenral, PG in M.D(Psy)**
The Institutional Ethics Committee reviewed and discussed your application for approval of the project entitled
"Suicide intent,lethality and life stresses in suicide attempters with axis I disorders"
The following members of the ethics committee were present at the meeting held on 09.06.2008 at the Modernised Seminar Hall, Stanley Medical College, Chennai-1 at 10.00AM
Dr.A.Sundaram Dean i/c -
Chairman and Member Secretaryof the Ethics Committee

MEMBERS

Dr.Jayanthi
Prof.of Medical Gastroenterology
Dr.Madhavan
Prof.of Pharmacology
Dr.Rengaramani
Prof.of Biochemistry
Dr.Madhan
Prof.of Aneasthesiology
Dr.Thenmozhivalli
Prof.of Microbiology

We approve the project to be conducted in its presented form.

The Institutional Ethics Committee/Independent Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

Yours sincerely,

Member Secretary,
Ethics Committee

VICE PRINCIPAL
STANLEY MEDICAL COLLEGE
CHENNAI-600 001.

APPENDIX - 6

CONSENT FORM

I was informed and explained of the purpose and nature of the study. I am willing to participate in this study. I hereby give my full consent for the study.

Signature of the Patient/Control

Name of the Patient/Control