

Socio-Demographic Variables and Psychiatric Morbidity in Self Inflicted Burns Victims – Cross Sectional Observational Study

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ABSTRACT

Aim: To assess the Socio-demographic profile, Stressful live events, Suicidal intent, Psychiatric morbidity and pattern of injury in self-inflicted burns victims. **Design:** It is a cross-sectional observational study. **Methodology:** 60 consecutive cases were administered with special proforma for collecting Socio-demographic data, Presumptive stressful life event scale, Becks suicide intent scale and Mini International Neuropsychiatric interview. Depending on the presence or absence of psychiatric morbidity patients were divided into two groups. The two groups were then compared with regards to socio-demographic profile, suicide intent, PSLE scores, time of attempt and pattern of burns injury using appropriate statistical tests. **Results:** Majority belonged to less than 30 years of age and 2/3rd are females. Majority studied up to primary education and more than half were unemployed. On PLSE Majority had >3 life events. Family history of suicidal attempts present in 15% of the victims and >80% of the victims had moderate to high intent. 2/3rd of the victim had body surface area (TBSA) between 41-60% and >2/3rd attempted between 5pm -5am. 45% of the sample had psychiatric morbidity, most common was Depression. On comparison of two groups Significant difference noted in suicidal intent among individuals with psychiatric morbidity, where as Socio-demographic factors, time of attempt, pattern of burns injury and PSLE events and score did not show any significance between the two. **Conclusion:** Psychiatric morbidity and Stressful life events were risk factors for suicidal burns. By understanding multiple variables, suicidal intent and various psychiatric morbidity we can identify more vulnerable person for suicide and by giving more focus we can definitely prevent further suicide attempts and can reduce suicide mortality.

Keywords: *Suicidal Burns, PSLE (Presumptive Stressful Life Event scale), MINI (Mini International Neuropsychiatric interview), TBSA (Total Body Surface Area).*

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Suicide is defined as the intentional taking of one's own life. It is defined as a conscious act of self-induced annihilation, best understood as multi-dimensional malaise in a needful individual, who defines an issue for which suicide is perceived as the best solution.

Suicides accounts for approximately one million deaths annually worldwide. There are around 10 million to 20 million suicide attempts annually. Suicide is the eighth leading cause of death in men and the 16th leading cause of death in women. Everyday thousands of people commit suicide in the world, approximately 1% of the people die by suicide. Barraclough et al demonstrated that 93% of individuals of general population, who committed suicide, were suffering from psychiatric disorders prior to the death. In India suicide is among the top 3 causes of death between 16-35 age populations. In any given casualty service, 0.3% to 1 % of all victims constitute suicide attempts .

Risk factors cited in the literature include major depression, male sex, substance abuse, and young age group, unemployed and chronic illness. Of the half million people reported to die of suicide worldwide every year, 20% are Indians .

In the last two decades, the suicide rate has increased from 7.9 to 10.3 per 100,000. Male-12.2, female-9.1. Poisoning (36.6%), hanging (32.1%) and self-inflicted burns (7.9%) were the common methods used to commit suicide .

Suicide is a major cause of mortality and use of health resources; it is a serious but preventable public health problem. Though there is a good report and studies in India on suicidal behavior, there are only few have dealt with self-inflicted burns. Also Burns is a major public health problem which has not been researched much in form of psychological and psychiatric point of view.

Operational design:

The study was approved by institutional ethical committee. Study period was between 2010 June to 2011 June. 60 consecutive suicidal burns victims with the following inclusion and exclusion criteria were chosen for the study.

Inclusion Criteria

1. Age 15 – 60 yrs.
2. < 60 % TBSA involvement
3. Physically stable
4. Informed consent, willingness to participate

Exclusion Criteria

1. Age < 15 and > 60
2. Accidental cases
3. > 60% TBSA involvement

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The subjects were explained about the nature of the study and obtained informed consent. Socio demographic details as per proforma collected from all Subjects. Complete physical examination, Biochemical and laboratory investigations were done.

Evaluation done after giving prioritization to emergency care and management. Assessment of Burns wound done based on the Rule of nines which maps out the percentage of TBSA (Total Body Surface Area) of sections of our anatomy. The rule of nines, which states that each upper limb is 9% TBSA, each lower limb is 18%, the torso 18% each side and Head and neck 9% TBSA. Patients with abnormal vital parameters, delirious, uncooperative individuals were not taken up for the study in view of not interfering with physical morbidity. Due consideration of difficult interviewing majority of more than 60% burns were not taken for the interview, hence the cut off value has been setup to 60%. Physically stable individuals with <60% burns injury were taken for the study. Time of attempt was included in this study to know any significance.

Psychiatric evaluation done using The Mini International Neuropsychiatric Interview (MINI). It's a short structured clinical interview which enables to make diagnosis of 17 Psychiatric disorders according to DSM IV or ICD-10. With that the subjects were categorized into two groups one with presence of psychiatric morbidity and the other without psychiatric morbidity.

Suicide intent was assessed by Becks suicide intent scale for all 60 subjects. The scale was developed by Aaron T Beck. It is important to assess the suicide intent. It's a 20 item scale with 3 points for each item with maximum score of 60. And the score of 15-19- low intent, 20-28 – medium intent, 29 + - severe intent.

Life events were studied with Presumptive stressful life events scale (PSLE) The scale was developed by Gurmmet Singh, Dalbir Kaur, and Harsharan Kaur et al. PLSE scores assigned weights to each individual item varying from 0 to 100 and ranked them according to perceived stress of each event. In this study score of >150 considered and 3 or more events considered as severe.

Social status by Socio economic scale (S.E.Gupat and B.P.Sethi et al 1978, Kuppusamy et al 1961). The Social status by Socio economic scale (S.E.Gupat and B.P.Sethi 1978, Kuppusamy 1961). Socioeconomic scale consists of scores based on three variables namely education, occupation, and income. On the basis of ten point scale it consists of ten categories which were grouped with 5 social class namely very high, high, upper middle, lower middle and very low. The 10 point scale consists of 200 scores with equal class interval. The interrater reliability was found to be very high (R=0.9). Doubtful suicidal and accidental cases also excluded. Likewise 60 subjects were evaluated. Later the two groups were compared in relation to socio-demographic profile, stressful events, and pattern of burns injury and severity of suicidal intent.

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Statistical design

Statistical design was formulated using the data collected as above, for each of the scales and socio-demographic variables the central values and dispersion were calculated. In comparison of the data's for categorical variables chi-square test were used. SPSS 20.0th version used for analysis.

RESULTS

Table -1 Socio demographic variables in suicidal burn victims

Variables	N==60	%
AGE		
15-30	33	55
30-45	24	40
45-60	3	5
SEX		
MALE	22	36.66
FEMALE	38	63.33
EDUCATION		
ILLITERATE	10	16.66
PRIMARY	36	60
>PRIMARY	14	23.33
EMPLOYMENT		
EMPLOYED	26	43.33
UNEMPLOYED	34	56.66
SES		
LOW	36	60
MID	24	40
UPPER	0	0

Table 1 shows Majority belonged to less than 30 yrs. of age and 2/3rd are female. Majority of victim not crossed primary education. More than half were unemployed

Table- 2. Presumptive stressful live events among suicidal burns victims.

Sl.No	Variables	N=60	%
1	PSLE*		
	EVENTS <2	25	41.66
	EVENTS>3	35	58.33
2	PSLE*		
	SCORE <150	19	31.66
	SCORE>150	41	68.33

**PSLE – Presumptive stressful live event scale*

On PLSE - Majority had >3 life events in last 1yr. >2/3rd had significantly high score in past 1yr.

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Table 3. Suicidal intent, Total body surface area, Time of attempt among suicidal burns victims.

Sl.No	Variables	N=60	%
1	Suicidal intent		
	Low	10	16.66
	Mod	25	41.66
	High	25	41.66
2	Total body surface area		
	41-60%	39	65
	21-40	9	15
	<20	12	20
3	Time of attempt		
	5am -5pm	26	43.33
	5pm-11pm	18	30
	11pm-5am	16	26.66

Intent - >80% of the victim had moderate to high intent. TBSA- 2/3rd of the victim had body surface area between 41-60%. Time - >2/3rd had attempted between 5pm -5am

Chart 1- TBSA involvement (Total Body Surface Area Involvement)

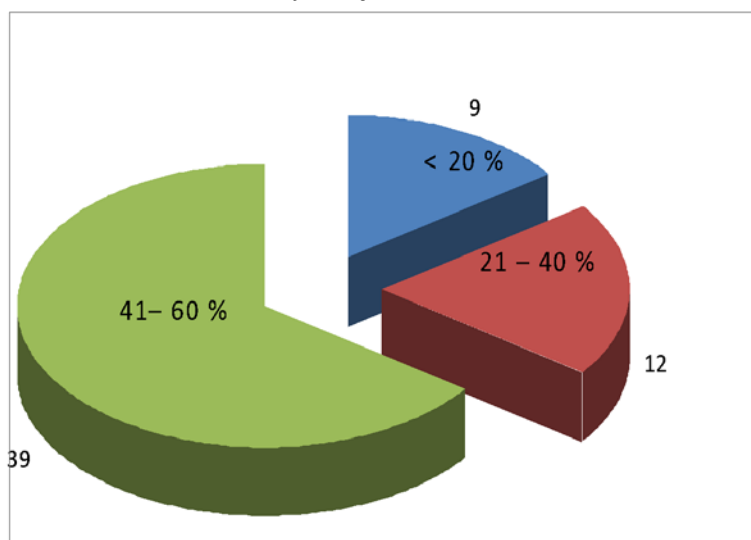


Table -4 Psychiatric morbidity among suicidal burns persons

VARIABLE	N=60	%
PSYCHIATRIC MORBIDITY		
PRESENT	27	45
ABSENT	33	55

45% of the sample had psychiatric morbidity, most common was depression followed by alcohol dependence.

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Table 5

TYPE OF PSYCHIATRIC MORBIDITY (based On MINI)	TOTAL 27/60	%
DEPRESSION	10	16.66
ALCOHOL DEP	6	10
ADJUSTMENT DIS	5	8.33
ACUTE STRESS RX	3	5
PSYCHOSIS	3	5

Chart 2 - Psychiatric morbidity

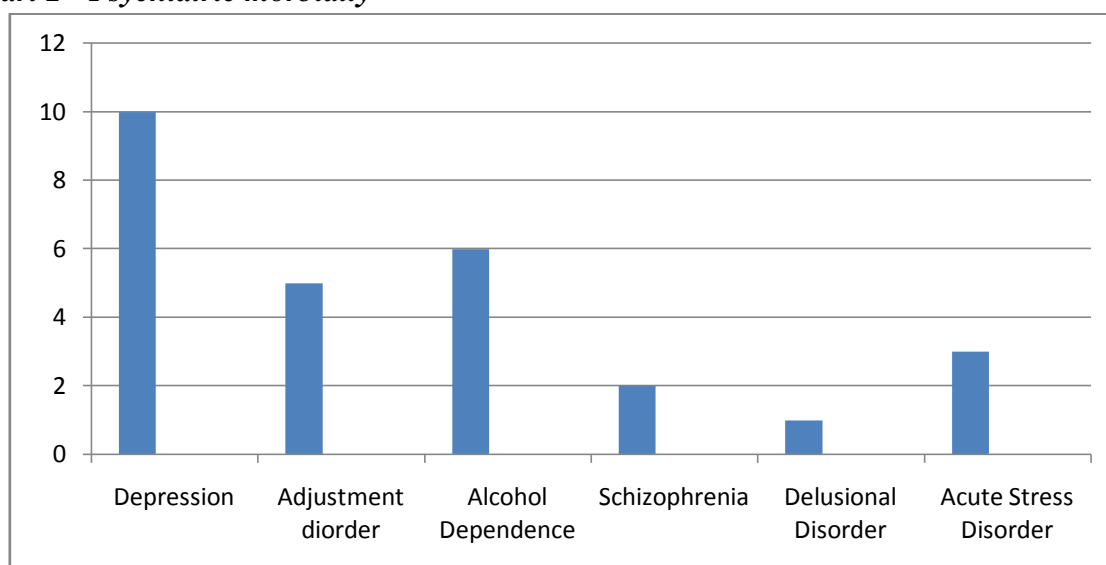


Table 6 Comparison of Socio demographic variables among those with and without psychiatric morbidity

SL. NO	VARIABLES	PSY ILLNESS PRESENT	PSY ILLNESS ABSENT	P value
1	AGE			0.293
	15-30	17	16	
	30-45	8	16	
	45-60	2	1	
2	SEX			0.053
	MALE	14	8	
	FEMALE	13	25	
3	EDUCATION			0.204
	ILLITRATE	7	3	
	PRIMARY >PRIMARY	15 5	21 9	
4	EMPLOYMENT			0.346
	EMPLOYED	14	12	
	UNEMPLOYED	13	21	
5	SES			0.013
	LOW	11	25	
	MID	16	8	
	UPPER	-	-	

Significant difference noted in SES, other variables not showed significant difference.

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Table -7 Comparison of PLSE events, scoring between those with Psychiatric morbidity and those without psychiatric morbidity

SI.No	Variables	PSY ILLNESS PRESENT	PSY ILLNESS ABSENT	P value
1	PSLE*			0.087
	<2 events	15	10	
	>3events	12	23	
2	PSLE score	149.370	154.333	0.050

*PSLE – Presumptive stressful live event scale

On PSLE, scoring significant difference noticed; suggested that victim had more significant stress-full life events prior to the attempt in subjects who were not having psychiatric illness.

Table 8 Comparison of Suicide intent, % of burns and Time of Attempt between those with Psychiatric morbidity and those without.

Sl.No	Variables	Psychiatry morbidity present	Psychiatry morbidity absent	P value
1	Burns %			0.301
	41-60	17	22	
	21-40	6	3	
	<20	4	8	
2	Intent			0.001
	Low	-	10	
	Mod	9	16	
	Severe	18	7	
1	Time of attempt			0.873
	5am-5pm	11	15	
	5pm-11pm	9	9	
	11pm-5am	7	9	

Percentage of burns did not show any significant difference in relation to morbidity, but suicide intent was significantly high in victims with psychiatric morbidity than with persons out psychiatric morbidity. Time of attempt did not show any significant difference among two groups

DISCUSSION

Socio-demographic Profile

On analysis of socio-demographic profile majority of subjects were under the age of 30 years, the sample constitutes of 15-30 yrs. age group with 55 %.

In a study by Gururaj et al, the suicide rate was highest in 15-29 years age group, followed by 30 to 44 years group Khan FA, AnandB et al 2003 in a study indicate that young adults were

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at increased risk. Haralkar Santosh et al 2011 had similar results and in that more than half were in the age group between 21-40yrs^[11]. Table 1 shows the results socio demographic details.

In this study there was higher incidence of suicide in women than in men, females with 63.33% and males with 36.66% Gururajet a 2001 had found a higher incidence of suicide in men. Banarjee G et al found the contrary Venkobarao et al 1989 found preponderance of males.

In this study majority of the victims had not crossed 5th grade (76.66), majority of them were unemployed. In one study of attempted suicide in India 55.5% were uneducated. women attempting suicide had a lower educational status compared to men.

Majority of victims belonged to rural population. Pritchard C et al 1992 identified burns victim who were in a joint family was a risk factor for dowry deaths. In India, during the year 2000 though the suicide rate of the country was 10.8, the rates of urban population was slightly lower 9.94 % Srivastava MK et al found that family and marital conflict were the major reason for suicide.

Persons who were employed and working had less chance of attempting. In this study Unemployment constitutes 56.66% and it was more common among young adults, similar reports shown in few studies. The association between unemployment and suicide was more significant among young adults.

Married women and unmarried or single men attempted suicide more in our study. Similar results shown by Srivastava AS et al 2005. Sudhir Kumar CT et al 2006, results showed higher attempted suicides among unmarried persons.

Socioeconomic strata showed significant values, that majority belongs to low SES. Majority of attempters had more than 3 events and more score in PSLE, this was similar with many other studies. (See table 2).

Suicidal Intent

Majority of suicidal burns had moderate to severe intent. This showed significance in persons with psychiatric morbidity, their attempt was severe which constitutes 18 out of 27 individuals. Only 7 out of 33 had severe intent in persons without psychiatric morbidity (see table 3).

TBSA and Time of attempt

65% of the attempters had above 40 %TBSA of burns. R. Raja Shanmuga krishnan et al showed majority between 30-55% . There was no significant difference noted between the two groups (see table 3). More than 2/3rd of the victims had attempted suicide between 5am - 5pm .Time of the attempt does not significantly affect the suicidal behavior. Ponnudurai et al

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found fatal hour in considerable proportion of cases fell between 6pm to 12 midnight. Haralkar Santosh et al found maximum number of burns occurred between 5pm-11pm. There was no significant difference noted among persons with and without psychiatric illness

Physical Illness

Only 10%(6) out of 60 persons had physical illness in this study which includes seizure disorder, chronic Pain syndromes, Infertility, and Ischemic heart disease and none of them had comorbid psychiatric illness, Which was similar to Raja Shanmugakrishnan et al, he showed 13.33(8) % had physical illness which included seizure disorder, chronic pain syndromes, and infertility, similar with Venkobarao et al physical illness detected in 15% most common was pain syndromes. Also Jacob et al found 34% suffered with physical illness. Rao AV et al found Pain in abdomen and pelvic regions had been reported more frequently among attempters, similar findings also reported in Americans by Smith MT et al 2004.

Psychiatric Morbidity

In Psychiatric morbidity depression was more common followed by alcohol dependence, adjustment disorder, acute stress reaction and psychosis. 45% of patients had Psychiatric illness (see table 4 & 5) and the results were same in comparison with other studies. Study reports by Haralkar Santosh et al and Venkobarao et al found 40% and 23 % of psychiatry morbidity respectively. Most common diagnosis were depression followed by adjustment disorder. Studies in India showed varying results with rates of psychiatric disorders in suicide attempters ranging from 9.5% to 25.5% .In a study of attempted suicide 11.6% had a psychiatric diagnosis with alcohol dependence followed by depression being the commonest diagnosis. Rate of psychiatric diagnosis was high as 46.7% · 59.7% even 93% were reported. Neurotic stress related disorders were diagnosed in 14.5% Rate of personality disorders were also high.

Mahla et al found depression in majority of sample in her study. Children's with major affective disorder were at higher risk for suicide attempt in adolescence. Many studies assessed the prevalence and type of psychiatric morbidity, but in this study the psychiatric morbidity was also correlated with socio-demographic profile, stressful events, suicidal intent and pattern of burns injury.

About 45% of the sample of patients had psychiatric illness. The remaining 55% suicide attempts were due to many factors include, loss of job , marital disharmony, physical illness / pain symptoms, interpersonal conflicts, financial debts.

Significant difference noted in suicidal intent among individuals with psychiatric morbidity, whereas Socio-demographic factors, time of attempt, pattern of burns injury and PSLE events and score did not show any significance between the two. (See table 6, 7, & 8.).

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In patients with psychiatric morbidity PSLE events doesn't show significant role in suicidal intent as in these patients PSLE score was also less despite psychiatric morbidity per se was a direct causative factor for the suicidal attempt.

CONCLUSION

Based on the study it has been found that

1. Suicidal burns were common in females.
2. Younger age was a risk factor for suicidal burns.
3. Only 45% of the sample had psychiatric morbidity and depression was the commonest psychiatric morbidity.
4. Psychiatric morbidity significantly increased the suicidal intent.
5. Psychiatry morbidity does not significantly increased the severity of burns (TBSA).
6. Stressful life events significantly increased the attempt

Suicidology, a subject that cuts across the varied topics under psychiatry, is an important area for research in India considering the magnitude of the problem in the country. Psychiatric Morbidity is a risk factor for suicide. However, additional risk factors are prominent. These tend to relate to societal structures and specific stressors.

Suicide Prevention Activities like psychiatric emergency service, suicide prevention center, and crisis intervention center, role of general practitioners, research and media can be employed. Self-esteem, quality of life, coping strategies, and environmental factors are other frontline areas of research in suicidology. Appropriate psycho-education and treatment measures at various levels of health care decrease incidence of suicidal behavior.

LIMITATIONS

The study findings reflected the profiles of attempters attending tertiary level hospitals may not be generalized to all suicide attempters in the general population. There might be recall bias for past or family h/o of illness or attempt. Those refused to participate or who died was not collected, also TBSA 60% were not included because of they were physically unstable so their factors were not taken into account. Statistics obtained at one point may not be valid at a later point in time.

Morgan HG et al 1982 demonstrated the inability of suicide statistics across decades. Statistics obtained in one population may not be extrapolated with validity to other populations, which showed the pattern more closely linked to their culture.

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Conflict of Interest

The authors colorfully declare this paper to bear not conflict of interests

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