



Plastic Surgery

A STUDY ON DEMOGRAPHIC PROFILE OF SUICIDAL BURNS IN A TERTIARY BURN CARE CENTRE.

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ABSTRACT Self-inflicted injuries create more mortality and morbidity in a healthy adult Individuals, which is preventable to certain extent by the society .Creating awareness about prevention of suicide is done as part of mental health awareness. This study is to analyze the epidemiological patterns and outcome of self-inflicted burns. **METHODOLOGY:** This is a retrospective study in a tertiary burn care center in Chennai, Tamil Nadu over a period of one year. (Jan2021 to Dec-2021) It includes all patients admitted with the history of self inflicted burn injuries. **Results:** Total admissions in the burn unit was 1022. Self-inflicted burn injury patients who voluntarily disclosed the fact were 319 in the study period which was about 31% of the total burn cases .157 patients were male (49%) while 162 pts were female (51%). The mostly affected age was 21-40 yrs (183patients-57%) followed by41-60yrs (94patients30%).TBSA affected was ranging from 12% to 100%.The overall mortality was 73% (234patients), The survival period of patients or hospital stay ranged from 2days -54days. **Conclusion :** The Suicidal burn injury may be preventable if measures are taken up by the social welfare workers or by the government or by the society.

KEYWORDS : self inflicted, Burn, injury Mortality, Morbidity

INTRODUCTION:

Self- inflicted burn injuries continue to be a source of major morbidity and mortality in the burns unit with an increasing physical, mental and financial disability to the suicidal burns victim family and society. The disfigurement and emotional trauma to the patient's family members is phenomenal. Burn wound healing is a challenge in which suicidal burn patients with psychological trauma, lack of interest in self care, lack of nutrition, prolonged hospital stay, infection with multiple organisms, septicemia, multiple Surgeries give real challenge to the burn care professionals.This study is done to analyze the prevalent socio demographic nature and outcome of suicidal burns.

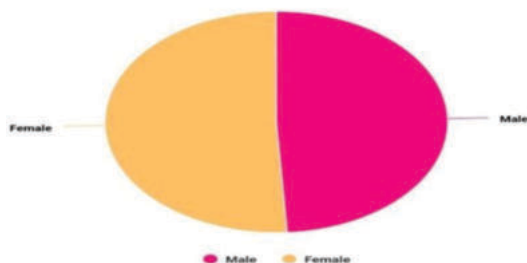
MATERIALS & METHODS:

It is a retrospective study of self inflicted burn injury patients admitted in a tertiary burn care centre in Chennai Tamil Nadu over a period of 12 months from January 2021 to December 2021. All burn injury patients admitted to the burn ward are included in the study. The socio demographic profile of the patients who admitted to have attempted suicide by burning were analyzed for the demographic factors like, age, sex, literacy, place of living, marital status, employment status, co morbidities, underlying psychiatric illness, alcohol or drug abuse, TBSA, depth of burn associated inhalation burn, injury and outcome was analyzed. Analysis of duration of hospital stay and mortality was done in these patients.

Observations:

In the study period a total of 319 patients were admitted with voluntary disclosure of self inflicted burns that constitute about 31% of total burns case admitted in the study period.Out of these 157 (49%) were male while 162 (51%) were female, showing that there was no sex preponderance .

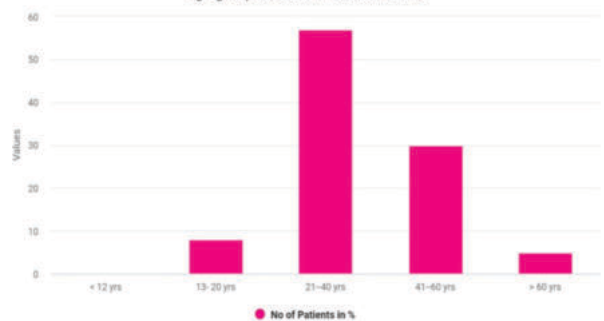
Sex distribution in suicidal burns



The age of patients ranges from 13to 95 years with the maximum burns in the young middle age 21-40 years.

AGE GROUP	Number of patients	%
Blow-12yrs	0	0
13-20	28	8
21-40	183	57
41-60	94	30
Blow60	17	5%

Age group affected in suicidal burns



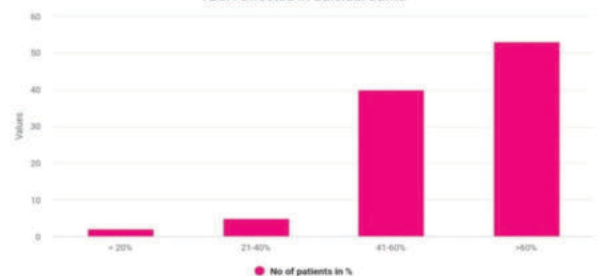
Age distribution of patients with suicidal burns:

? TBSA affected ranged from 12 % to 100% in which >40% TBSA involvement constitutes 93%

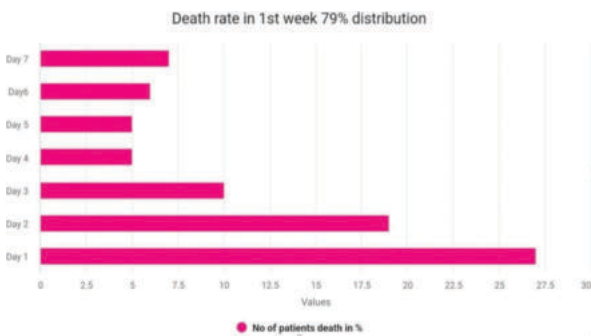
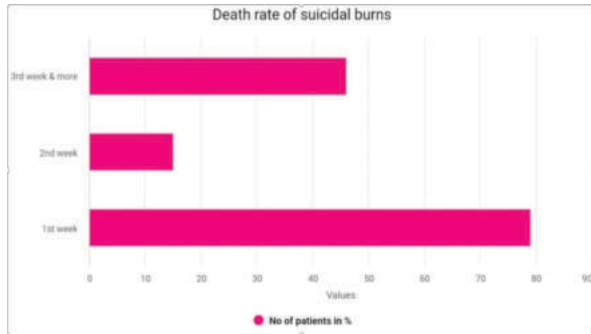
TBSA Affected In Suicidal Burn Patients

TBSA %	Number of patients	Percentage
Below 20	7	2%
21-40	17	5%
41-60	126	40%
More than 60	169	53%

TBSA affected in Suicidal burns



Associated inhalational burn injury was noted in 268 patients (84%), in which there is need for prolonged intubation and ICU stay. Deep burn was noted in 258 patients with suicidal burns (81%). The higher TBSA and higher depth of burns in suicidal burn patients leads to poor outcome or more mortality. Patients with more than 40% TBSA burn constitutes 93% of self-inflicted burn victims. This occurs due to depression or patient may have been alone, or single or under the influence of alcohol. This higher TBSA and higher depth of burns needs prolonged intensive care, or hospital stay and acquisition of multiple drug resistant bacteria, sepsis, multi organ failure, leading to higher mortality. The overall mortality rate was 73% (234patient) Death rate was more in first 24 to 48 hrs (46%).³

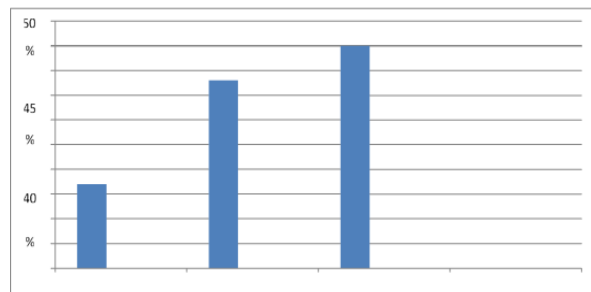


Death Rate In First Week Of Admission

Hospital stay	Discharge No of patients	% of patients discharged
1stweek	15	17%
2ndweek	32	38%
3rdweek or more	38	45%

In the group discharge patients the hospital stay ranges from 2 days to 51 days. In the patients who succumbed hospital stay ranged from less than 24 hours to 48 days. During the study period 85 patients survived (27%). Among the survivors hospital stay of more than 3 weeks duration was noticed in 45% of patients. (38 patients)

Duration Of Hospital Stay Of Suicidal Burn Patients



Co-morbid in self-inflicted burn victims were history of depression or any other psychological illness, alcohol or drug abuse and chronic illness like Diabetes or hypertension. Co-morbid conditions were Present in 36%(114) of patients.

Characteristics Observed In Socio-demographic Data:

Gender	Number of patients	%
Male	157	49%
Female	162	51%

Marital status		
Married	252	79%
Unmarried	67	21%
Literacy		
Literate	105	33%
Illiterate	204	67%
Employment status		
Employed	128	40%
Un employed	86	27%
Housewives	105	33%
Inhalation burns		
Present	268	84%
Absent	51	
Depth of burns		
Deep burns	258	81%
Superficial or mixed	61	
Place/Area		
Urban	85	27%
Rural	234	73%
Motives/Causation factors		
Marital/family/financial problems	51	
Psychological illness	4	
Alcohol/drug abuse	21	
Unknown/undisclosed	24	

In our study precipitating factors noticed were mainly marital/family quarrels / fights with relative/ financial conflicts. Alcohol abuse and mental illness were the next leading cause for attempting self - immolation.

DISCUSSION:

Self immolation burn injury constitutes to more than 30% of overall burn patients admitted in our burn unit. This correlates with the world wide study (2-36.6%). According to our study the incidence of burns due to suicide was only 31 %, but we find in reality there may be many who do not tell the truth. The patients and family members who denied suicidal attempt, cover it up as domestic accident or a flame burns due to falling of lamp by rat or cat. This false story is always not consistent with circumstantial evidence such as the time, place of occurrence of burn and typical distribution of burn is not corresponding to the alleged story. The correct data can be elicited only by improving patient's literacy rate, awareness and self confidence. The willingness to disclose the truth is possible only when the victim has the confidence of support in future. Several studies support similar pattern of disclosure by patients.¹⁷

Sex preponderance is not significant in our study. The distribution of burn in female is 51% and male is 49 %. Most of the published studies from developing countries show female preponderance², in contrast to countries like Australia and America which show a male preponderance in their studies. Burn suicides are more common in adolescent marriages where there is increased responsibilities in young girls when they become housewives⁵. Marital conflicts¹⁻⁵ family conflicts and financial conflicts were most frequently observed precipitating factors for suicidal burns. Alcohol /drug abuse, persons with mental ill health who are on regular or irregular treatment for undiagnosed depression do attempt self-immolation. Published literatures from Iran Islamabad supports the same view, In contrast western nations Study shows psychiatric illness and substance abuse as main causative reason.⁶ Our study has showed that adults in third and fourth decades of life are affected more^{1-4, 7, 8}. This in contrary to most of the published studies from countries like Islamabad Iran. Indian study shows second and third decade as common age group but studies from western countries and Australia show higher age group as the most common age for self -harm.^{12,14}

In our study most of the patients are with more than 40 % TBSA burns with inhalational burns. Higher body surface area burns with poor outcome is similar to other studies^{3-5,14-16}.

In our analysis illiterate^{2, 8} who had only primary school education were more prone to suicidal burns. It explains that education improves the efficiency of adjusting and managing the family dynamics. Education improves the personality development of the individual and less chances of suicidal tendency.

In our analysis majority of the suicidal burns are from the rural

population^{1,2} rather than the urban area. This explains that in rural areas with poor literacy¹⁻³ poor social economic status lack of efficiency to manage the family and social disharmony may be the causative factors. Reported studies from Iran Islamabad, India Afghanistan confirms the similar pattern of occurrence. Economic status plays major role in this. People in rural area with poor socio economic status who don't know how to balance the financial crisis resort to suicide when there is loss in agricultural activities, small scale business or an employment or loss of job. With kerosene being easily available in every house in the village for domestic purpose for stove /lamp they resort to self harm using it.

As noted in our study the mortality rate was high. In other published studies in developing countries also the mortality rate ranged from 25-90%,^{3-5,1516}

Outcome of suicidal burns shows high mortality because of increased TBSA area involvement with inhalation burn injury with smoke, deep burns and reaching the hospital results in death within 24–48hrs. Other studies also supports the same view. If the patient survives after 24-48hrs, then hospital stay gets prolonged due to ventilator support in ICU, requirement of more blood transfusions, the need for use of ionotrophes and repeated surgeries. Development of multiple drug resistant bacterial infection with septicemia leads to increase in hospital stay duration. Rehabilitation of suicidal victims is tried at the time of hospital stay itself Occurrence of severe pain and delayed burn wound healing are the major problem in suicidal burns. Psychiatric counseling regarding management of pre existing psychiatric illness /depression/ post traumatic stress/, insomnia/sleeplessness disfigurement /disability/ social stigma /social isolation are done at the time of discharge

CONCLUSION:

Our study concludes that self inflicted burn injury are common in a young married person from rural back ground with poor literacy and poor socioeconomic status. Due to marital /family conflicts and alcohol abuse there is higher attempts of suicide. These suicidal burns are with higher TBSA. Deeper burns lead to prolonged hospital stay or increased mortality in the earlier days of hospitalization. Steps must be taken to minimize the self- inflicted injuries by implementing awareness program by government organization and non- government organization. School education should focus on mental health. Periodical awareness Programmed to improve the literacy in the rural area, social awareness to improve the mental health, the burns sequel, awareness of deformities due to self-inflicted burns will defer youngsters from attempting suicide by burning.

REFERENCES:

1. Rezaeian M. Epidemiology of self-immolation, Burns 2013;39: 184-6b (Pub scholar)
2. Lari AR , Jagatai MT, Adli YR , Zaden YA, Alaghebandan R. Epidemiology of suicide by Burns in province of Isfahan, Iran . J Burn care res.2007; 28;307-11(Pub med) (Google scholar)
3. Kumar V. Burnt wives – study of suicides. Burns .2003;29-31-5 . (Pub med) (Google scholar)
4. Laloe v, Ganesan M. Self-immolation a Common suicidal behavior in eastern Sri Lanka , Burns .2002;28;475-80 . (Pub med) (Google scholar)
5. Al.Zacko SM . Self-inflicted Burns in Mosul: a Cross-sectional study . Ann Burns Fire Disaster .2012; 25;121-5(Pub med) (Google scholar)
6. Cameron DR. , Pegg SP, Muller M. Self inflicted Burns . 1997; 23;519-21 (Pub med) (Google scholar)
7. Laloe V. patterns of Deliberate Self-Burning in various parts of the world – Burning in various part of the world A review Burns .2004;30;207-15 (Pub med) (Google scholar)
8. Forjuoh S. N . Burns in low –and middle income Countries: A review of available literature on descriptive epidemiology , risk factor , treatment , and prevention . Burns 2006;32;529 (Pub Med) (Google scholar)
9. O' Donoghue J, panchal J, O' Sullivan S, O' Shanughnessy M, O' Connor TP, Keeley H, Kelleher MJ . A study of social and attempted suicide by – immolation in an irish Psychiatric population : an increasing problem . Burns . 1998 ; 24; 144-6 . (Pub Med) (Google scholar)
10. Henderson A, Wijewaardena A, Streimer J, Vandervod J. Self inflicted burns : A Case series Burns . 2013 : 39;335-40 . (Pub Med) (Google scholar)
11. Poeschla B. COMBS H, livings stone Romma S, Klein MB. Self – immolation Socioeconomic , cultural and psychiatric patterns. Burns ,2011; 37;1049-57. (Pub Med) (Google scholar)
12. Thombs BD, Bresnick MG, Magyar –Russell G. Who attempts Suicide by burning ? An analysis of age patterns of mortality by self – inflicted burning in the united states. Gen Hosp Psychiatry .2007 : 29: 22450. (Pub med) (Google scholar)
13. Rashid A, Gowar JP. A review of trans of self – inflicted burns, Burns . 2004; 30; 573-622 (Pub Med) (Google scholar)
14. Modjarrad K. McGwin Jr G, Cross JM, Rue 3 rd Lw .the descriptive epidemiology of intentional burns in the United states : an Burns . 2007 ;3;828-32 (Pub Med) (Google scholar)
15. Honer BM, Ahmadi H, Mulholland R. Myers SR, Catalan J. Case – Controlled Study of patients with Self – inflicted Burns .2005; 31; 471-5. (Pub Med) (Google scholar)
16. Hadjiiski O, Todorov P. Suicide by self inflicted burns. 1996; 22; 381 -3 (Pub Med) (Google scholar)
17. Wallace KL, Pegg SP Self – inflicted burn injuries: an 11- yr retrospective Study Burn Care Rehabil . 1999;20:191-4 (Pub Med) (Google scholar)