

Sociodemographic Profile of Burns Case for Autopsy: One Year Study

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Abstract

Background: Burns constitute a major cause of deaths, both suicidal & accidental in the world & our country. As per the National crime record bureau of India, burns one among the common method of suicide and the rate of fatal suicidal burns was 2.6% in 2021. In Tamil Nadu, the rate of suicide is 11.5%, and also, being the second highest among the other states.⁽¹⁾ This study is undertaken with the aim to study sociodemographic profile of burns case brought to autopsy at tertiary medical college, along with the pattern & outcome.

Methods: A cross sectional study was done in a total of 53 cases of burns brought for medicolegal autopsy during the study period. Data including age, gender, socioeconomic status, manner of burns, % of burns, duration of survival were all collected based on pre structured proforma & further was analysed using standard statistical method.

Results and Conclusion: Burns incidence is seen in mostly age group 31-40, with majority of them being females(62.27%).suicidal burns are more common (73.59%), with >75%(66.03%) burns being more. About 35.8% survived for 1-7 days prior to succumbing death.

Enhancing a better mental& physical environment should be the priority. Early & effective treatment can be useful in reducing the mortality due to burns.

Keywords: Burns, medicolegal autopsy, suicide.

Introduction

Burns are the fourth leading traumatic event in the world after traffic accidents, falls and violence among individuals. Globally, there are about 300,000 deaths due to burns every year. Of these, 95% take place in developing countries with Southeast Asia recording nearly 57% of deaths due to burns. According to WHO (2000) report, 238,000 individuals died of burns related deaths and 95% of these deaths occurred in low- and middle-income countries.

There are an estimated 7 million burn injuries in India annually, of which 700,000 require hospital admission and 140,000 are fatal, 2.4 lakh people suffer with disability.⁽¹⁾ Burn injuries constitute a serious medical, social, and psychological problem along with severe economic loss to individual and their family. According to National program for prevention of burn injuries, high occurrence is ascribed to illiteracy, poverty, and low-level safety, and 90% of burn injuries are preventable.⁽²⁾ Keeping

this background, this study was undertaken with objectives to study the sociodemographic factors of burn patients in Thoothukudi region, to find out the cause and outcome of burn patients admitted in Government Thoothukudi Medical college and to draw conclusion about preventive aspects of burn injuries.

Methods and Materials

A total of 53 cases of death due to burns were brought for autopsy at the mortuary of Thoothukudi Government Medical Collage, during the period January 2021 to December 2021, were studied. The information was collected from accompanying relatives, hospital records, and police papers to ascertain the incidence, manner and circumstances of burns. Percentage of total body surface area burn was calculated according to Wallace's rule of nine. A speciallyprepared proforma containing medico-legal aspects of death due to burns was filled. It was analysed by using standard statistical method and tabulated for better understanding.

Study was started after receiving approval from institutional ethical committee from government Thoothukudi medical college.

Observations

The present medico-legal study of burns in 53 cases was conducted on dead bodies brought in the Department of Forensic Medicine & Toxicology in Thoothukudi Government Medical College in Thoothukudi with effect from January 2021 to December 2021.

Present study demonstrated preponderance of female 33 (62.27%) victims over male 20 (37.73%) victims.

The maximum incidence of burn injuries were noted in the age group of 31-40 years i.e. 18.7% and minimum cases were reported in the age group of

0-10 years i.e. 1.88 %. Minimum cases were reported in age group of above 80-90 years i.e 5.66% (TABLE 1.1)

Table 1.1: Age distribution .

AGE GROUP	NUMBER OF CASES (n)	PERCENTAGE
0-10	1	1.8 %
11-20	7	13.2%
21-30	8	15.09%
31-40	10	18.8%
41-50	8	15.09%
51-60	4	7.54%
61-70	6	11.32%
71-80	6	11.32%
81-90	3	5.6%

In our study (TABLE 1.2) ,as per police inquest it is observed that 17(32.08%) cases out of 53 cases have sustained burn during morning. Occurrence of burn during afternoon hours was found in 11(20.75%) cases. 13(24.53 %) cases have sustained burns during evening hours.12 (22.64%) cases occurrence of burns during night hours.As it is the morning hour rush time, where women rush in the kitchen , possibility of accidental burns is more, also after leaving for work the person left alone in home have increased tendency to commit suicide at the earliest.

Table 1.2: Time of occurrence of burns

TIME OF OCCURRENCE OF BURNS	NO OF CASES	PERCENTAGE %
MORNING	17	32.08
AFTERNOON	11	20.75
EVENING	13	24.53
NIGHT	12	22.64

Its observed that most of the victims were married 46 (86.79%) and 7 cases (13.21%) were unmarried. Duration of marriage <5 years 5 (9.43%), 5- 10 years 15 (28.30%), >15 years 26 (49.05%). The most common manner of death due to burns was found to be suicidal (73.59%) followed by accidental (26.41%) and homicidal cases contributed to(0%) of the total deaths.

Table 1.3: Causes Of Suicidal Burns

S No	Causes Of Suicidal Burn	Yes	No
1	Prior Psychiatric Illness	6	47
2	Substance Abuse	9	44
3	Disputed Family	12	41
4	Other Medical Illnesses	19	34
5	Others	11	42

Table 1.4: Percentage Of Burns.

% OF BURNS	NO. OF MALES(n)	%	No. of female (n)	%	Total no. of cases	%
<50%	3	60%	2	40%	5	9.43%
50-75%	6	46%	7	53.84%	13	24.56%
>75%	11	31.42%	24	68.57%	35	66.03%

In present study most of the victims sustained >75% burns (n=35 (66.03%) cases died and followed by 50-75 % burns i.e., 13 (24.56%) followed by < 50% 4 (9.43%).(table 1.4)

Table 1.5: Duration of survival after burns

Survival Duration	No. of cases (n)	%
Brought dead	13	24.52 %
< 1 day	13	24.52 %
1-7 days	19	35.84 %
>7 days	8	15.09 %

As per our study, majority of deceased survived for a period in between 1-7 days on treatment(n= 19 ,35.84%), while brought dead & those survived less than contributed (24.52 % each) & least no. of people survived for a period of more than 7 days (15.09%). (table 1.5)

Discussion

Burn injuries occur universally and they have plagued mankind since antiquity, till the present day. In all societies which include those in the developed or in the developing countries, burn pose not only medical and psychological problems, but they also produce severe economic and social consequences on the victim's families and also on the society in general.⁽³⁾ An analysis has been made based on the sociodemographic profile with the following results. Maximum cases of death due burns were seen in Females which contributed to 33 (62.27%) of the total

Maximum cases of death due to burns were seen in low socio economic status of 35 cases (66.01%) followed by middle socio economic status of 18 (33.99%).

deaths, which is similar to studies by Mazumdar A et al, Buchade D et al. ^(2,4). Females were more prone to the burn incidences because of their domestic activities which required an association with fire sources. Moreover Indian women wore dresses like the sari and the salwar - kamiz with dupatta, which were often of synthetic material, which covered almost the whole body. Such clothes would have favored aggravation of the burn injuries.

Maximum deaths due to burns were seen in the age group of 31-40 years which constitutes (18.7%) of deaths followed by 21-30 Years (15.09%) and 41-50 Years (15.09%). It could be explained by the facts that the persons of this young age group are suffering from stress of the modern life style, family problems, financial problems. This is slightly different from other studies where majority is 21-30 years , as per Ambade VN et al, Kumar V et al^(5,6)

Maximum cases of death due to burns were seen in low socio economic status 35 cases (66.01%) followed by middle socio economic status 18 cases (33.99%). Similar findings as in studies by Buchade et al, Manigandaraj&et al.^(3,7) This may be due to poverty, financial crisis, stress related to work and competition in education.

The most common manner of death due to burns was found to be suicidal (73.59%) followed by accidental (26.41%) and homicidal cases contributed to (0%) of the total deaths similar to all major studies by Vijayanath .v. et al, dr. Soumyajyothi et al, Shinde et al.^(8,9,10) Kitchen being the easiest access for the

women and because of the deep -rooted custom of dowry and marital disharmony which could have compelled the married females either to commit suicide or they may be killed by their in laws and husbands.

Conclusion

The epidemiological factors of the burn injuries vary for different regions. For planning and implementing prevention programs, the approach has to be multidisciplinary and co-ordinated and this can largely be accomplished by taking the following measures. Providing awareness through school education programmes & mass media programmes so as to change, the mindset of the general population, with the aim of not only instilling education but also discouraging dowry demands and ostentatious marriage rituals, thereby reducing marital disharmony. Also ensuring proper mental health care support to withstand the hard circumstances in life is also very important.

Recommendations

Implementation of strict preventive strategies at high risk work places, so as to prevent fatal burn accidents among the employees. The early detection and treatment of microbial infections can reduce the mortality among the burn victims. Proper up gradation of the ICUs, burn-units and the transport facilities with recent techniques. Advanced modes of facilities are required to handle all the fatal cases. So, as long as the problem of deaths by burns persist in India, the government needs to concentrate in this direction and the NGOs, social groups, and the workers need to put in more sincere efforts.

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References

1. ADSI-2021/National Crime Records Bureau- <https://ncrb.gov.in/en/ADSI-2021>
2. Mazumdar A, Patowary A. A Study of Pattern of burn injury cases. *J. Indian Acad Forensic Med.* 2013;35(1):44-6.
Kumar V, Tripathi CB. Fatal accidental burns in married women. *Legal Medicine* 2003;5:139-145.
3. Usama B. Ghaffar, Husain M, Rizvi JS. Thermal burns: An epidemiological prospective study. *J Indian Acad Forensic Med*, 2007; 29 (3): 42-9.
4. Buchade D, Kukde H, Dere R, Savardekar R. Pattern of burns cases brought to morgue, Sion Hospital, Mumbai: A Two year study. *JIAFM* 2011 Oct-Dec;33(4):309-10.
5. Ambade VN, Godbole HV. Study of burn deaths in Nagpur, central India. *Burns* 2006;32:902-8.
6. Kumar V, Mohanty MK, Kanth S. Fatal burns in Manipal area: A 10 year study. *Journal of Forensic and Legal Medicine* 2007;14:3-6.
7. Pattern and trends of deaths related to burns - Manigandaraj G1*, Selvakumar R2, MedPulse International Journal of Forensic Medicine, Volume 17, Issue 1 January 2021; 10(5)
8. Prakash. IBabladi, Vijayanath.V, Vijayamahantesh.S. N, Burns and burning issues in Gulbarga, Karnataka; *Indian Journal of Forensic Medicine Toxicology*; July-Dec 2010; Vol 4, No.2:85-87.
9. Dr. Soumyajyoti Bandyopadhyay1, Dr. Arup Kundu2, Dr. Atanu Bhattacharjee3, Dr. Arista Lahiri4, *Dr. Shouvanik Adhya5- Socio-Demographic Profile and Reported Circumstances of Death among Female Burn-Victims: Experience from a Tertiary Care Hospital, Kolkata- *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 18, Issue 2 Ser. 8 (February. 2019), PP 56-59
10. Shinde AB, Keoliya AN. Socio-demographic characteristics of burn deaths in rural India. *International J. of Health care and Biomedical Research* 2013.