

**Original Article****STUDY OF SOCIO-DEMOGRAPHIC PROFILE OF BURN CASES ADMITTED IN SHRI CHHATRAPATI SHIVAJI MAHARAJ GENERAL HOSPITAL, SOLAPUR**Haralkar Santosh Jagannath<sup>1</sup>, Tapare Vinay S<sup>2</sup>, Rayate Madhavi V<sup>3</sup>

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**ABSTRACT**

The problem of burn in developing countries like India is more due to various socio-cultural factors present in the country. The study was aimed to find the distribution, determinants, outcome and psychological effect of burns. The present hospital based descriptive study was carried out in surgery ward of Shri Chhatrapati Shivaji Maharaj, General Hospital Solapur, to know socio - demographic profile, duration of stay and outcome of burn. All cases of burns admitted in Hospital during study period (September 2000 to August 2001) were the study subjects. More than half were in the age group between 21 and 40 years. More than two third were females. Rural patients outnumbered urban patients. Majority of patients were unemployed and among unemployed majority of patients were housewives. 40% patients were literate. Majority of the cases were from class IV (Upper Lower) socioeconomic group. Majority of patients (37.78%) were admitted during winter season. Maximum number of burns occurred between 5pm and 11 pm. Majority of burns (97.56%) took place at home. 79.33% of burns were accidental. 36% patients had hospital stay less than one day. Among 450 cases, 65.78% died, 16.44% were discharged against medical advice

**Key words** - Socio-demographic profile, burn cases, hospital stay, outcome.

**INTRODUCTION**

Man has invented fire since times immortal. The use of fire in various aspects has not only added to his comforts but also added to his miseries by increasing risk of burns. Since ages, man has paid the price for his comforts in terms of thermal injuries. Carelessness which leads to accidents contributes to occurrence of thermal injuries. Annually about 2 million people suffer from various modes of burn injuries worldwide of whom more than a lakh die <sup>(1)</sup>. In India about 60,000 people suffer from burns annually, more than 50,000 are treated in hospitals and about 10,000 succumb to thermal injury <sup>(2)</sup>. Exact figure is likely to be even higher, considering the poverty, illiteracy, poor standards of safety at home and in the industry and the social and cultural peculiarity etc. Thus the burn 'disease'

is endemic in our country. This is a great strain on the already scarce health resources of developing countries especially India.

The problem of burn in developing countries like India is more due to various socio-cultural factors present in the country. Some of these factors may be dowry, use of crackers in festival like Diwali, poor housing conditions, poor maintenance of electric appliances, custom of wearing sarees or dupatta, illiteracy, ignorance and poverty. Mortality due to burn injuries is higher in developing countries as compared to developed countries because of lack of awareness among people and lack of availability of health care services. The developing countries also differ from developed countries with respect to sex of people affected, place of injury etc. Females are more affected in developing

countries than developed countries and domestic burns are more in developing countries while non-domestic burns are more in developed country. The ultimate goal is to help the patient to return to his/her natural lifestyle and lead as normal life as possible, so that he / she is not a burden on his / her family.

Several studies on epidemiology of burns are done in different countries and in India. Most of the studies have included different epidemiological factors such as age, sex, occupation, place of burns, cause of burns etc. in their study. Although flame, scald, chemical, electricity seem to be the direct causes of burns, underlying social factors like interpersonal relationship in the family, mental stress, negligence, male dominance, female battering by in-laws is rarely considered in any of the studies. Hence this descriptive hospital based study was planned with a purpose to know the magnitude and socio-cultural factors of the problem of burns so that a sound prevention programme can be suggested, planned and implemented.

## MATERIALS AND METHODS

The present hospital based descriptive study was carried out in surgery ward of Shri. Chhatrapati Shivaji Maharaj, General Hospital Solapur, to know socio - demographic profile, duration of stay and outcome of burn.

All cases of burns admitted in Surgery Ward of Shri. Chhatrapati Shivaji Maharaj General Hospital, Solapur during study period (September 2000 to August 2001) were the study subjects. Minor cases of burns managed in casualty and O.P.D were not included in this study.

Variables studied are age, sex, place of residence, occupation, education, socioeconomic status, marital status, type of clothes, season, time of occurrence and place of burn.

## OBSERVATIONS

Majority of cases (55.78%) were in the age group between 21 and 40 years which is peak productive period. Among 450 cases, 67.78% were females and 32.22% were males. Rural patients (52.44%) outnumbered urban patients (47.56%) but not statistically significant. Majority of patients (81.33%) were unemployed and

among unemployed majority of patients (57.65%) were housewives. Among 450 patients, 40% patients were literate and 60% were illiterate. Majority of the cases (43.33%) were from class IV (Upper Lower) socioeconomic group followed by 36.67% from class III (Lower Middle) socio-economic group. Among 450 cases, majority of cases (95.73%) were married. Maximum number of patients (74.22%) had mixed type of cloths at the time of injury. Majority of patients (37.78%) were admitted during winter season (October to January) and less number of patients (30.44%) were admitted during rainy season (June to September). Maximum number of burns (37.78%) occurred between 5pm and 11 pm while minimum number of burns (8.67%) occurred between 11 pm and 5 am when most of the people are sleeping. Majority of burns (97.56%) took place at home and 2.44% at work place. 79.33% of burns were accidental, 17.11% were suicidal and homicidal burns accounted for 3.56%. 36% patients had hospital stay less than one day, 33.33% patients had hospital stay between 1 - 7 days and 30.67% patients had hospital stay more than 7 days. 6.89% patients had psychiatric problems after burn injury. Among 450 cases, 65.78% died, 16.44% were discharged against medical advice, 13.78% were discharged with complete cure and 4% were discharged with residual functional disability.

## DISCUSSION

In this study it is observed that majority of cases were in the age group between 21 and 40 years which is statistically significant ( $P < 0.001$ ). Our observations are consistent with studies conducted by B. P. Sarma and N. Sarma (1994) <sup>(3)</sup>, maximum no. of patients were in the age group between 21 - 40 years. In studies conducted by Mural Turegan et al and C. N. Malla et al <sup>(4, 5)</sup> which showed that maximum no. of patients were in the age group 21 - 30 years.

Among 450 cases, 67.78% were females and 32.22% were males. Several studies <sup>(6,7,8,9,10,11,12)</sup> support our observation that overall females burnt are more than males. No. of females burnt is more than males. This may be due to gender difference, socio-cultural factors and dowry problems. Secondly most of the women are housewives and they come more in contact with fire.

Rural patients (52.44%) outnumbered urban patients (47.56%) but not statistically significant ( $P>0.05$ ). The present study findings are similar to the findings of L. M. Bariar et al<sup>(13)</sup> (1994) who found that out of 400, 222 (55.5%) were from rural and 178 (44.5%) were from urban area. Studies conducted by E. Fernandes - Morales et al and Dalbir Singh et al<sup>(10,12)</sup> showed

that the cases were predominantly from urban areas in contrast to present study findings. Rural patients outnumber urban patients, may be because of style of living and low socio - economic status. Use of shegadi, chulha, kerosene pressure stove etc. for cooking is more seen in rural area than in urban areas.

**Table No. 1 Socio-demographic profile of burn cases**

Variables	No. of patients (n=450)	X <sup>2</sup> value
<b>Age in years</b>	0-20	129
	21-40	251
	> 41	70
<b>Sex</b>	Male	145 (32.22%)
	Female	305 (67.78%)
<b>Residence</b>	Urban	214
	Rural	236
<b>Occupation</b>	Employed	84 (18.66%)
	Unemployed	366 (81.33%)
<b>Education</b>	Literate	180
	Illiterate	270
<b>SES</b>	Class II (Upper middle)	17
	Class III (Lower middle)	165
	Class IV (Upper lower)	195
	Class V ( Lower lower)	73
<b>Marital status*</b>	Married	359 (95.73%)
	Unmarried	16 (4.27%)
<b>Type of clothes</b>	Cotton	38
	Synthetic	78
	Mixed	334
<b>Season</b>	Summer (Feb. to May)	143
	Rainy (June to Sept)	137
	Winter (Oct. to Jan.)	170
<b>Time of occurrence</b>	5 am to 11 am	109
	11 am to 5 pm	132
	5 pm to 11 pm	170
	11 pm to 5am	39
<b>Place of burn</b>	Home	439 (97.55%)
	Work place	11 (2.44%)
<b>Nature of burn</b>	Accidental	357
	Suicidal	77
	Homicidal	16
<b>Hospital stay</b>	<1 day	162
	1-7 day	150
	>7 day	138
<b>Psychiatric problems after burn</b>	Delirium	16 (3.55%)
	Anxiety	8 (1.77%)
	Depression	7 (1.55%)
<b>Outcome</b>	Complete cure	62 (13.78%)
	Residual functional disability	18 (4%)
	Expired	296 (65.78%)
	AMA discharge	74 (16.44%)

\*-Unmarried males below the age of 21 years and un - married females below the age of 18 years are not considered.

Majority of patients (81.33%) were unemployed and among unemployed majority of patients (57.65%) were housewives. The present study findings are similar to the findings of M. Subramanyam <sup>(14)</sup> (1996) who found that majority of patients i.e. 47.4% were housewives and housemaids. Burns are more common in housewives than other occupation because housewives are more exposed to injury prone environment while cooking. Cooking at floor level, use of kerosene pressure stove, wearing of loose clothes such as sarees, dupattas makes them more prone for burn injuries.

Among 450 patients, 40% patients were literate and 60% were illiterate. The burn cases were more in illiterate than literate which is statistically significant ( $P < 0.01$ ). The present study findings are slightly different from the findings of V. Jayaraman et al <sup>(15)</sup> (1993) who found that 50% of the cases were illiterate. D. Marsh et al <sup>(11)</sup> (1996) in their study found that majority of patients were young uneducated housewives. Burns are more common in illiterate people because illiteracy is usually associated with ignorance, low socio- economic status and lack of knowledge about preventive measures.

Majority of the cases (43.33%) were from class IV (Upper Lower) socioeconomic group followed by 36.67% from class III (Lower Middle) socioeconomic group. When class IV and V are pooled as lower socio- economic status and II and III as middle socio- economic status, a significant association is found between socio- economic status and burn ( $P < 0.01$ ). Several other studies <sup>(7, 14, 16)</sup> also support the finding that burn cases are more in lower socioeconomic group. The low socioeconomic status usually goes parallel with poor standard of living making persons more prone for burn injury.

Among 450 cases, majority of cases (95.73%) were married. Several studies <sup>(7,12,13,14)</sup> support our finding that married people predominate over unmarried in burn patients. The higher frequency among married people may be due to the fact that kitchen is the place where most accidents occurred. Married females are more affected. This may be because of the fact that majority of the married females are working in kitchen and majority of burns occur at kitchen. The other factors which make Indian females more prone for burn injury are their low status, gender inequality and social evils like dowry.

Maximum number of patients (74.22%) had mixed type of cloths at the time of injury which is statistically highly significant ( $P < 0.001$ ). The present study findings are similar to the findings of U. U. Lade <sup>(17)</sup> (1997) who found that maximum no. of patients i.e. 65% worn mixed type of clothes followed by synthetic (25%) and cotton (8.33%).

Majority of patients (37.78%) were admitted during winter season (October to January) and less number of patients (30.44%) were admitted during rainy season (June to September). This increase in the number of patients in winter season is not statistically significant ( $P > 0.05$ ). Similar findings were observed in the study of D. J. Barilla and R. Goode <sup>(18)</sup> (1996) conducted in USA that fatal fires were common during winter months i.e. from December to February. Increased no. of cases during winter season in our study can be explained on the grounds that people come in contact with warm items like camp fire during winter season and festival like Diwali where there is lot of fire work also comes during winter months.

Maximum number of burns (37.78%) occurred between 5 pm and 11 pm which is highly significant ( $P < 0.001$ ) while minimum number of burns (8.67%) occurred between 11 pm and 5 am when most of the people are sleeping. It is clear that one is busy during evening hours in cooking and a mistake with fire in hurry can result in burns. Only 8.67% of burns occurred at night between 11 pm to 5 am when most of the people are sleeping. In contrast to our findings, some studies <sup>(7,14)</sup> found that maximum no. of burns took place between 6 am and 2 pm. Although the timings are different in these studies they also coincide with cooking hours.

Majority of burns (97.56%) took place at home and 2.44% at work place. The present study could be compared with the findings of other studies <sup>(8,15,7,19,20,21)</sup> which support our finding that majority of burns occur at home. This may be because of less no. of industries in and outside Solapur city and there might be proper arrangement to avoid the accidents due to burn at the place of work. Secondly the burn victims are mainly housewives who work in home in poor housing conditions.

Maximum no. of burns (79.33%) were accidental which is statistically significant followed by suicidal (17.11%) and homicidal burns (3.56%). From several studies <sup>(15,7,13, 21)</sup> it is observed that accidental burns are more common followed by

suicidal and homicidal burns. Accidental burns are common, may be because of ignorance, poor standards of safety measures, cooking at floor level and wearing of sarees or dupatta.

36% patients had hospital stay less than one day, 33.33% patients had hospital stay between 1 - 7 days and 30.67% patients had hospital stay more than 7 days. The present study findings are slightly different from the findings of K.K. Ghuliani et al <sup>(8)</sup> (1988) who found that out of 300, 17(5.66%) patients had hospital stay less than one day, 154 (51.33%) patients had hospital stay between 1 - 7 days and 129 (43%) patients had hospital stay more than 7 days.

6.89% patients had psychiatric problems after burn injury. Psycho- social studies in relation to burns have been sporadic in India and have been relatively narrow in focus. The ICMR collaborative study on burn injury (1977) assessed that about one sixth of the survivors from burn injuries suffer from psychiatric symptoms <sup>(22)</sup>.

Among 450 cases, 65.78% died, 16.44% were discharged against medical advice, 13.78% were discharged with complete cure and 4% were discharged with residual functional disability. Different findings are observed in the study of L.M. Bariar et al <sup>(13)</sup> (1994) who found that 41% patients were discharged, 39.5% patients expired and 19.5% left against medical advice. The present study findings are different from the findings of S. Al- shlash et al <sup>(21)</sup> (1996) who found that 68.74% patients were discharged with complete cure, 10.80% were discharged with residual functional disability , 7.36% expired and 13.10% were discharged against medical advice.

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