

A sociodemographic profile and outcome of burn patients admitted in a tertiary-care hospital

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Abstract

Background: Burns are a global public health problem. Every year a substantial proportion of deaths in India occur due to burn injuries. Burn injuries constitute a serious medical, social, and psychological problem along with severe economic loss to individual and their family and hence the need for various sociodemographic factors to understand the problem in our region.

Objectives: To study the sociodemographic factors of burn patients in Bundelkhand region and find out the cause and outcome of burn patients and to draw conclusion about preventive aspects of burn injuries.

Materials and Methods: A record-based cross-sectional study was conducted at a tertiary-care hospital, and the medical records of all the patients admitted to surgery department from January 2013 to December 2013 were reviewed and 354 cases included as study subjects. Data were recorded on predesigned and pretested questionnaire and analyzed by statistical software using χ^2 -test and percentages.

Result: Of 354 burn patients, 52.5% were female and 47.5% were male subjects showing female predominance. Most of the burn patients belonged to 21–40 years, rural areas, Hindu, unemployed or housewife, and married. Thermal or flame burn was common and accidental in nature (64.5%) with male predominance, while suicidal attempts more in female subjects which was found to be significant ($P < 0.05$). Overall mortality was 36.5%, although mortality and cure both was more in female subjects ($P > 0.05$).

Conclusion: Sociodemographic aspects are important in raising knowledge, awareness, and applying preventive measures in community.

KEY WORDS: Burn injuries, sociodemographic factors, hospital, outcome

Introduction

Burns are a global public health problem, accounting for an estimated 265,000 deaths annually. Most of these happen in low- and middle-income countries and nearly half happen in the WHO South-East Asia Region. In India, more than 1,000,000 people are moderately or severely burnt each year.^[1]

Each year, a considerable proportion of deaths in India occur owing to burn injuries. Extended morbidity and short-term and lasting disability owing to burns lead to a heavy economic loss. The causative factors of burn injuries differ substantially in different communities and regions and therefore the requirement for comprehensive epidemiological studies to understand the problem status in different regions.^[2]

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.^[3]

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

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Materials and Methods

A record-based cross-sectional study was conducted at a tertiary-care hospital, MLB Medical College, Jhansi, and the medical records of all the patients admitted to the burn ward of surgery department from January 2013 to December 2013 were reviewed and 354 cases included as study subjects. Some cases were not included in study owing to incomplete information. Informed consent from Principal and Chief Medical Superintendent of the hospital were taken to see the records. Data regarding sociodemographic profile and outcome of burn patients were recorded on predesigned and pretested questionnaire. The data were analyzed by using Epi Info statistical software using χ^2 -test and percentages.

Result

Of 354 burn patients, 52.5% were female and 47.5% were male subjects, and male:female ratio was 0.90:1 in our study showing female predominance. Most of the burn patients, especially male subjects belonged to 21–40 years age group (60.2%), while female subjects in the age group of 21–30 years (44.1%) mostly experienced [Table 1].

Most of them belonged to rural areas (65.5%), Hindu (93.5%), unemployed or housewife (71.8%), and equally distributed in nuclear and joint families. Most of the burn patients were married (68.5%), while in married female subjects, most burns occurred in female subjects with no child or in newly married female, and prevalence of burn decrease with increase of children among female individuals [Table 2] [Fig 1].

About 82.5% showed deep burn, and thermal or flame burn was common (85%), followed by electric (13.8%) and scald (1.2%). About 54.3% showed more than 50% burn while 35.5% more than 75% total body surface area (TBSA) involvement. Most of the burns were accidental in nature (64.5%) with male predominant over female while suicidal attempts more in females (16.7%) when compared with male subjects (13.1%) which was found to be significant ($P < 0.05$). Overall mortality was 36.5%, and it was more in females than male subjects even though cure rate was more in female when

Table 1: Distribution of burn patients according to age and sex

Age group (years)	Male	Female	Total
0–10	17 (10)	15 (8.2)	32 (9.1)
11–20	21 (21.5)	25 (13.4)	46 (13.1)
21–30	52 (31)	82 (44.1)	134 (37.9)
31–40	49 (29.2)	33 (17.7)	82 (23.2)
41–50	15 (8.9)	17 (9.1)	32 (9.1)
51–60	9 (5.4)	8 (4.3)	17 (4.8)
>60	5 (3)	6 (3.2)	11 (3.1)
Total	168 (100)	186 (100)	354 (100)

Values in parentheses are percentages.

compared with male subjects although no significant association was found ($P > 0.05$) [Table 3 & 4].

Discussion

Burn injuries are among the most devastating of all injuries and a major global public health crisis.^[4] Almost 95% of global burn deaths and disabilities are estimated to occur in

Table 2: Distribution of burn patients regarding sociodemographic characteristics

Characteristics	Male (N = 168)	Female (N = 186)	p
Area			
Rural	104 (61.9)	127 (68.3)	0.20
Urban	64 (38.1)	59 (31.7)	
Religion			
Hindu	157 (93.5)	171 (91.9)	0.57
Muslims	9 (5.4)	14 (7.6)	
Others	2 (1.1)	1 (0.5)	
Occupation			
Unemployed	112 (66.7)	142 (76.3)	0.04
Employed	56 (33.3)	44 (23.7)	
Type of family			
Nuclear	87 (51.8)	89 (47.8)	0.45
Joint	81 (48.2)	97 (52.2)	
Marital status			
Married	112 (66.7)	131 (70.4)	0.44
Unmarried	56 (33.3)	55 (29.6)	

*Values in parentheses are percentages.

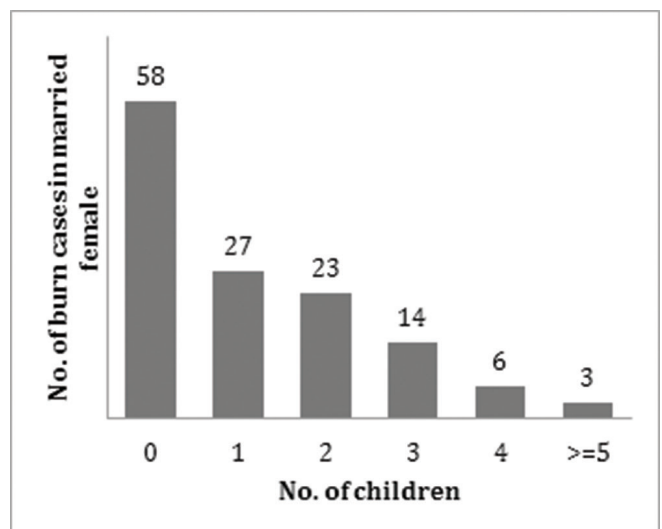


Figure 1: Burn cases among married female subjects regarding their children

Table 3: Distribution according to depth, type of burn, and TBSA (% of burn)

Distribution	N
Depth of burn	
Deep	292 (82.5)
Superficial	62 (17.5)
Type of burn	
Thermal	301 (85)
Electrical	49 (13.8)
Scald	4 (1.2)
TBSA involvement (% of burn)	
<25	64 (18.1)
26–50	98 (27.6)
51–75	67 (19)
76–100	125 (35.3)

*Values in parentheses are percentages.

Table 4: Distribution according to cause and outcome of burn patients

Distribution	Male	Female	p
Cause of burn			
Accidental	119 (70.8)	109 (58.6)	0.04
Homicidal	27 (16.1)	46 (24.7)	
Suicidal	22 (13.1)	31 (16.7)	
Outcome of burn			
Absconded	44 (26.2)	22 (40.9)	0.20
Cured	67 (39.8)	80 (43)	
Expired	49 (29.2)	80 (43)	
LAMA	8 (4.8)	4 (2.1)	

*Values in parentheses are percentages.

low- and middle-income countries of the world.^[5] Our retrospective study through the review of medical records showing sociodemographic factors related to burn patients became helpful in prevention of burn injuries similarly to other studies.^[6,7,8] In our study, male:female ratio was 0.90:1 showing female predominance especially between 21 and 40 years of age comparable with other studies also.^[2,9] but some study showing male predominance for burn injuries.^[7,10] Our data showed that the age group between 21 and 40 years is the most vulnerable to burn injuries for both genders, which is consistent with findings from other studies;^[2,11–14] but, in some study, different age group was found to be susceptible for burn such as median age was 19 years,^[6] 11–40 years,^[7,9] and 15–45 years;^[10] this age group may vary according to their demographic, social, cultural, and behavioral factors in different studies. Thus, overall female subjects were more likely to be at risk of burn injuries especially between 21 and 40 years of age owing to their domestic chores and invariably using unsafe equipments at home, and this is comparable with other studies.^[9,11,15,16]

In our study, majority of the patients were Hindus and belonged to rural background which were supported by other

studies also^[2,10] owing to their population proportion. In our study, burn patients belonged to both nuclear and joint families, and no difference was found in type of family, while one study showed that most of the injured were from nuclear families,^[10] may be owing to demographic condition and urbanization.

Regarding marital status, most of the burn patients were married similar to another study,^[10] especially married females were more victims, supported by another study.^[5] Another aspect in our study shows that married female having more children are less victim than those who had no child or newly married female because of social pressure such as dowry or pressure from in-laws and husband and some psychological pressure also matters which should be taken in to consideration, but, unfortunately, it was not taken in our study.

Most of the burn injuries were accidental in nature, consistently found with others studies,^[2,6,7,9,11] and flame burns or thermal burns were the most common causative factor for sustaining burns and are similarly found in other reports also^[2,6,7,9,11,17] because people especially in rural areas still use firewood, kerosene stoves for cooking and lamps at home owing to lack of electricity. In our study, 35.5% burn patients showed more than 75% TBSA involvement with 36.5% mortality, which shows relation between TBSA involvement and mortality, although not correlated in our study. Mortality rates were found near about similar in other studies such as 37.50%,^[11] 40%,^[10] and 40.9%,^[2] but some studies show different mortality rates about 28%,^[6] 48.3%,^[7] and 56.5%;^[9] it may be owing to their TBSA involvement and treatment facilities available to burn patients.

Our study reported that burn mortality was more in female than male subjects even though cure rate was also more in female when compared with male, although not significant ($P > 0.05$); similarly, it was found in another study^[6,11] but showing majority of the male subjects recovery. Some studies support that prevalence of death is more among female subjects^[6,7,9] as in our study, but, in some, it was reported to be more in male subjects^[9], may be owing to occupation and urbanization.

Limitations of the Study

Record-based study itself has some limitations such as problem in data collection owing to which social class could not be evaluated because no family income was mentioned, although some cases reported low social class. Some other social factors such as dowry or pressure from in-laws and husband and some psychological and behavioral aspects also matter, which should be taken in to consideration; but, unfortunately, it was not taken in our study.

Conclusion

Finding of our study highlights the need for educational programs targeting the community toward preventive measures especially in rural areas where they still use firewood, kerosene

stoves for cooking and lamps at home owing to lack of electricity, liquid petroleum gas connection, and their economic status. Sociodemographic aspects are important in raising knowledge, awareness, and applying preventive measures in community, thus helpful in reducing burden of burn injuries. Specialized care for burn with disability limitations and rehabilitations along with political commitment and strict policies for women is necessary to improve the quality of life of burn victims.

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