

## Socio-Demographic Profile and Reported Circumstances of Death among Female Burn-Victims: Experience from a Tertiary Care Hospital, Kolkata

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**Abstract:** Fire has been a blessing in disguise to mankind, yet fire also has immense potentials for destruction. Burn injuries claim a lot of lives every year. Causes ranges from accidents, suicides, and even homicides. A cross sectional study was conducted in an urban Medical College of West Bengal where death of women following Burns, whose bodies were autopsied in the police morgue were studied. Most of the victims were found to be within the age group of 21-30 years. Religion wise distribution showed a Hindu predominance and occupation wise most of the victims were housewives though working women victims too were found in significant numbers. Most of the cases as found in inquest report were reported to be accidental, but suicides and instances of marital disharmony were found. A predominance of married women was found among victims of burn injuries and a greater number of the victims belonged to lower economic group.

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### I. Introduction

Fire is an essential element of human civilization though it has immense destructive potentials. Burn injuries take a huge number of human lives all over the world. By law all dry heat lesions have been designated as Burns.<sup>1</sup> In our country a lot of women die from burn injuries while cooking, worshipping or even during working in fireworks industries. Possibility of homicide at in laws for demand of dowry is another potential threat. One million people die annually due to suicides and homicides alone.<sup>2</sup> Male predominance has been observed in all other methods of suicide excepting burns.<sup>3,4</sup> Revenge and marital disharmony, has been found to be a major factor behind homicides while mental depression and illness has been a potential cause of suicide.<sup>3</sup>

Burns are one of the most common modes used in suicide or homicide in India especially among young victims.<sup>4-6</sup> Acid, Alkali, Hot liquids which cause scald injuries are rarely used for suicidal or homicidal purposes in our country. Homicidal burning of young unmarried and married women in India out of jealousy, revenge, and especially due to demand of Dowry is a major concern for law enforcing authorities, the judiciary, police and medico-legal experts. Many times homicides are simulated as suicides by perpetrators commonly relatives, who gives illusive history<sup>7,8</sup> mental disease, chronic illness all may act as a precipitating factor. In all cases of alleged burn injuries the police authorities and medico-legal expert must be careful to rule out scope of foul play, and precipitating factors must be searched to help planning of preventive measures.

As burn related deaths signify a tragic end to human life, our aims for the benefit of the society at large is to minimize the events as far as possible. A clear knowledge about the socio-economic, cultural and educational factors which play major roles behind such instances is important. The current article analyzes the prevalence of female deaths (burns) with regard to socio-demographic variables, places of occurrence, hours of the day.

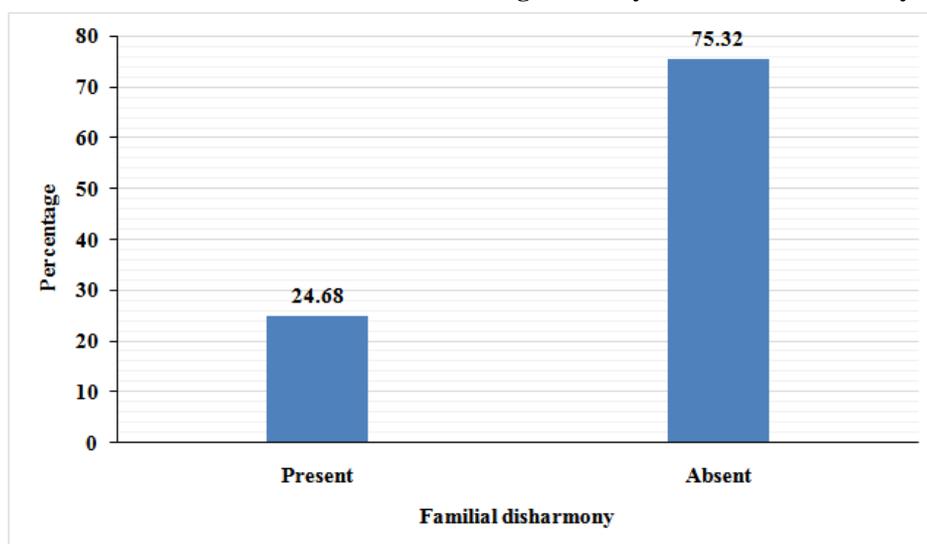
## II. Material And Methods

The current cross-sectional study was conducted among 231 female victims dying from burn injuries, whose bodies were autopsied in the R. G. Kar Medical College & Hospital Police Morgue attached to the Department of Forensic Medicine & Toxicology, R.G.Kar Medical College, and Kolkata. Scalds, chemical burns, electric burns and postmortem burn cases were excluded from the study. Present work was confined to cases of flame burns only. The data collection was conducted through a one year period. A predesigned proforma was used for data collection. The entire work had been taken up after clearance from institutional ethics committee. Data were collected by interviewing police personnel, relatives and neighbors' of victims, studying hospital records accompanying police requisition. During autopsy examination height and weight were be measured. Following evidences were searched for presence of smell of kerosene in the body, clothing, rigor mortis, decomposition, percentage of burn(rule of nine),degree of burn (Wilson's method),body parts involved (head, neck, chest, abdomen, back, limbs, genitalia and perineum),evidence of charring of internal organs, infection or blisters, soot or carbon particles present below tracheal bifurcation, other antemortem injuries apart from burn, whether death resulted solely from burn injury or combined effects of secondary infection. Medico legal findings on circumstances of burn i.e.-suicidal, homicidal, accidental or fabricated motive involved, any foul play involved evident from autopsy were also noted. All data were collected, compiled and subjected to suitable statistical analysis using appropriate methods. Results were presented using charts, tables, diagrams and photographs. Finally the findings were critically studied on the background of present knowledge and the experience of the past work.

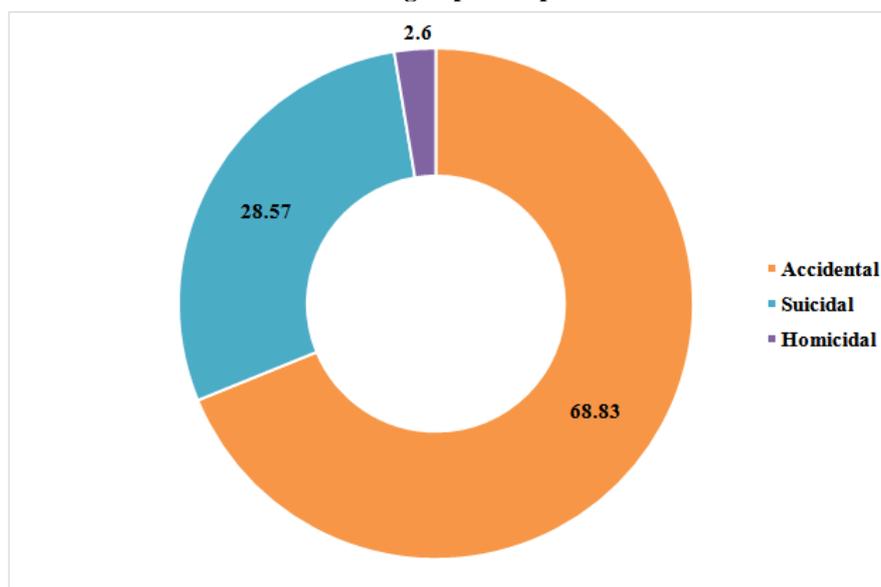
## III. Result

It was observed that maximum number of victims (99 out of 231) were within the age group of 21-30 years. Only 6% of the cases were within 41-50 years. Most of the victims were Hindus (190 cases, 82.25%) followed by Muslims (16.88%). Two cases of Christian community were recorded. It was observed that most of the victims were Housewives (86.15%) followed by students (8.66%) , 3 were service holders, 1 worked as a private tutor, 1 as a housemaid, 7 others were unemployed. It was observed that most of the victims (61.47%) were educated below 10th standard, while 20.7% were 10th standard passed, 11.69% were educated at the level of X-XII standard. Fourteen cases (6.06%) were above XII class. It was observed that a lower economic class (Family income <30000 per year) background was highest with 132 cases (57.14%). It was seen that most of the victims were married, of whom 178 (77.06%) had their husband living and rest 26 cases were widow. 27 cases (11.69%) were unmarried. From *Figure 1* it was observed that 57 cases (24.68%) had history of familial disharmony at in laws and 174 cases (75.32%) had no such background. There was presumption in favour of suicide in 66 cases (28.57%) and of homicide in another 6 cases (2.60%). However the majority, 159 cases (68.83%) were reported as accidental as evident from *Figure 2*.

**Figure 1. Distribution of the selected cases according to history of familial disharmony. (n=231)**



**Figure 2. Distribution of the cases according to presumption of circumstance of death. (n=231)**



#### **IV. Discussion**

In the current study 42.85% of the victims were between 21-30 years age and 14.71% in 31-40 years age group. A similar result was reported by Singh et al.<sup>9</sup> and Sharma et al.<sup>7</sup> showing that most burn deaths in females occurred in the age group 21-40 years. The Study by Batra AK<sup>7</sup> observed that of all burn death cases, 71.9% belonged to the young age group of 21-40 years. On the other hand, Dasgupta and Tripathi<sup>10</sup> reported 85% cases of burnt wives were between the age of 16-30 years. In female the age group between 20-40 with the present observation and so also other reports from developing countries such as India and Jordan might be explained by involvement of this age group in more of Domestic activities. This pattern may indicate that burn injuries tend to occur in certain age groups reflecting the particular development of behavioral pattern associated with age. In religion wise distribution majority were Hindu (82.25%) similar to Dasgupta and Tripathi<sup>10</sup> who reported, 95.4% belonged to Hindu religion. Kumar et al<sup>12</sup> observed 92.76% cases were Hindus.

It was observed that there was presumption in favour of suicide in 28.57% cases and of homicide in another 2.6%. However the largest proportion, 68.83% were reported as accidental. Sen and Banerjee<sup>11</sup> in their study of 1,000 burn victims, observed 368 female burn injuries, amongst which 292 cases were due to domestic accidents, 4 cases were due to industrial accidents while 72 cases were suicidal in nature.

It was observed that 57.14% had a family income of <30,000 Rs. per year while 40.26% had a family income of Rs 30,000-60,000 per year. However, Ahuja<sup>12</sup> observed that middle class women had a higher rate of victimization than lower or upper class women. It was observed in the current study that 24.68% cases had history of familial disharmony at the in-laws. Jha SS<sup>13</sup> in his study in 1981, observed marital disharmony as a root cause of several cases of burns. Study by Kumar et al.<sup>14</sup> in 2002 reported, suicidal burns in married females were increasingly probable out of marital disharmony, dowry harassment etc.

#### **V. Conclusion**

The present study was conducted at the Police Morgue attached to the Department of Forensic Medicine & Toxicology RG Kar Medical College & Hospital on 231 cases of female burns. Maximum number of victims (42.85%) was within the age group of 21-30 years. Most of the cases (82.25%) were Hindu by religion, 86.15% cases were reported to be housewife with most of the victims (61.47%) educated below 10th standard. Around 57% of the victims belonged to a lower economic class. History of familial disharmony was present in 24.68% cases. Majority of the cases were however Accidental in nature. In a developing country like India cheap and effective technologies for immediate treatment of burn injuries and proper training of first aid treatment to health workers and people should be provided. Further research in this direction needs to be taken up.

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