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# Social and psychological profile of pattern of female burn casualties

Karen Harshitha<sup>1\*</sup> , Venkata Raghava<sup>2</sup> and C. Mahesh<sup>3</sup>

## Abstract

**Background:** Thermal injuries are one of the commonest causes of unnatural deaths in females in developing countries. However, there is a lack of adequate research into the social and psychological aspects that lead to such deaths. The suicidal death due to immolation by fire is a scourge on Indian society that is not being adequately addressed in all its aspects. There is an attempt in this study to bring awareness of the population under risk and to motivate prevention measures.

A retrospective cross-sectional study was conducted at the Victoria Hospital Mortuary for a period of 12 months between 2017 and 2018. Medicolegal and psychological autopsies were performed on 120 female burn victims over 15 years of age. The information gathered via medical records, police investigations, interviews with family, and post-mortem findings was analyzed and compiled to obtain the following results.

**Results:** Most of the victims, i.e., 52% of the women, were illiterate. More than half of the victims, i.e., 53% of the women in this study, were found to be in the upper-lower socio-economic. Majority of the female victims (63.3%) were married for more than 7 years. Suicide was the commonest manner of death (52%). There was no alleged history of domestic abuse in most cases (73.3%). Only 2 cases, i.e., 1.7% of cases, were booked under Dowry Prohibition Act. Only 28.3% of cases were investigated by Magistrate's Inquest. History of mental illnesses was reported only in 14.2% of victims. Alcohol was detected in only 2 of the victims (1.7%).

**Conclusions:** It is evident that in most cases of deaths in women due to thermal injuries, the entire narrative is not thoroughly investigated and any prior history of domestic abuse, dowry demands/harassment, and even mental illnesses gets under-reported or undocumented. Despite there being a plethora of information regarding the statistics as to how women die due to thermal injuries, very minimal data exists regarding the measures adopted to prevent it. There is a hope that this study inspires the concerned stakeholders to take stock and introduce measures to prevent such potential deaths among the vulnerable female population.

**Keywords:** Female burn victims, Dowry, Mental illness, Domestic abuse

## Background

Burn is a unique but significant mode of suicide and homicide everywhere in the world. Burns are the fourth most common type of trauma worldwide, following traffic accidents, falls, and interpersonal violence (Pekka &

Bernard, 2004). In 2019, more than 23,000 fire-related deaths were estimated in India, which is about 20% of the global mortality burden. Additionally, 1.5 million DALYs were attributed to burns. The burden of burns among women (aged 15–49 years) in India is three times higher than that among men (WHO, 2020).

Women have differential exposure to risk, often arising from unsafe cooking and kitchen practices, suicides, and homicides associated with domestic violence and dowry-related conflict. Burn-related injuries and deaths among women in India are likely to be caused by kitchen

\*Correspondence: dr.karenharshitha@gmail.com

<sup>1</sup> Department of Forensic Medicine and Toxicology, Vydehi Institute of Medical Sciences and Research Institute, Bangalore, India  
Full list of author information is available at the end of the article

accidents related to use of kerosene and flammability of garments; self-immolation or suicides; and homicides related to domestic violence. (Bhate-Deosthali & Lingam, 2016) The taboo surrounding deaths due to unnatural causes like suicides and homicides is not just limited to burn injuries in the heavily religious and spiritual atmosphere of Indian culture. The superstitions surrounding the aftermath of these events can elicit false statements of accidental deaths from relatives or neighbors.

Death due to burns in married women who have been married for less than 7 years of age is investigated under the Section 176 of Code of Criminal Procedure (CrPC) by the Magistrate under Magistrate's Inquest. This is a law which is targeted at aiding women who meet their deaths during the early intervals of their marriage to rule out foul play on the part of in-laws.

Among the multiple reasons, that might compel a female to commit suicide, domestic abuse by the spouse and harassment by the in-laws are observed in the majority of cases. THE PROTECTION OF WOMEN FROM DOMESTIC VIOLENCE ACT, 2005 was formulated to provide for more effective protection of the rights of women under the Constitution who are victims of violence of any kind occurring within the family. Section 498A in The Indian Penal Code is drafted against domestic cruelty on women by the husband or relatives of the husband. However, there is extremely poor awareness among the general population as to the existence even of such legal provisions against domestic abuse in India. Abetment to suicide is dealt under Section 306 of the Indian Penal Code (IPC). However, instead of the circumstances leading to death, the intent to abet suicide is considered in Courts which is extremely hard to prove. Most of the times, the woman cannot muster the courage required to protest the abuse against her and might attempt to end her life in a wave of depression and hopelessness.

Another obnoxious and ubiquitous practice that is prevalent in our Indian society is the Dowry system during marriages where the bride's family is expected to pay the groom's family in money or expensive assets as valuable security. This is a practice that's sadly and embarrassingly enough still followed in the 21st-century households in India in lieu of female empowerment. New laws have been introduced by the Government where such deaths are to be diligently investigated under the Section 304(B) of the Indian Penal Code by a Magistrate with Magistrate's Inquest.

Psychological disturbances and mental illnesses are still not understood or acknowledged in its entirety in Indian society, especially in rural areas. Intentional burns, encompassing self-inflicted and assault-related burns, are

associated with complex psychosocial causation and significant effects on mental health (Lama et al., 2015; Poeschla et al., 2011). Substance abuse has also been found to be high among self-inflicted (59%) (Reiland et al., 2006) and assault (30%) (Purdue & Hunt, 1990) burn patients, with alcohol abuse being predominant (Caine et al., 2016). Higher alcohol use among patients sustaining intentional burns has also been observed with 15% of those with assault burns having a measurable blood alcohol content in comparison with 7% for all other burn patients (Reiland et al., 2006). Despite the high prevalence of pre-injury Mental illness and substance abuse in patients with intentional burns, there is a scarcity of data, especially in relation to assault burn injury patients who represent the severe end of the spectrum (Vetrichevvel et al., 2018).

This study intends to recognize the patterns of social and psychological factors among the victims to identify those susceptible to such injuries and reduce the incidence of mortalities by implementing stricter regulations and safeguards for these women.

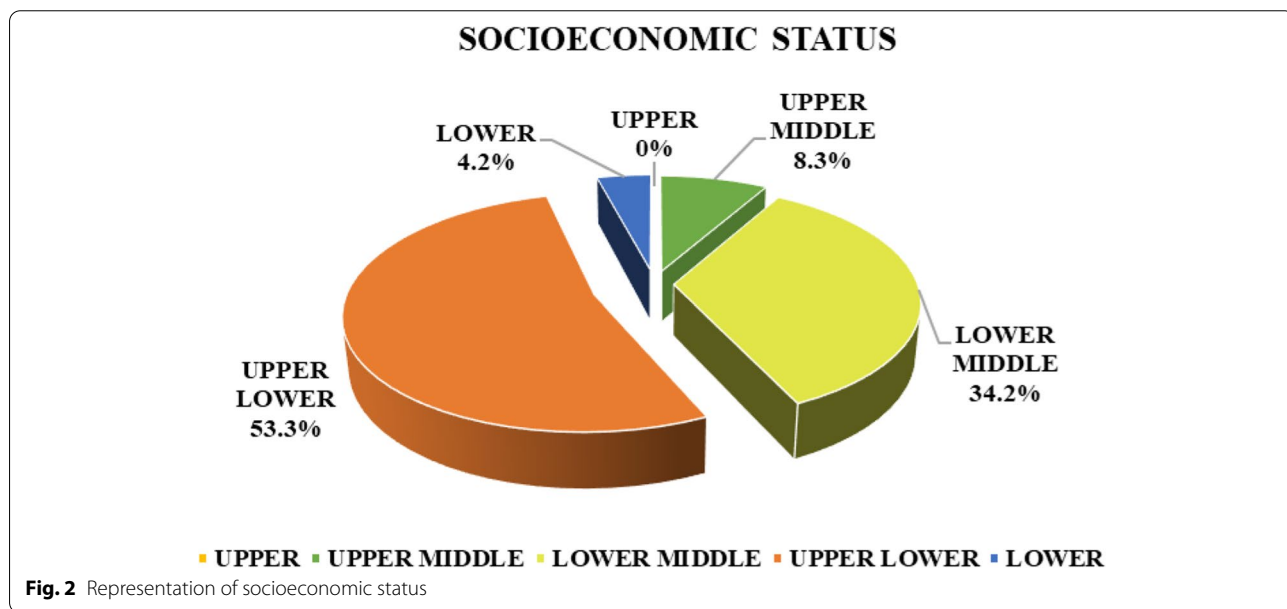
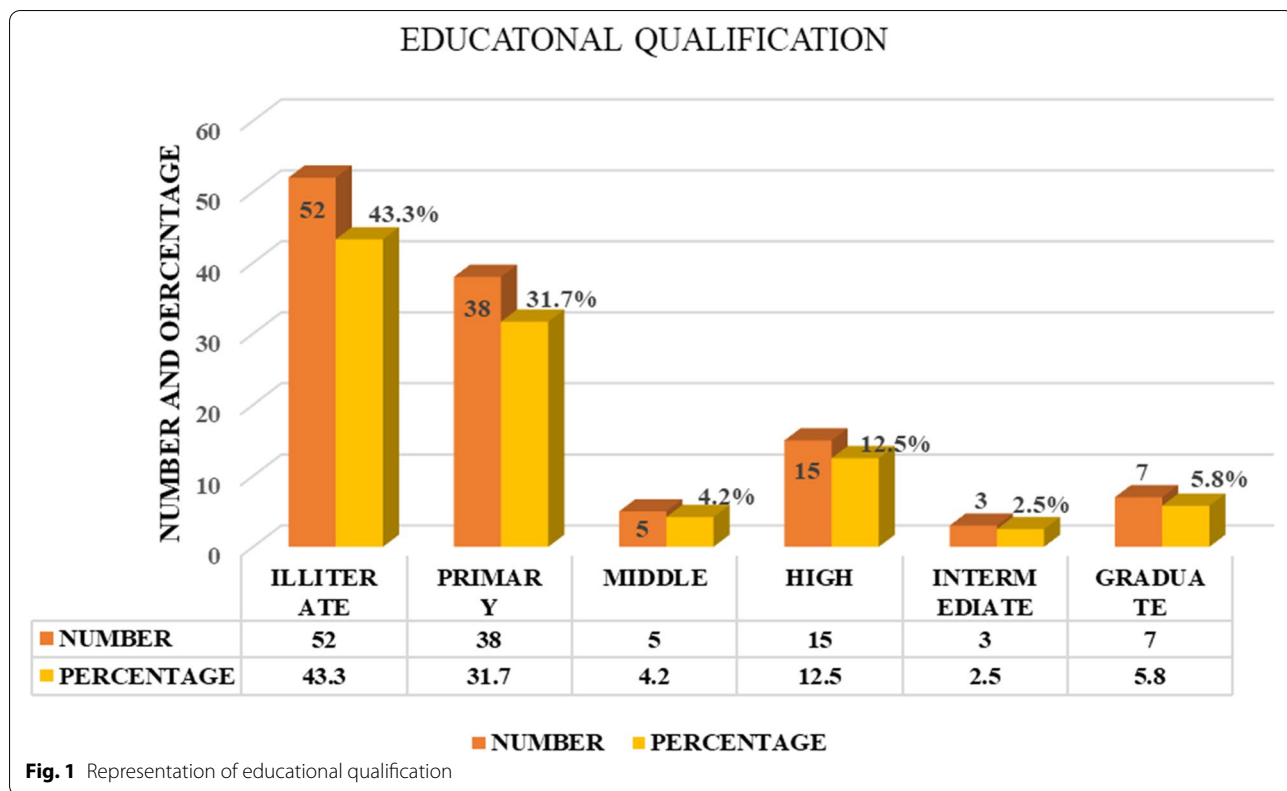
## Methods

Material for the present study comprises of 120 cases of deaths due to burn injuries among female victims >15 years of age brought to the Mortuary of Victoria hospital for autopsy for a period of 1 year between 2017 and 2018. The decomposed and fragmented bodies and deaths due to electricity, acids, or lightning were excluded. The post-mortem findings along with the data obtained from the police investigation, interviews with family and friends, and medical records wherever relevant have been compiled aided by a proforma with diagrammatic representation.

## Results

The following results were obtained at the end of a year of study (Figs. 1, 2, 3, 4, 5, 6, 7, 8, and 9).

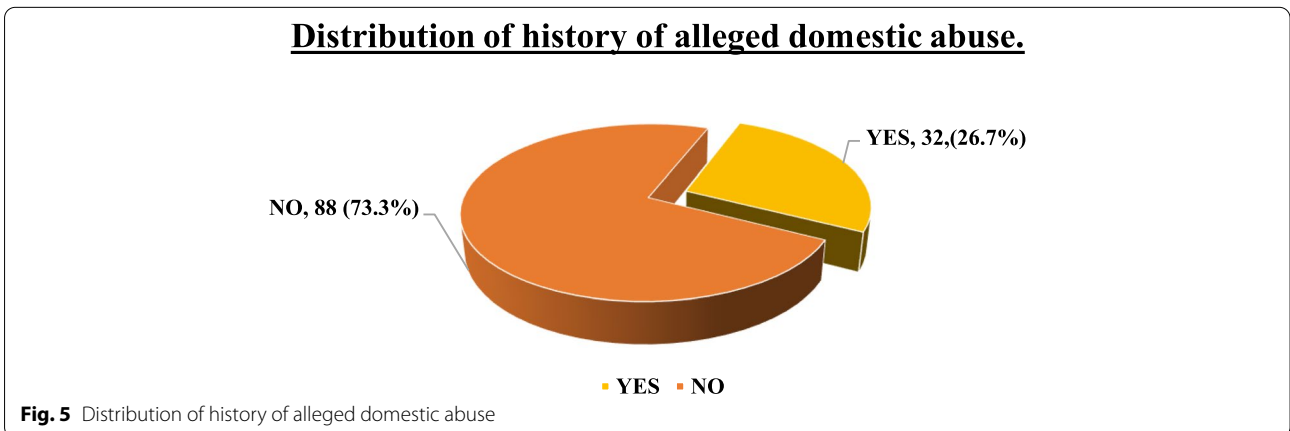
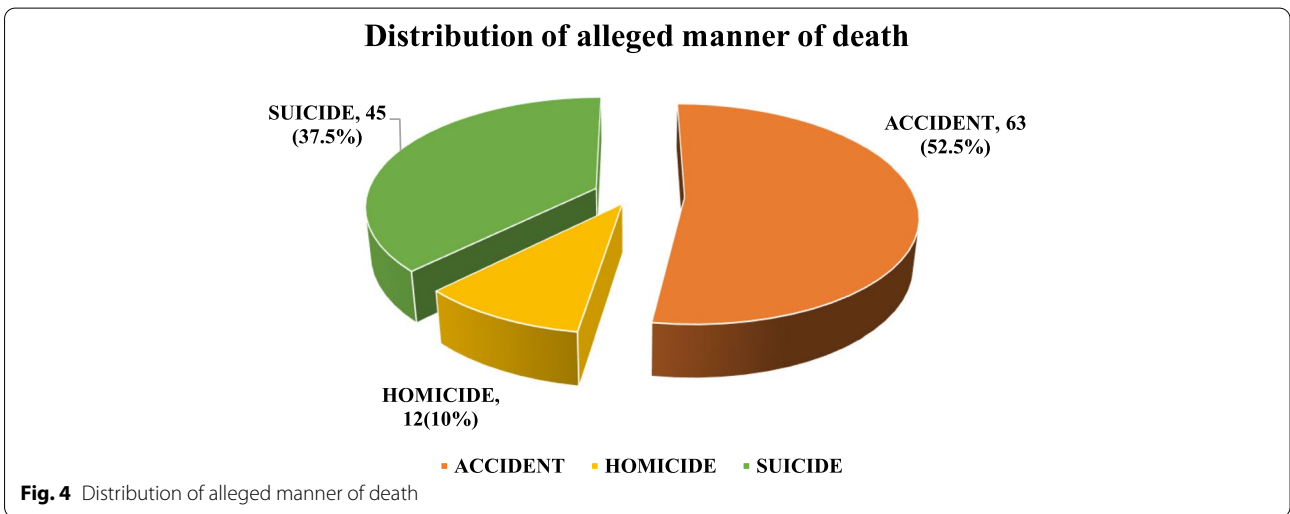
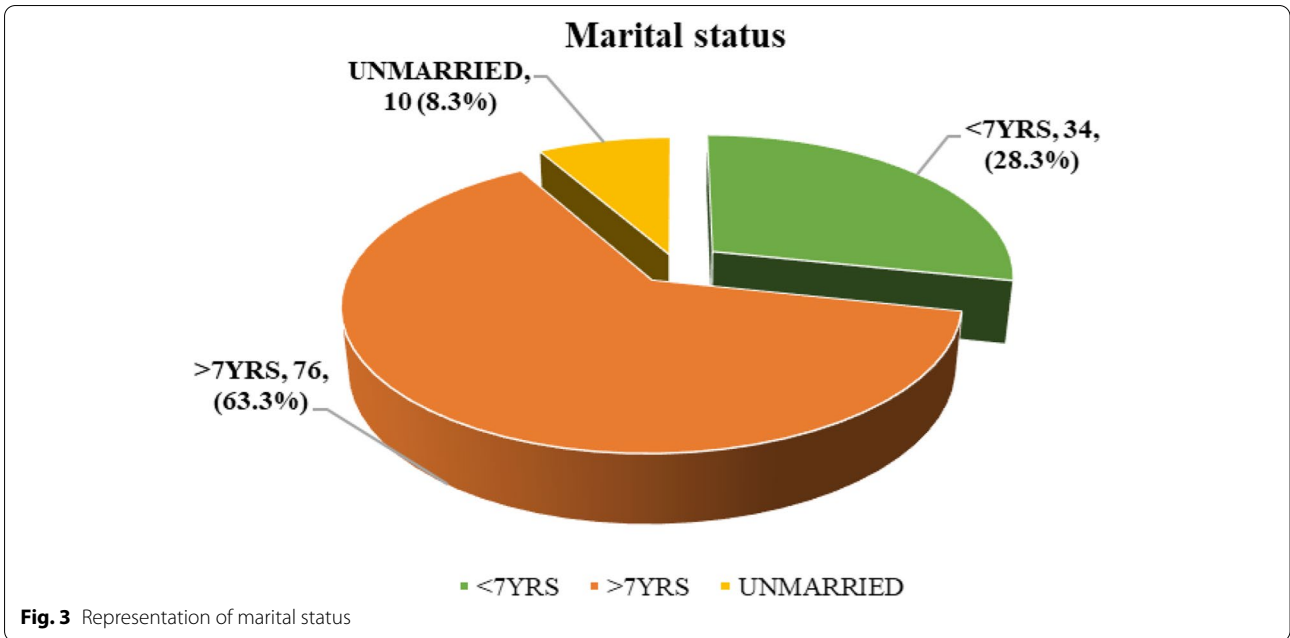
- 1) Educational qualification: Most of the victims were observed to be illiterate, i.e., 52 (43.3%) followed by those with primary school education, 38 (31.7%).
- 2) Socio-economic status: More than half of the victims belonged to the upper lower class of socio-economic status, i.e., 64 out of 120 (53.3%) followed by the lower middle class.
- 3) Marital status: It is seen here that most of the women were married for more than 7 years, i.e., 76 out of 120 (63.3%) followed by those married for less than 7 years.
- 4) Distribution of alleged manner of death: Results show that most of the incidents were alleged to be



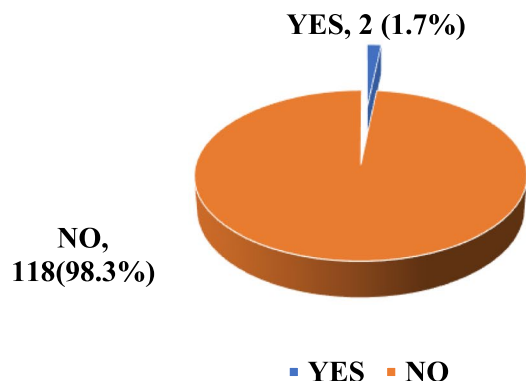
due to an accident, i.e., 63 out of 120 (52.5%) followed by suicide.

- 5) Distribution of history of alleged domestic abuse: The data shows that there was no history of domestic abuse among the victims in 88 out of 120, i.e.,73.3%.

- 6) Distribution of cases filed under the Dowry Prohibition Act: Among 120 deceased victims, cases that were filed under the Dowry Prohibition Act were only 2 (1.7%).
- 7) Distribution of investigation under Magistrate’s Inquest: The below data shows that 34 out of 120

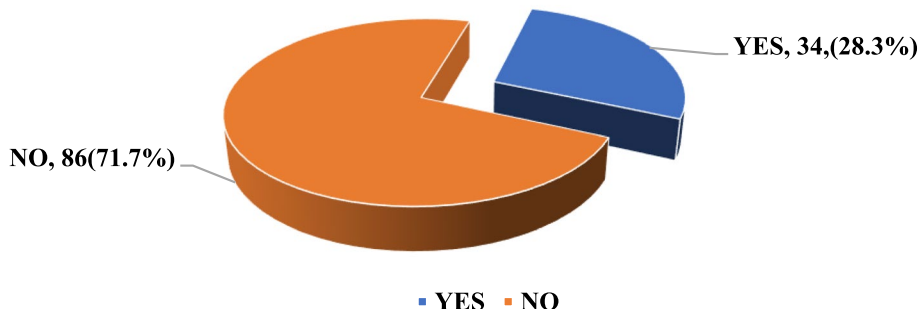


### Distribution of Case filed under dowry Prohibition Act.



**Fig. 6** Distribution of cases under the Dowry Prohibition Act

### Distribution of Investigation under Magistrate’s Inquest



**Fig. 7** Distribution of Investigation done under Magistrate’s Inquest

(28.3%) cases of female deaths due to burns were investigated under the Magistrate’s inquest.

- 8) Distribution of history of mental illness: This study shows that most of the victims, i.e., 92 out of 120 (76.6 %), had no history of mental illnesses and 17 of them (14.2%) had a history of depression.
- 9) Distribution of history of intoxication: 118 out of 120 (98.3%) did not have a history of intoxication followed by only 2 cases with a positive history.

**Discussion**

The results obtained were compared and collated with the existing literature on the study topic. The results regarding the literacy levels of the women were similar to

the results obtained in the study conducted by Das Gupta and Tripathi (Das Gupta & Tripathi, 1984). Vaghela et al. in their study reported similar findings to this study that most of the victims belonged to the lower socioeconomic strata (Vaghela Prithvirajsinh et al., 2012).

In the studies conducted by Nagesh Kumar Rao (Rao, 1997) highest preponderance of female burn deaths were during the first 7 years period of marriage which is incongruous with this study owing to the preponderance of early marriage in Indian women and a longer period of married status despite the young age.

Shinde A.B. Keoliya A.N. (Shinde & Keoliya, 2013) and Harish D et al. (Harish et al., 2013) in both their studies observed similar results comparable to this study where the manner of deaths was predominantly accidental

### Distribution of History of Mental illness

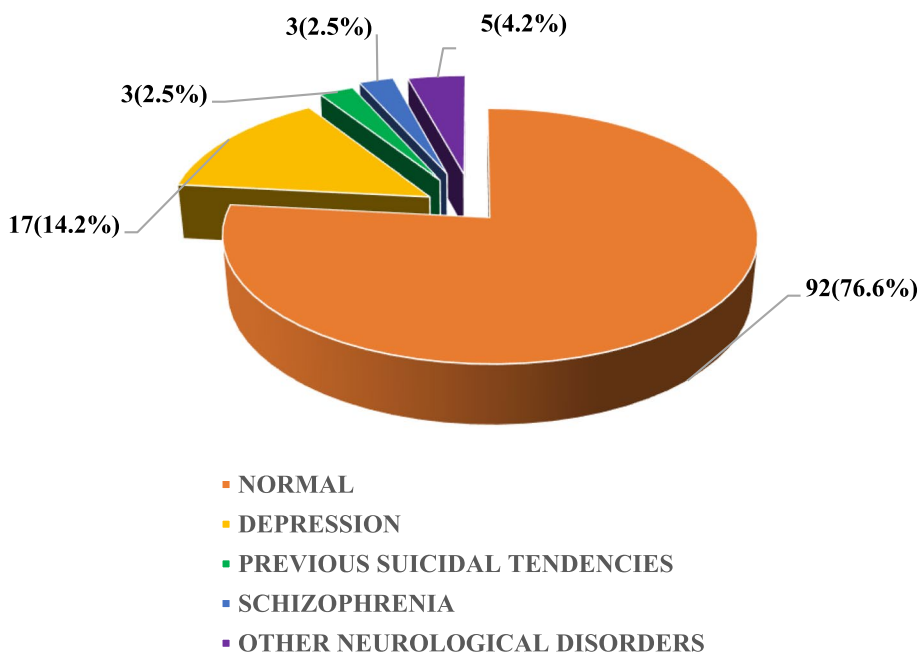


Fig. 8 Distribution of history of mental illness

### Distribution of History of Intoxication

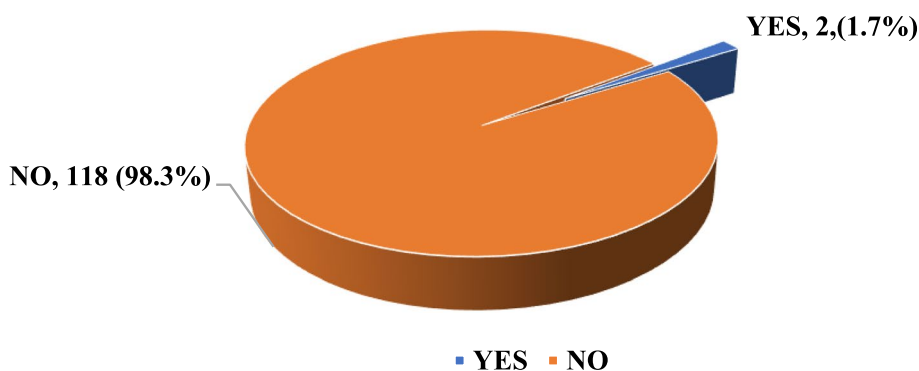


Fig. 9 Distribution of history of intoxication

followed by suicide and homicide. In this study, kerosene is the accelerant most implicated for the fire, and kerosene pump stoves are in common use among those in the lower economic strata. They are prone to accidental explosions and subsequent injuries.

The history of domestic abuse in this study was reported in very few cases, i.e., 26.7%.

Though there is not a study conducted extensively on the topic, Deosthali P B (Deosthali, 2016) in her study found that domestic abuse or violence was reported by

most of the victims only after detailed and intensive, persistent history taking. The inherent fear among women of being blamed and chastised by family and society, the misconception that domestic violence is normal and acceptable, and the skepticism about the authorities believing or acting on the complaint are some of the reasons for this statistic. Even if it is reported, in most cases it is withdrawn or not officially registered to protect the offspring from emotional and mental turbulence and maintain family dynamics.



Nigam C (Nigam, 2017) and Agnihotri, Arun (Agnihotri, 2001) in their studies have discussed that most cases of death in females due to burns do not get reported under the Dowry Prohibition Act due to the same reasons women do not report domestic violence. Only 2 cases out of 120 (1.7%) had been filed in this study in concurrence to the review literature.

Investigation by Magistrate in India is done in cases of death of married women within 7 years of marriage and in cases of alleged dowry deaths. Mishra P. K et al. (Mishra et al., 2017) in their studies reported that out of total 88 autopsies, 21 (23.86%) cases were Magistrate inquest under section 176 CrPC, as they were females who died within 7 years of marriage. Similar results could be seen in this study also. An investigation by a higher authority other than the police embeds the significance of a more thorough investigation and avoids the dereliction to write off such deaths as accidental.

History of mental illnesses is one of the commonest pre-disposing factors for intentional harm in comparison to homicide or unintentional injuries. Mental health issues are still a taboo subject in a developing country like India and hence go undiagnosed and under-reported most of the time. The 14.2% reported in this study had a clinical history of depression however other illnesses such as adjustment disorder, generalized anxiety disorder, substance abuse, and neurological disorders like epilepsy could also lead to accidental and suicidal immolation (Poeschla et al., 2011; Nisavic et al., 2017).

Pre-existing alcohol or substance abuse is usually seen in cases of injuries due to self-harm and in cases of homicide. Several studies have implied a direct correlation between intoxication and burn injuries (Davis et al., 2013; Smith et al., 1999). However, in this study of an exclusively female population, it can be argued that lack of social acceptance in a conservative India of females consuming alcohol or other drugs followed by derision and reproval leads to difficulty in eliciting veracious history.

## Conclusions

In conclusion, this study does shed light on the social variables that aid in the identification of a high-risk group among women prone to burn mortalities such as illiterates or belonging to lower socio-economic strata. However, as to the social aspects concerning family dynamics, the reticence of the affected families to disclose domestic abuse or even officially report foul play or demands for dowry is a definite deterrent in finding the exact statistic of the above.

This study being retrospective in nature inflicts a definite limitation to the extent the further investigation and confirmation of certain findings, especially in allegations

of domestic abuse, untreated mental illness, and dowry harassment.

The National Crime Records Bureau's statistics on Accidental Deaths and Suicides in India for the year 2020 shows that out of the total accidental and suicidal deaths in India, 29.1% were constituted of women which was an 8.7% increase from the year 2019. Male preponderance was increased in all incidences of such deaths except in deaths by fire or self-immolation where there was a gender disparity and increased incidences in females. Statistics also showed that in 2020, the proportion of female victims were more in 'Marriage Related Issues' (specifically in 'Dowry Related Issues'), i.e., about 5% (Ministry of Home Affairs, 2021). Despite such detailed data available about this issue, there are not many preventive measures being advocated or implemented by the Authorities. Mental illness including drug abuse, though recognized as a significant social problem in the country, sadly isn't being evaluated as stringently in women as in men due to the age-old patriarchal oppressive beliefs and ignorance.

The study succeeds in pointing out these deficiencies; however, the solutions such as one stop centers for domestic violence victims with protection orders, the stringent punishment for dowry practices, and provisions for treatment under Mental Health Care Act barely seem to be making any difference as there is very little or no awareness about the same.

Further studies among the youth of this generation regarding the awareness and importance of research among women with mental illnesses as a susceptible population for domestic abuse and victimization in terms of suicide would dredge up much more valuable data. Comparative studies between urban and rural populations concerning various socio-demographic and psychological factors would also help to customize provisions, both legal and social for susceptible groups. Awareness Workshops with community involvement can aid in further educating the masses as to how this social scourge can be eliminated.

## Abbreviations

DALYs: Disability-adjusted life years; CrPC: Code of Criminal Procedure; IPC: Indian Penal Code.

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## Authors' contributions

Conception or design of the work: Dr. Karen Harshitha, Dr. S. Venkata Raghava. Data collection: Dr. Karen Harshitha. Data analysis and interpretation: Dr. Karen Harshitha, Dr. Mahesh. C. Drafting the article: Dr. Mahesh C, Dr. Karen

Harshitha, Dr. Venkata Raghava. Critical revision of the article: Dr. S. Venkata Raghava. Final approval of the version to be published: Dr. Karen Harshitha, Dr. Mahesh C, Dr. S. Venkata Raghava.

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#### Availability of data and materials

The data for this study was obtained from Confidential Institutional records pertaining to Medicolegal autopsies conducted in the Institute and hence are not publicly available.

#### Declarations

##### Ethics approval and consent to participate

Ethical approval for this study was obtained from the Institutional Ethics Review and Scientific Committee for this study and publication after proper evaluation.

Consent for participation: Not applicable.

##### Consent for publication

The authors of this manuscript ensure that we qualify as such and warrant that nobody who qualifies for authorship has been excluded. We agree to its submission to this esteemed Journal; and, if accepted, to its publication in this journal. We warrant that this article is original, does not infringe on any copyright or other proprietary right of any third party, is not under consideration by another journal, and has not been previously published. Ethical approval has been sought and obtained as necessary and any conflicts of interest or the lack of it stated.

##### Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

##### Author details

<sup>1</sup>Department of Forensic Medicine and Toxicology, Vydehi Institute of Medical Sciences and Research Institute, Bangalore, India. <sup>2</sup>Department of Forensic Medicine and Toxicology, Bangalore Medical College and Research Institute, Bengaluru, India. <sup>3</sup>Department of Forensic Medicine and Toxicology, Chamara-janagar Institute of Medical Sciences, Chamara-janagar, India.

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