

Self-immolation a common suicidal behaviour in eastern Sri Lanka

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Abstract

A high number of self-burning injuries are noted in Batticaloa. The epidemiology, outcome and psychosocial aspects of 87 patients admitted with such burns over a 2-year-period was studied. The patients were compared with accidental burns and patients using other methods of suicide. Seventy nine percent of the victims were females and 72% were in the 15–34 years age-group. Most had marital problems. The majority were Tamils, but Muslims were fairly well represented. The median extent of burn was 48% of total body surface area (TBSA), with the top of the body mainly affected. The use of fire proved to have a high mortality in a group of patients who did not really want to die; 61 (70%) died. Mortality was higher than for accidental burns after matching for age and burn extent. The survivors had long hospital stays and suffered severe disfigurement. The cases where the patient denied self-harm, but in which the injuries were suggestive of this motive, were strikingly similar in age, sex and burn extent to the suicide group. In contrast, poison suicide records showed a male predominance and a gross under-representation of Muslims. Fire is a very significant method of suicide in our area. Social make-up and poor problem-solving ability may be contributing factors.

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Seeta looked at Rama. ‘Since this is how you look at it, there is but one course open to me’ she said . . . ‘O Agni, you at least know my purity and will take me as your own!’ With these words, she jumped into the flames [1].

1. Introduction

Batticaloa General Hospital is a large government health facility in the east coast of Sri Lanka (bed strength, 700 beds). The district population of half a million is mostly rural. Ethnic Tamils (Hindus and Christians) are in majority (74%), with a Muslim minority accounting for 25% (the Muslims are considered a separate ethnic group in Sri Lanka). The hospital catchment area includes the whole of Batticaloa district and extends beyond that to the neighbouring Ampara district.

A civil war situation has been present in the north and east of the country for over 15 years; this has had a serious effect on the health services. Only two general surgeons are serving the whole district, both attached to Médecins Sans Frontières (MSF) and based at this hospital. Likewise, there is only one psychiatrist. Although not having a specialised

burn unit, this is the only referral hospital for severe burns in the area; patients are admitted to general surgical wards, each of which has a burn section. The country’s only burn centre in the capital city is an 8 h-drive away, and patients are not transferred to that facility.

The high number of self-burnings, often ending in death, drew the attention of the MSF surgeon and of the hospital psychiatrist. This study looks at the epidemiology, outcome and psychosocial aspects of these burns, to get a better understanding of the extent and possible causes of the phenomenon.

2. Method

The study of burn injuries was prospective and covered 2 years (1 July 1999–30 June 2001). Basic epidemiological and medical data were recorded for each patient admitted with burns. The total body surface area (TBSA) burned (estimated by the rule of 9), the depth of burn, number of dressing changes under anaesthesia or skin grafts were recorded. The duration of hospital stay was calculated for survivors and estimated for two patients who were still in hospital at the time of writing. The final outcome and the presence or likelihood of late complications were also recorded.

Deliberate self-harm, acknowledged by patient or relatives during the course of hospitalisation, was classified as

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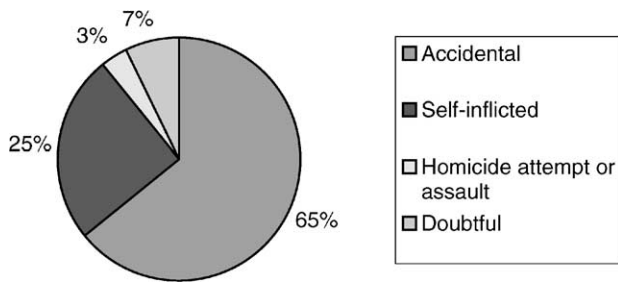


Fig. 1. Circumstances of burn injuries in Batticaloa General Hospital.

such. Suspected but unconfirmed cases, either because of the distribution of the burns or the behaviour of the patient or the relatives, were classified as doubtful.

For this paper, all patients with self-inflicted burns were studied, and they were compared with patients with burns of doubtful circumstances and those with accidental burns.

All suicides are investigated by the coroner; data about suicide by other methods during the same period were also collected to be compared with burn suicide. This was done retrospectively from judicial records.

Differences between the different groups were evaluated using Fisher's exact test and *t*-test. The level of significance was set at 0.01.

3. Results

During the period studied out of a total of 345 burn admissions, 87 (25%) patients were admitted with self-inflicted burns. Two hundred and twenty one (65%) burns were accidental, 25 (7%) were doubtful, and 12 (3%) followed assault (Fig. 1).

Sixty nine of those who burned themselves were females and 18 were males (male/female ratio 0.26). Fifty eight (67%) were from Batticaloa district itself, others from the neighbouring Ampara district. This gives an annual incidence of self-inflicted burns for the district of 5.8 cases/100,000 inhabitants.

The median age for self-inflicted burns was 27 years, 25 years for females (range 15–50) and 36 years for males (range 20–52) (Fig. 2). Sixty nine were Tamils, 15 were

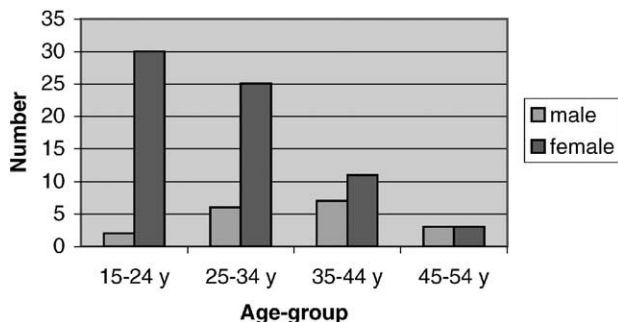


Fig. 2. Age and sex distribution of self-inflicted burns.

Muslims (Tamil/Muslim ratio 4.6), one was Burgher and two unspecified. Sixty six (76%) patients were married and 54 (62%) had between one and six children. Four of the 69 women (6%) were pregnant. No correlation was found between the incidence of self-inflicted burns and the month or period of the year.

Before burning themselves, 41 patients (47%, 37 females and four males) had a quarrel with their spouses and 11 others had a quarrel with another family member. Altogether, 44 females expressed a reason for the act, out of which 37 had arguments with their respective husbands immediately before. Surprisingly, although alcohol consumption is very common, especially among men, only four patients (three males and one female) were under the influence of alcohol at the time. However, alcohol abuse by their husband was mentioned several times by the women who burned themselves. Only three patients had a known psychiatric illness. The triggering factor remained unknown in 30 cases. All self-inflicted burns were due to flame. Kerosene was the sole causing agent, with all the patients having doused and set themselves on fire. The smell of kerosene on admission was often quite obvious.

The percentage TBSA for those burns ranged from 8 to 95%, with a median of 48% (Fig. 3). Male patients sustained significantly more extensive burns (median TBSA 65%, 95% confidence interval (CI) 53–74%) than female patients (median TBSA 45%, 95% CI 40–51%) ($P < 0.01$). There was no significant difference between the burn extent of Muslim and Tamil patients.

All self-inflicted burns were assessed as partial thickness and/or full thickness, with the top of the body most frequently affected: chest (97% of the cases), upper limbs (95%), neck (92%), and face (78%). All had occurred indoors. This fact, combined with the presence of facial burns led us to clinically suspect inhalation injury in 78% of the cases; this could not be confirmed due to lack of facilities.

The outcome is shown in Table 1. Sixty one patients (68% of the females and 78% of the males) died in hospital and 23 (26.5%) were discharged. The overall mortality rate was 70%.

Only one patient, a chronic alcoholic male with 75% TBSA burns, had a previous medical condition that could have influenced the prognosis. Two of the four pregnant women died.

The 61 burn suicides compare with the 22 war-related hospital deaths during the same time period. Burn suicide alone accounted for one out of four deaths in the surgical wards.

The mean number of days between admission and death was 6 (range 0–60). There was a peak of deaths in the first 24 h for those with massive burns, and another peak between the 3rd and 6th day after admission (Fig. 4).

Records showed that there were no burn deaths in other hospitals in the district during that period, confirming that all severe burns were transferred to our hospital. Self-injury by burning caused a heavy drain on the human and material

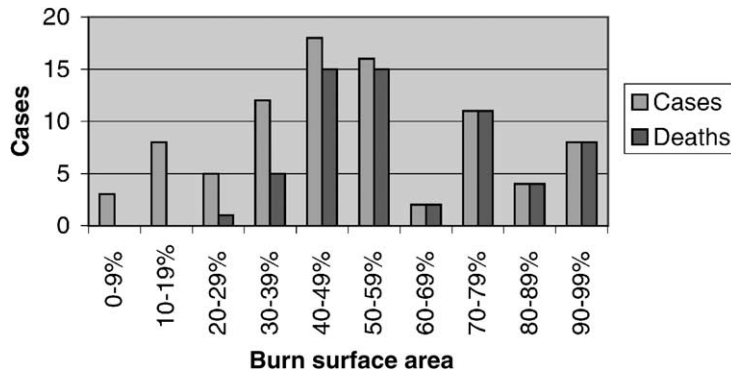


Fig. 3. Number of self-inflicted burns and deaths per burn surface area.

Table 1
Outcome of self-inflicted burns

Outcome	Females (n = 69)	Males (n = 18)	Total (n = 87)	Percentage
Discharged	19	4	23	26.5
Died in hospital	47	14	61	70
Left against medical advice	1	0	1	1
Still in this hospital	2	0	2	2.5

resources of the hospital, with a mean duration of stay of 52 days (range 10–225) for the 26 survivors. Thirty nine patients had one or more dressing changes under anaesthesia (1–10 times). Thirteen patients had one or more skin grafts (1–4).

Follow-up of the survivors has not been systematic. Eight had documented severe contractures, affecting areas such as the face, neck, axillary regions, elbows and hands and underwent plastic surgery.

Among the 25 patients with burns of doubtful circumstances, the male/female ratio of 0.25 and the age distribution (with also a peak in the 15–34 age-group, as shown in Fig. 5) were very similar to those of burn suicide attempts. In this ‘doubtful’ group, 16 patients died.

Looking at the 221 accidental burns admitted during the same period, we found a Tamil/Muslim ratio of 4.5. With the exception of two occupational burns, these accidental burns were also all domestic ones. But they differed from the self-inflicted burns in other respects: the male/female ratio

(0.7) was higher, although females were still in the majority; the burns were much less extensive (median TBSA 10%), and yielded a mortality rate of only 5%. After matching the cases for burn extent and for age, we found that in the 15–54 years age-group and in the 20–39% TBSA range, there were no death when the burn had been accidental, but there was a 35% fatality rate when the burn had been self-inflicted ($P < 0.01$).

During the same period, retrospective examination of the judicial hospital records showed 87 instances of poison suicide, with a male predominance (male/female ratio 1.3) and a gross under-representation of Muslims (with only 3%), in clear contrast with the burn suicide group during the same period. The median age was 34 years in this group. Interestingly, the same records simply had our burn suicide cases as ‘burn deaths’ without the circumstances being stated.

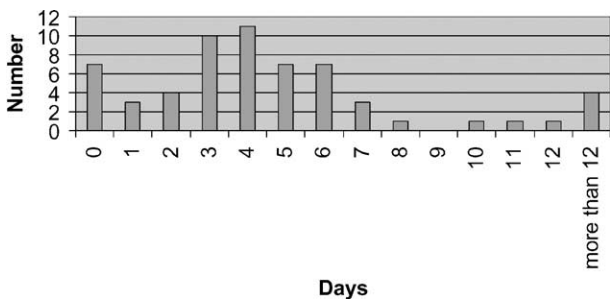


Fig. 4. Number of days between admission and death by suicidal burn.

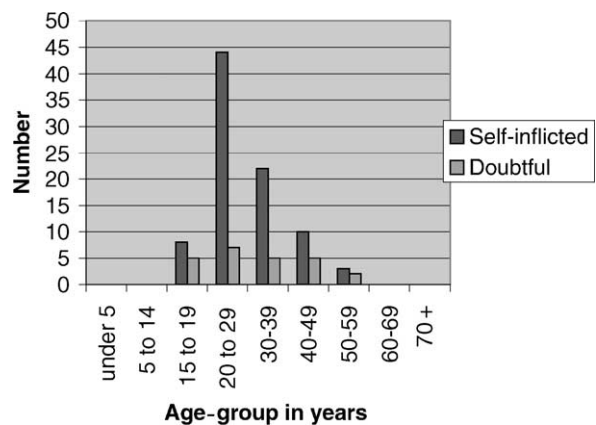


Fig. 5. Compared age distribution of self-inflicted and doubtful burns.

4. Discussion

At 30.1 cases/100,000 inhabitants, the suicide rate in Sri Lanka is one of the highest in the world [2], and it is a major health and social problem [3,4]. Agrochemical poisoning is reported as the most common method in the country, followed by poisonous seeds, hanging, jumping in front of trains or drowning. Self-immolation is generally thought to be less common. However, with at least 61 deaths in 2 years, we showed that burn suicide represents a very significant method of suicide in our area, even though the total number of poison suicides for the district is not available.

The true number of self-inflicted burns is, however, probably higher than the 87 reported here. When staff suspicion was aroused by the stereotyped topography of some burns, most of the patients initially insisted that it was an accident and went to great lengths to explain how the kerosene bottle lamp had fallen over them, or how the cooker had taken fire. But the striking similarities of the sex, age-specific curves and mortality of the 'doubtful' cases with the self-harm group suggest that most of those 25 cases were self-inflicted as well. The initial reaction in coping with any major stress is denial. This is a defence mechanism to protect the person in grieving, disaster, and severe trauma [5]. In those patients, suffering from accidental burns, it is not possible to deny the burns because they are apparent and painful. In suicidal burns, however, it is possible to deny the true circumstances, to reduce the trauma to self and family. With time, denial recedes, allowing the true story to come out. On the other hand, it cannot be totally ruled out that some of the doubtful cases, and indeed some of those said to be self-inflicted were actually the result of domestic violence; however, we feel these would be few. In Sri Lanka, dowry-related deaths are extremely uncommon and 'sati' (the self-sacrifice of widows on their husband's funeral pyre) unheard of, as opposed to India, where both have been reported [6,7].

Self-inflicted burns were much more extensive, and had 14 times high mortality than accidental burns (70% versus 5%). The fact that the clothes have been impregnated with a fire accelerant explains the size and depth of these burns, the probable high incidence of inhalation injuries, and hence the high mortality in this young and initially fit group of patients. The tiny (1%) proportion of work-related accidental burns, happening outdoors, does not explain the lower mortality of accidental burns compared with self-inflicted ones. Pregnancy in two of the fatal cases may have influenced the prognosis [8].

We do not know whether personality factors, the intent to die, poor family support, and even perhaps a different staff attitude have an influence in the outcome, but it was felt that patients with self-inflicted burns co-operated poorly with the treatment.

Fifty percent of the survivors did not have grafting. Those who did not, either had superficial burns, refused grafting or were too anaemic at the optimal time; by the time blood had been secured they were already infected and were not

grafted. Lack of blood, in part due to local beliefs, is often an obstacle to aggressive burn care.

This may explain the high number of sequelae. Yet, the number of patients who would have required plastic surgery was underestimated, as all of them would not necessarily seek surgical treatment.

The group using self-burning differs in age and ethnicity from those using other methods of suicide. The victims in our series were mostly young, married women with children, who had interpersonal problems with their respective husbands, which they could not handle. Muslims, which were almost absent from the poison suicide group, were fairly well represented (Tamil/Muslim ratio 4.6), but less in the general district population, where the Tamil/Muslim ratio is officially 2.9. Official census, however, should be interpreted with caution in a conflict area. Also, Tamil patients from the neighbouring district tend to come to Batticaloa General Hospital, rather than to the nearest hospital. It may, therefore, be more reliable to compare the ethnic ratios of self-inflicted burns with accidental burns, and this was very similar.

People who commit suicide (by definition, those who intend to die and effectively end their lives) and those committing deliberate self-harm (with no intent to die and surviving) are generally fairly distinct—in the first group there are more men and older people, whereas in the second group, there are more females and the victims are younger [5]. In Sri Lanka, however, this distinction is blurred; those who die are young and the male to female difference is quite narrow. The free availability of pesticides in most households is probably an important reason for this. Among those using self-burning, females outnumber males, not only in the survivors group (male/female ratio 0.18), but also in the suicide group (male/female ratio 0.3). The intent to die, like any human intention, fluctuates with time [5], and the use of a method as lethal as fire is causing considerable overlap between the two theoretical categories of suicide and deliberate self-harm. In our set-up, it is very difficult to assess these patients from a psychological point of view—in the initial period they suffer from severe pain; later, the serious consequences of their act (prolonged stay, disfigurement, limited mobility and loss of contact with the family) become apparent. Because of the nature of the injury, they cannot be moved from a crowded surgical ward to quiet places to talk confidentially, and this also makes detailed interviewing difficult. Those interviews revealed that many did it in the hope of bringing about a change in a chronic interpersonal problem or to make the partner feel guilty. It was not a planned action; therefore, the consequences have not been contemplated. Most did not realise that they were risking a slow and very painful death or horrific disfigurement.

In this male-dominated society, should a dispute arise between partners, the woman will be advised to tolerate, forgive and live with it [9]. The advice will often come from her own relatives, as well as the man's relatives. The woman is often held responsible if the man drinks or abuses her and

the children (if she had been a good and forgiving wife, this would not have happened). There is very little emotional and other support for a woman in such a situation. This bitter, disheartened wife may feel that she has to do something desperate to make her husband and relatives see her side of the story. “I wanted my husband to feel sorry” said many of our patients. Though legally divorce is allowed, the divorce rate is very low in Sri Lanka. A divorced woman will find it very difficult to survive and will get very little official and unofficial support [10]. More importantly, she will be looked down upon by society, and will not be allowed to attend social functions or take part in religious rituals.

Very few of those who attempted suicide by fire had a previous mental illness, as opposed to the West, where most suicidal burns suffer from severe psychotic illnesses [11]. In this part of Sri Lanka, most schizophrenics and manic depressives will be identified, and will get treatment from some practitioner. On the other hand, most people who suffer from mild to moderate depression may go undiagnosed.

Fire, as god Agni, has a close association with Vedic religions, which later developed into Hinduism. It plays an important role in Hindu rituals, weddings and funerals. In the Muslim community, women mostly stay indoors, probably limiting their access to other methods of suicide. Kerosene is freely available in each and every household for cooking and lighting, and is readily accessible. Pesticides will be found in families which are farming. Whether the war situation has an impact on the methods used for suicide is not known, as previous data on burn suicide are not available.

People who set fire to themselves following a conflict, hope it might be solved, and sometimes it is. Unfortunately, the use of such a dangerous method of deliberate self-harm means that many will die [12]. And of course, the scarring and contractures cause many new problems to the survivors. They are left with apparent scars on parts of the body, such as the face and the neck; married women often go back to stay with their own family. They are ashamed to be seen in public and become very reclusive.

Faced with so many self-inflicted burn injuries, the question of prevention springs to mind. Various preventive programmes to try and reduce suicide rates have been experimented in different countries with limited success. As most of the incidents described here happen impulsively, almost immediately following an argument, having trained counsellors in the community will be of very little use. Even though the burn suicide rate is high, it is still uncommon in a small community and even if there were patients, as mentioned earlier, they tend to keep indoors. For these reasons, very few people know the horrific scars the survivors of these injuries have and how it destroyed their future. A small project is being carried out in rural areas covered by the mobile clinics run by MSF. In this project, targeting young women, a team member stimulates a discussion around a real life case scenario. The presentation incorporates a case history and pictures of burn victims. Aspects of problem solving are also brought up among the women present. This,

we hope, will deter them from self-immolation. Assessment, however, of the impact of this preventive action, is very difficult.

Few large series have been published on the subject of self-inflicted burns and burn suicides. An Iranian series reported 1.9 cases/100,000 inhabitants per year [13], and from India 2.4 cases/100,000 inhabitants were reported per year in Madras [14]. Burn suicide has also been described as significant in other parts of India, such as Delhi [15] and Mumbai [16]; in Israel, Zimbabwe, Egypt and Papua New Guinea [17–20]. Like ours, these studies showed a marked female preponderance and a very high mortality rate. All series from western countries, except Bulgaria [21], are small in comparison but high suicide rates by burning are known to be occurring among immigrant female Asian populations [22]. In Sri Lanka itself, only 17 (3%) suicides were attributed to burns in a retrospective study using coroner’s reports in a 10-year-period in the northern district of the country [4]. However, in Sri Lanka, the Magistrate or Inquirer is not supposed to pronounce any ‘verdict’ such as suicide—such a retrospective study would have missed a large number of burn suicides.

Therefore, the problem of self-inflicted burns in the Batticaloa district of Sri Lanka, with at least 5.8 cases/100,000 inhabitants annually is one of the most acute in the world. Particularly disturbing is the fact that young women, many of them mothers, are the victims of this impulsive act.

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