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Differences between intentional and non-intentional burns in India: Implications for prevention

Mangai Natarajan *

John Jay College of Criminal Justice, The City University of New York, Department of Criminal Justice, 524 West 59th Street, New York, NY 10019, United States

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ABSTRACT

Non-intentional and deliberate burns in India and other developing countries present particular challenges of prevention and treatment. This exploratory study sought improved understanding of burns in order to inform treatment and prevention. It gathered data in 2011/2012 on burns from the hospital registry (N = 768) of a government hospital in India and from interviews with women patients (N = 60) admitted to the burns ward. Analysis indicated that: (1) the conditions that facilitate intentional and non-intentional burns are similar, but intentional burns involve additional contributory factors; (2) a high proportion of patients subjected to burns are young women in domestic situations; and (3) a higher proportion of their TBSA was burned, with consequent higher mortality than for men. It was concluded that: (1) Haddon's matrix and the situational crime prevention framework of criminology assist in understanding the etiology of intentional burns and in identifying preventive measures; (2) social service and criminal justice agencies have important roles in dealing with victims of intentional burns during and after treatment; (3) full account should be taken of gender-related physical, psychological and family factors in planning treatment; and (4) maintaining careful records of burns cases is vital for estimating the prevalence and incidence of intentional injuries.

1. Introduction

Intentional burns are defined as "those in which the act that led to the injury has the purpose of causing harm" [1] which could be self-harm or harm inflicted by others. A review of the literature on intentional burns has drawn attention to this poorly-understood and understudied topic and found that the worldwide incidence of such burns among patients hospitalized for burns was between 3 and 10%. Considerable variations exist in the numbers. In particular, the incidence of intentional burns among young women in India was found to be particularly high, which was attributed to domestic violence and self-immolation. Studies of burns undertaken in India mostly confirm this observation [2–5]. Those that used secondary data sources (including autopsy data and national level suicide reports) indicate that young women are more likely than men to be victims of intentional burns [6–11]. The studies also show that fire-related deaths were mostly due to kitchen accidents, self-immolation and domestic violence. A 2010 study of 177 consecutive adult admissions to a hospital in Southern India for treatment of burns [9] found that burns were more common among women (63.1%) and that (75.6%) had extensive injuries with burns affecting more than 60% of

* Tel.: +1 2122378673.
E-mail addresses: mnatarajan@jjay.cuny.edu, mangai_natarajan@yahoo.com.
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the Total Body Surface Area (TBSA). The mortality rate in females with burns (71.4%) was also much higher (46%) than that for men. A recent study of 311 intentional burns in Bangladesh in 2004–2011 also found that a high proportion (68%) of the cases were women. Concentrated sulfuric acid was commonly used in the attacks and about one quarter of cases in which kerosene was used arose from disputes over dowries [10].

In addition to studies using secondary data, studies making use of surveys have been undertaken of dowry-related bride burning [11,12]. However, many women who have been burned do not survive the attacks or are too disabled to participate in surveys [5]. Interviews with women who have been intentionally burned are therefore needed to learn more about the circumstances and pre-cursors of the attacks. This information is needed to assist in identifying ways to stop these attacks from occurring, which, given their awful consequences, is of prime importance. The best opportunity for contact with such victims is when they seek help from hospital or social service agencies and, accordingly, the present study interviewed burns victims in addition to undertaking a study of hospital records.

The main purpose of the study reported here was to explore further the differences between intentional and non-intentional burns and to identify the implications for improved understanding and prevention. In light of previous research, the paper focusses particularly on female victims of burns. Data were collected from the registry of a large government hospital in India and through a semi structured interview with female patients about the circumstances of the incidents.

While the study collected data about treatment needs, it was specifically focused on the prevention of harms resulting from intentional burns. The choice of variables relevant to prevention was guided by two theoretical perspectives, both of which are focused on the tangible circumstances of problematic events. The first is Haddon's [13] harm reduction matrix drawn from public health, which seeks to identify factors that might be manipulated to reduce harm at three different stages: prior to the event, during the event and after the event. The second theoretical framework, drawn from criminology, is Clarke's [14] classification of situational crime prevention techniques, which guides the search for ways to reduce opportunities for specific crimes or anti-social acts to occur (in this case intentional burns). These two approaches are compatible and complimentary. They both focus attention on the immediate social and physical circumstances that facilitate the actions, and that might be changed to prevent them from happening or to modify their ill effects when they do occur. For example, in the case of intentional burns, both approaches would result in attention being focused on the source of the burns, whether or not self-inflicted, the location of the incident, and other immediate circumstances.

2. Methods

2.1. Study site

The study was conducted in a government hospital with a dedicated treatment ward for burn patients in a capital city in India where 13.3% of the state's 72 million urban population lives. The male–female ratio is 1:0.996 for the state, whereas the national average is 1:0.94. The state literacy rate is 80.1%, well above the national average (74%). The work participation rate (WPR) for the state is 45.6% which is also well above the national average of 39.8%.

About 2000 such patients are referred for treatment to the study hospital each year. The physicians in the burns ward treat an average of 180 cases per month. Those with severe burns needing lengthy treatment, including children, are admitted to the 50-bed treatment ward. Their stay varies from 2 to 8 weeks. The remaining patients are treated in the outpatient wards.

2.2. Sample and data

The study made use of two sources of data. The first of the sources consisted of the hospital registry data for all burns referrals ($N = 768$) to the hospital for a (4-month) period between July 15 and November 22, 2011. With the approval under the supervision of the chief physician of the burns ward, limited data were manually abstracted from the hospital registry for each patient registered for treatment, entered in Microsoft Excel and then transferred to IBM SPSS for statistical analysis. The data covered demographics (gender, education, employment and marital status), some details of the incident (day, month, location, and the nature/type of facilitators) and details of the injuries (the extent of the burns, the body surface affected and the status of patients). No identifiers were coded for these records. The second source comprised detailed interviews with all 60 women in-patients who were above 19 years old admitted for treatment to the burns ward during July 15, 2011–November 22 and January 10–March 30, 2012. Interviews were conducted and recorded in strict conformity with the requirements of the institutional ethics board of the City University of New York (CUNY). Their names and addresses and hospital IDs were not requested and confidentiality was assured to the patients as per the guidelines of the hospital ethics board provided by the chief of the burns ward. As per the CUNY IRB, verbal informed consent was obtained from each participant and their anonymity was assured. There were no refusals. The interview protocol was prepared in the local language and verified by the author, who is proficient in the local language (both written and spoken), and approved by the chief physician of the burns ward.

There were some practical difficulties of conducting the interviews; it was difficult to ensure privacy in the open ward and frequent interruptions made it difficult to ensure the continuity of the interviews. The women interviewed were understandably consumed with worries about the future and the situation at home, and they sometimes found it difficult to focus on the content of the questions. Many were also very worried about money and the costs of treatment. While the study may have exposed the participants to additional stress, discomfort, embarrassment and anxiety, every effort was made by the interviewers to overcome these feelings and to ensure that participation brought benefits to those interviewed. Each participant in this study was given special attention with regular follow ups from the NGO's counselors who assisted in the research. The patients and family were