ORIGINAL ARTICLE

A 12 Year Study of Medico-Legal Aspect of Burns in Females

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ABSTRACT

Objective — *To assess medico-legal aspects, risk groups, types and severity of burns in female patients coming to the tertiary care hospital.*

Study design — *A descriptive study.*

Place & Duration of study — *Burns Unit Fauji Foundation Hospital Rawalpindi, from April 1997 to March 2009.*

Methodology — *All female patients above 15 year of age reported with burn injuries were evaluated regarding their demographic details, nature and severity of burns. Circumstances leading to burn injuries and other important factors leading to homicidal or suicidal burns were also evaluated.*

Results — *Rate of homicidal burns and suicidal burns was 16.54% and 4.32% respectively among 139 patients studied. Among these homicidal and suicidal burns, majority of females (51.08%)were less than 25 year of age, 86.21% from rural areas and 86.66% belonged to lower socio-economic group. Majority (51.72%) of them were married and 65.52% living with their in-laws at the time of incident. Flame burns (89.66%) were commonest and kerosene oil stove burst was the main cause of injuries in 89.66% cases. Most women (51.72%) were having disputes with in-laws. Among these, 48.27% female sustained 81-90% of the total body surface area burn. Assault was done by in-laws in 34.49% patients and by husband in 20.49% patients respectively. Majority of these females (75.86%) were brought to the hospital by other relatives and 72% were brought to the hospital after 48 hours of the incident.*

Conclusions — Most of the women were less than 25 year of age. Majority were from the rural area and were from lower socioeconomic group. Flame burns due to kerosene oil was the commonest type.

Key words — *Burns, Female, Homicidal burns, Suicidal burns, Medico-legal.*

INTRODUCTION:

Burns are the fourth most common type of trauma worldwide, following traffic accidents, falls and interpersonal violence. Burns injuries have tremendous medico-legal importance because it is one of the commonest cause of unnatural death in developing countries, especially in the subcontinent.[1,2,3] Incidents of violence against women are a problem of public health concern. In 48 population-based surveys from around the world, 10–69% of women reported being physically assaulted by an intimate male partner or family member at some point in their lives.[4]

Violence against women can take many forms, ranging from humiliation, harassment and exploitation to torture. An extreme form of violence is burns.

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Literature has reported highest incidence of homicidal and suicidal burns in developing countries.[2,3,6] Etiology and nature of burns vary from one community to another and depend mainly upon age, sex, customs, economic status, environmental and social circumstances.[5,7,8]

The incidence of death of young unmarried and married females by burns is more common in sub-continent, usually associated with dowry disputes, character allegations, marital infidelity, oedipal dominance of mother-in-law over groom and family disputes. [7,9,10] Pakistan has a high incidence of burn injuries, creating a formidable public health problem.[11,12] Nasrullah and Moazzam has reported 222 burns events reported in newspapers in Pakistan from 2004 to 2005 having a high incidence of homicidal and suicidal burns.[13]

This study was conducted with the objective to assess the medico-legal aspects, risk groups, types and severity of burns in female patients coming to the tertiary care hospital of Rawalpindi, Pakistan.

METHODOLOGY:

This descriptive study was done at Burns Unit of Fauji Foundation Hospital Rawalpindi, from April 1997 to March 2009. Approval for the study was taken from the ethical committee of the hospital. All female patients older than 15 year of age with burns injuries were included in the study. Patients reporting to casualty department or admitted in burns unit were evaluated with respect to cause, place and circumstances of injury, extent of area burnt, time of incident, hospital reporting time, who brought in hospital and mortality of burn victims. Other necessary demographic data about patient, in-laws or parents was also collected. Informed consent was taken from patients. All patients and their first relatives (parents, husband, siblings etc) were interviewed by our team member and in charge nurse repeatedly regarding the circumstances of accident. All findings were recorded confidentially and carefully on separate performa, and evaluated statistically at the end of the study by using software EPI 6.

RESULTS:

A total of 139 females were included. The commonest burns were accidental (n=110, 79.14%), followed by homicidal (n=23, 16.54%) and suicidal (n=6, 4.32%) burns. Among homicidal burns, flame burn injuries (n=21, 91.30%) were the commonest. No other mode of homicide burns were observed among our patients. In suicidal group majority (n= 5, 83.33%) of the females committed suicide by burning themselves and one patient (16.67%) ingested acid and sustained acid burns. Majority of females were between 15 to 25 year of age (n= 71, 51.08%) who sustained all types of burns (table-I).

Demographic data and other factors leading to burn injuries are summarized in table-II. Most of victims either homicidal (91.30%) or suicidal (83.33%), belonged to low socio-economic group. No homicidal or suicidal burns were from high socio-economic group. Majority of females (56.53%) having homicidal burns were illiterate followed by those who have received primary qualification (30.43%). Similarly, suicidal patients were also more common among the illiterate and those having primary qualification, 33.33% in each group.

Table I: Types of Burns In Different Age Groups (n= 139)

Age	Accidental			Homicidal			Suicidal		
	Flame	Acid	Other	Flame	Acid	Other	Flame	Acid	Other
15-20	31	-	-	5	1	-	2	1	-
21-25	22	-	-	7	1	-	1	-	-
26-30	17	-	-	3	-	-	-	-	-
31-35	26	-	-	3	-	-	2	-	-
36-40	10	-	-	2	-	-	-	-	-
> 41	4	-	-	1	-	-	-	-	-
Total among group n (%)	110 (100)			21 (91.30)	2 (8.7)		5 (83.33)	1 (16.67)	
Total n (%)	**110 (79.14)**			**23 (16.54)**			**6 (4.32)**		

Majority (95.65%) of females having homicidal burns were from rural areas whereas suicidal tendency was found equally among rural and urban class. In homicidal group most (56.53%) of the females were married whereas suicide was observed equally in all groups i.e. married, unmarried and divorced/separated. Homicidal (65.22%) and suicidal (33.33%) burns were more common in the groups who were living with their in-laws and majority were having dispute with them. Mostly the patients (86.96%) having homicidal burns were brought to hospital after 48 hours of the incident and none of the burn victim were brought on the same day for medical help. Among patients who attempted suicide, 33.33% reported on the same day and 50% reported a day after the incident. Among homicidal patients only 4.35% were brought by in-laws and 13.04% by parents whereas, 82.61% homicidal and 50% suicidal patients were brought to the hospital by other relatives for medical help.

Table- III shows that, the majority of patients were assaulted by in-laws (34.49%) followed by parents (24.13%) and husband (20.69%). Kerosene oil stove burst was the commonest reason (89.66%) given in patients suspicious of homicide and suicide. Majority of patients sustained extensive burns i.e. > 80%. Mortality was 82.75% among both groups.

DISCUSSION:

Death of young females as a result of burns is more common in rural as compared to the urban areas of subcontinent.[7,11,14,15] Homicidal burning of young unmarried and married women in Indo-Pak

Table II: Demographic Data of Patients With Burns (n=29)

Demographic features		Homicidal n (%)	Suicidal n (%)	Total n (%)
Socioeconomic status	Low	21 (91.30)	5 (83.33)	26 (89.66)
	Middle	2 (08.70)	1 (16.67)	3 (10.34)
	High	-	-	-
Education status	Illiterate	13 (56.53)	2 (33.33)	15 (51.72)
	Primary	7 (30.43)	2 (33.33)	9 (31.03)
	Matriculate	3 (13.04)	1 (16.67)	4 (13.79)
	FA/BA	-	1 (16.67)	1 (3.44)
Resident	Rural	22 (95.65)	3 (50)	25 (86.21)
	Urban	1 (04.35)	3 (50)	4 (13.79)
Marital status	Married	13 (56.53)	2 (33.33)	15 (51.72)
	Unmarried	7 (30.43)	2 (33.33)	9 (31.03)
	Widow/divorced	3 (13.04)	2 (33.33)	5 (17.24)
Living status	In laws	15 (65.22)	4 (66.67)	19 (65.52)
	With parents	7 (30.43)	2 (33.33)	9 (31.03)
	Separate	1 (04.35)	-	1 (3.44)
Nature of disputes in family	With in-laws	12 (52.17)	3 (50.00)	15 (51.72)
	With parents	5 (21.74)	2 (33.33)	7 (24.13)
	With husband	6 (26.09)	1 (16.67)	7 (24.13)
Report to hospital	After 48 hours	20 (86.96)	1 (16.67)	21 (72)
	24- 48 hours	3 (13.04)	3 (50.00)	6 (20.69)
	Same day	-	2 (33.33)	2 (6.9)
Brought in hospital by	Other relatives	19 (82.61)	3 (50.00)	22 (75.86)
	Parents	3 (13.04)	2 (33.33)	5 (17.24)
	In Laws	1 (04.35)	-	1 (3.44)
	Husband	-	1 (16.67)	1 (3.44)

Table III: Medico legal Aspects, Extent And Mortality of Patients (n=29)			
Demographic features		**Total n (%)**	**Percentage**
Assault done by	Self	6	20.69%
	Husband	6	20.69%
	Parents	7	24.13%
	In-laws	10	34.49%
	Others	-	-
Method used for assault	Kerosene oil	26	89.66%
	Petrol	1	03.44%
	Acid	2	06.89%
	Others	-	-
Percentage of area burnt	> 90%	6	20.69%
	Up to 90%	14	48.27%
	Up to 80%	3	10.35%
	Up to 70%	6	20.69%
Mortality		24	82.75%

is a major concern for law enforcing authorities, the judiciary, police and medico-legal experts.[6,11] Many young, newly married women die from burn injuries, the most common reasons given in history are being caught fire while cooking, explosion in kerosene stove, explosion due to accidental gas leakage or kerosene lamp falling on her while lighting lamp etc.[8,10,14] In contrary homicidal or suicidal burns in the developed world are uncommon.[16]

Homicide by burning a woman is found throughout all social strata and geographic areas in the world but the frequency varies from.[2,3,16,17,18] Literature has reported the highest incidence i.e. between 21.6% to 31% in India.[10,14] In Pakistan prevalence of homicidal burns is much less as compared to India but it is not a rare event.[12] Another newspaper based surveillance report showed that domestic burns are commonest. Among these about 49% are intentional (homicidal or suicidal), and mean annual rate of burn among women is 33 per 100,000.[13] In our study frequency of homicidal burns was 16.54% which is less than India but still very alarming.

It is observed in our study that majority of the victims of homicidal burns were from low socioeconomic status (89.66%), young (between 15-25 year) and married females (51.72%). The main reason of homicidal burns in married females is adjustment problems with in-laws, joint family system problems, love marriages or character allegations. In some cases these burn injuries are related to dowry issues and called "dowry death" as reported in literature.[6,10,14] They also tried to ensure the death of the bride by delaying to report to the hospital. It is observed in our study that about 86.96% homicidal burn victims were brought to hospital 48 hours after incident and majority of them were brought by other relatives (82.61%). No homicidal case reported on the same day.

Majority of patients sustained more than 70% of total body surface area burns as reported in different studies.[8,12,14,19] Similarly we also observed that majority of females sustained up to 90% burns. An interesting observation, on clinical examination showed that the hands of majority of these victims were not involved. Probably hands are tied before attempting homicide on purpose so that resistance could be minimized during the assault.

Suicide tendency among female is observed comparatively at younger age group.[17] Our study showed that most of the women who committed suicide were from joint families (i.e. multigenerational groups of related individuals living under a single roof) and the suicides occurred 2-5 years after marriage. The majority of the affected wives (69%) were 21-25 year of age at the time of the suicide and sustained more than 50% burns. Most died at the time of the incident or within the subsequent 24 hours.[19] In our study, the frequency of suicide among females was 4.32%. Mostly these were from low socioeconomic (83.33%), illiterate or less educated

(66.66%) groups. Incidence of suicide was equal in rural and urban areas. Majority of these females were living with in-laws (66.67%) and were having disputes with their in-laws (50%). Out of these 50% victims were brought to the hospital by other relatives.

Medico legal aspects were also observed among unmarried females living with parents. The most common cause was killing in the name of honor in suspicion to have illicit relationships, or in order to save the inherited property.[20]

CONCLUSIONS:

Most of the women were less than 25 year of age, belonged to rural area and from lower socioeconomic group. Flame burns was the commonest injury and nearly 50% victims had burnt area of more than 80%. Mortality was 82.75% in this series.

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