

## Post Burn Depression

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### ABSTRACT

**Introduction:** With increasing survival rate after severe extensive burns, there is growing interest in the physical and psychosocial outcomes after burns. Studies have indicated high rates of depression, anxiety and post traumatic stress disorder.

**Objectives:** To determine the frequency of depression in post burn patients.

**Material & Methods:** It is a cross sectional study. Patients admitted with burn injury at Fauji Foundation hospital Rawalpindi were included in the study. Data over the period of 2 years was collected and analyzed. Severity of depression was evaluated with Beck Depressive Inventory.

**Results:** This study included ninety four patients. In only one patient, there was history of depression previously. Mean age was  $31.31 \pm 15.3$  years and 70 % of the patients were females. On evaluation 39.4% had mild depression and 16% had moderate depression. Only one patient had severe depression. Female gender was significantly associated with post burn depression. Area of residence, marital status and patient's occupation were not significantly related with depression in burn patients. Similarly cause of burn and extent of burn did not show statistically significant ( $p > 0.36$ ) association with depression.

**Conclusions:** High frequency of depression in patients with burns call for the increased vigilance on part of the treating team to ensure that depression is recognized and treated. For better management of patients with burns, we also need to employ the social workers, vocational counselors and psychologists in addition to surgeons as part of the multidisciplinary burn team.

**Keywords:** anxiety, depression, burn.

### INTRODUCTION

The burn injury can be one of the most devastating forms of trauma that man can sustain. The daily cost of care for a burn victim is tremendous. This cost is magnified by the fact that 50 % of major burns occur during the formative and productive year<sup>1</sup>. The incidence of burn injury varies between cultures. In UK, each year, 175000 people visit emergency department suffering burns, of which about 13000 need to be admitted. About 1000 have severe burns requiring fluid resuscitation<sup>2</sup>. Consequently it has both psychological and physical effects on the victim. With advancement in medical management of burns, there is an increased survival rate in victims of burns. In 1949 the estimated death rate of young adults with burns covering 40% of the body was 50%<sup>3</sup>. By 1990, a young adult with a burn surface area of 80 % has a realistic chance to survive<sup>4</sup>.

With increasing survival rate after severe extensive burns, there is growing interest in the physical and psychosocial outcomes after burns<sup>5,6</sup>. Considering the psychological morbidity in patients

with burns, it has been found that depression, anxiety and post traumatic stress disorder (PTSD) were the most frequent psychiatric problems. It is seen that symptoms of anxiety and depression frequently occur together, with their prevalence varying between 25-65% during the first post burn year and subsequently symptoms gradually subside<sup>7</sup>. Other studies have found 31- 50% of the patient having anxiety and about 27% met the criteria for PTSD<sup>8</sup>. Prevalence of depression during hospitalization after burn injury has been observed to be 21 – 33%<sup>9, 10</sup> and some 11% of patients are said to experience suicidal ideation<sup>10</sup>.

High prevalence of depression and anxiety predict poor outcome in burn patients<sup>11</sup>, thus emphasizing the importance of recognizing and treating the depression and anxiety. Considering such high psychiatric morbidity after burn injuries, relatively few studies have been conducted in Pakistan and they have also revealed depression up to 58% and anxiety up to 82%<sup>12</sup>.

This study was conducted to see frequency of depression in patients with burns, as scarce data is available in our area.

**MATERIAL AND METHOD**

This study was conducted in the burn unit of Fauji Foundation Hospital Rawalpindi from 1<sup>st</sup> January 2010 to 31<sup>st</sup> December 2011. Written permission was obtained from the ethical committee of hospital. Informed consent was taken from all the patients or their attendants. Simple convenient sampling was done. All patients admitted in the burn unit of the Fauji Foundation Hospital were interviewed. Basic demographic details including age, gender, area of residence, marital status were taken. Cause of burn was established by gathering information from the patient and available family members. Percentage of burn was estimated by the treating surgeons at the burn unit using palm of the patient as 1 % of burn.

Beck Depressive inventory (BDI) was used to evaluate for the presence of depression and its severity. This is a 21 item scale which has been translated in Urdu and has been validated in local population. According to BDI, the severity of

depression is categorized as mild, moderate and severe, according to following scores.

**Table 1:** showing Beck Depressive Index

BDI Score	Severity of Depression
0-13	No or minimal depression
14-19	Mild depression
20-28	Moderate depression
29-63	Severe depression

Data was collected for 94 patients and entered on SPSS 17. Descriptive statistics were applied to determine frequencies and percentage. Chi square test was applied to correlate severity of depression with demographic variables.

**RESULTS**

Ninety four patients with burns were evaluated in the study. Mean age of the population was 31.31 with standard deviation of 15.3. 70% of the sample consisted of female patients. Distribution of urban and rural was almost equal with 49% from cities; about 51% lived in village or a town. 54.3% of our sample was married. House wives were most frequent (44.7%), students were 21.3% and 13.8% of the population were unemployed.

**Table 2:** Demographic Profile of Patients with burns.

Serial No	Demographic Variables	Frequency	Percentage	
1	Gender	Female	66	70.2
		Male	28	29.8
2	Area of residence	Village	27	28.7
		Town	21	22.3
		City	46	48.9
3	Marital status	Married	51	54.3
		Single	40	42.6
		Widow	3	3.2
4	Occupation	Housewife	42	44.7
		Student	20	21.3
		Unemployed	13	13.8
		Others	19	20.2

**Table 3:** Association between Demographic variables and severity of depression

Variables		Severity of depression				P value
		No depression	Mild	Moderate	Severe	
Gender	Female	23	27	15	1	.013
	Male	18	10	0	0	
Area of residence	Village	9	10	8	0	.102
	Town	12	6	2	1	
	City	20	21	5	0	
Marital status	Married	22	19	9	1	.693
	Single	19	16	5	0	
	Widow	0	2	1	0	
Occupation	Housewife	12	18	11	1	.825
	Student	12	6	2	0	
	Unemployed	5	6	2	0	
	Others	12	7	0	0	
Cause of burn	Accidental	41	37	14	1	.150
	Suicidal	0	0	1	0	
Extent of burn	Upto 10%	6	9	4	1	.364
	11-20%	8	8	2	0	
	21-30%	7	7	8	0	
	31-40%	10	8	1	0	
	41-50%	6	4	0	0	
	51-60%	2	1	0	0	
	>60%	2	0	0	0	

\*p&lt;.05 significant

Only one person had reported suicidal attempt by burning while 99% had received accidental burn injuries. Eighty four percent of the patients had burn up to 40% or less, only 16% had surface area of burns more than 40%. Majority of the patients (23.4%) had 21-30% burns. On evaluation for depression 39.4% had mild depression, 16% had moderate depression. Only one patient had severe depression, where as 43.6% had no depression. Regarding the demographic variables associated with depression, only female gender was significantly (p .013) associated with depression. Areas of residence, marital status, patient's occupation were not significantly related with depression in burn patients. Similarly cause of burn and extent of burn did not show statistically significant association with depression.

## DISCUSSION

Mean age of our sample was 31±15.3 years. This is comparable to studies conducted elsewhere in Pakistan where mean age was 33.64 ± 19<sup>12</sup> and also to 31.42 seen in a study in Spain<sup>13</sup>. Majority of

the subjects in our study were females (70%). Similar male to female ratio was seen in a study in India<sup>14</sup>, where males were 34% and females 66%. Whereas in other studies done in Pakistan<sup>10</sup> and elsewhere around the world<sup>15, 16</sup>, male preponderance was observed as 60% and 72% respectively. Around 54% of our patients were married. This is similar to other studies showing 58% being married or cohabiting<sup>16</sup> and 46% in another local study<sup>12</sup>. Housewives were the most frequent, students made 44.7% of our sample. 13.8% of patients were unemployed. In other studies as majority of the population was male, up to 87% were employed, 4% unemployed and only 2% were housewives<sup>16</sup>. In Pakistan local study quotes 76% as unemployed, as housewives and students were included in unemployed category also<sup>12</sup>. In our study 51% of the patient belonged to rural areas.

Like studies done elsewhere, 99% of our patients had received burn injuries accidentally and only one patient reported suicide attempt. In our study most common (23.4%) range for extent of

burns was 21-30%. 84% of our sample had suffered from 40% or less burns. Only 16% patients admitted in our burn unit had burn of 40% or more surface area. This is similar to other local studies<sup>12</sup>. According to Tedstone J E and his colleagues, mean TBSA was 17.8%±15.6<sup>15</sup>. Other studies suggest that 84% of burn patients suffered up to 19% burns<sup>17</sup> which is less than what we observed in our study.

Around 56% of our patients had depression ranging from mild to moderate severity. Only one patient had severe depression, 43% had no depression, according to the scores on Beck Depressive Inventory. The frequency of depression in our study is similar to other local studies<sup>12</sup> where depression was seen in 58% of the burn patients. 26% had mild depression, 14% had moderate. But in contrast to our study, 18% had severe depression. Similar pattern is seen in studies done abroad with 49% having mild to severe depression in burn victims<sup>17</sup>.

Regarding factors associated with depression only female gender was statistically significantly associated with depression. This finding is in line with previous studies indicating females are twice more likely to suffer from depression than males. Whereas Wiechman SA ET al<sup>17</sup> and Fukuniski I ET al<sup>18</sup> found no association with gender. But there are two other studies do indicate that females are at greater risk of depression after burns These combined gender with facial disfigurement and the results indicated that being female with facial disfigurement were more at risk of becoming depressed. In our study site of burn or facial disfigurement was not considered.

In earlier studies there were mixed reports about the extent of burn associated with depression and anxiety. Robert R Edward<sup>11</sup> found depression and anxiety in patients with burns is not related to TBSA or number of days spent in the hospital. In our finding we have not been able to establish statistical significance between extent of burns and depression. Zoran Loncar<sup>16</sup> had found significant association of depression with TBSA and pain after burns, but location of burn was not related to post burn depression. Previous studies done in Pakistan found more depression with increasing burn area but statistical significance is not documented.

As our study included only one patient where burns were self-inflicted, it was not possible to establish whether these patients would have more depression in post burns period or they had

depression before burns and depression might have led them to inflict self-harm. Previous studies have indicated that depression, anxiety and other personality problems are predictors of depression after burns. But some do suggest that previous psychiatric history did not predict post burn morbidity<sup>18</sup>.

High frequency of depression in patients with burns calls for the increased vigilance on part of the treating team to ensure that depression is recognized and treated promptly. This is likely to affect the outcome of burns especially pain and rehabilitation. That is why well established burn centers employ social workers, vocational counselors and psychologists as part of the multidisciplinary burn team.

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