Prevalence and Determinants of Depression among Burn Injured Patients Admitted To Specialized Burn Hospital, Baghdad, Iraq

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Abstract:

Background:
Burn injuries are associated with extreme stress and affect psychological and physical aspects of patients’ health. Depression is a major result of burn injury which affect recovery and rehabilitation of burn injury patients.

Objectives: To estimate the prevalence and determinant of depression and severity of depression in burn injury patients admitted to the Specialized Burn Hospital, Baghdad, Iraq

Method: Case control study included all adult patients, who fulfilled inclusion criteria. Sociodemographic data and burn related information were assessed by a questionnaire prepared for this study. DSM-V criteria of depression were used to ascertain the diagnosis of depression. Beck depression inventory II was used for assessment of severity of depression.

Results: This study included 120 burn victims. The prevalence of depression was 83.3%. Severity of depression was; mild (36.0%), moderate (44%) and severe depression 20%.

Conclusion: Proper psychiatric assessment for depression of all burn patients is of great importance because depression can affect recovery process in burn survivors.

Keywords: Key words: depression; burn; prevalence; Beck; Iraq

Introduction:

Burns are acute, unpredictable devastating forms of trauma which affect victim's physical and mental health¹. The most common psychological problems faced by burn injury patients are pain, post-traumatic stress disorder, anxiety, depression, disfigurement, social isolation and financial burden due to the prolonged duration of treatment and hospitalization². A longer hospitalization has been...
associated with greater social isolation, loss of independence, economic dependency, loss of socio-occupational functioning and increased distress. Scars in visible areas are associated with social anxiety, avoidance and poor quality of life. Facial burns in women are associated with greater risk of depression, and research has suggested that women are generally more vulnerable to the consequences of disfigurement. Due to their long-term disabilities, burn injuries have become a great global health problem. While it is reported as the sixth main cause of mortality, 28% of the survived patients cannot return to their previous functional level due to the severity of injuries and their consequences. Burn injuries are associated with extreme stress and affect psychological and physical aspects of patients’ health. Mood is one of the most important mental aspects being affected by burn injuries. A research showed that the prevalence of at least mild to moderate symptoms of depression was 23% to 26%. Another study shows that the prevalence of depression of at least moderate severity, was higher in female patients (46%) compared to all survivors from the center (29%), as well as a national sample of burn survivors (27%). In other study, symptoms of moderate to severe depression was observed in 54% of the patients within the first month and a follow up during the second month showed that 43% of them still meet the criteria for depression with unchanged severity. Major depressive disorder (MDD) may deteriorate the condition of patients by increasing pain feeling and decreasing physical functioning of these patients. Studies investigating depressive symptoms in survivors of burn injuries have some methodological differences. A systematic review revealed that studies using the depression subscale of the Hospital Anxiety and Depression Scale report the prevalence of depression to be 4% to 13%, whereas generally higher rates were estimated by studies that used the Beck Depression Inventory, being 13% to 26% for moderate to severe symptoms and 22% to 54% for at least mild symptoms. However, moderate to severe symptoms of depression have been found in 18-45% of burn survivors, years after their physical injuries have healed. Basic information about prevalence of depressive symptoms in survivors of burn injuries at different geographical areas is of high importance. With increasing rates of survival among burn patients, it is important to address the psychological needs of burn survivors, with the aim of achieving a quality of life and functioning as close as possible to the preborn level, and successful reintegration of the survivor into society with a healthy mind and body. The study aims were to estimate the prevalence and severity of depression in burn patients and study the correlation of sociodemographic characteristics of the patients with depression.

**Methodology:**

Design and setting a case control study undertaken at the Specialized Burn Hospital in Medical City Campus in Baghdad from 1st of March 2017 to 1st of September 2017.

Study Population and Sampling: All patients were interviewed and those who meet inclusion criteria were enrolled in the study.

Inclusion criteria: the study includes adult burn injured inpatient, both gender, age ≥18 years, able to communicate, can give consent, experienced burn for the first time, no history of psychiatric disorders, no history of medical illness, epilepsy and learning disability.

Exclusion criteria: Patients who were not willing to participate, unable to communicate due to their medical condition and severity of burn or inhalational burn injury, age <18 years, burn severity above 60% that may affect their ability to communicate due to pain and complications of burn, period of admission less than 2 weeks (to meet required criteria of major depression in DSM-V), patients experiencing more than one hospitalization due to previous burn injury (possibility of preexisting depression due to previous burn), self-inflicted burn injury (possibility of suicide attempt due to preexisting depression or mental illness), patients with history of mental illness, and patients with history of medical illness, epilepsy or learning disability.
Data collection tools: information list included two parts; socio-demographic data and burn related information prepared for this study used. Information was taken from the patient directly, a close family member, and from the case file. Wearing overshoes and gowns were required to enter the burn wards. Patients interviewed 14 days after admission. Assessing symptoms of depression were according to DSM-V criteria of depression. Assessing degree of depression done by the administration of the second version of Beck Depression Inventory scale BDI-II, which is a self-reported question assessing mood during the last 2 week period, this scale was introduced in its second version at 1996 as 21 self-rating questions each question has 4 items ranging from 0 to 3. Scores indicate: 0-9 No depression, 10-18 Mild depression, 19-29 Moderate depression, 30-63 Severe depression.

Definition of variables: The independent variables evaluated to explain depression were; socio-demographics( age, gender, marital status, education, occupation) and burn related information ( surface area of burn, cause of burn, types of burn, areas involved, degree of burn).

Statistical analysis Data were subjected to statistical analysis using the Statistical Package for the Social Sciences (SPSS-version 20) program. Chi-square association test was used. P value of ≤ 0.05 was considered statistically significant.

Official Agreements and ethical issues: The study protocol was approved by the Arabic council of Health Specializations. A letter of facilitation was addressed from the council of Arabic board of Health specialization to the Specialized Burn Hospital. Permission of the plastic surgical team responsible for the cases was taken. Verbal informed consent was taken from all patients. All information is kept confidential.

Results:

This case control study included 120 burn victims and 120 as control group. The mean age 27.48 ± 7.44 year, males 88 (73.3%) and females 32 (26.7%). married 76 (63.3%). Primary and intermediate school graduates 97 (90%). Militaries were 68 (56.7%), housewives 32 (26.7%) (Table1). The most frequent cause of burn was; combat related 68 (56.7%). Commonest type was thermal 108 (90.0%). Most of victims had multiple burns. Degree of burn was second 58 (48.3%) (Table2). The prevalence of depression among burned patients was 83.3%, and 39 (32.5%) among control group. This difference was statistically significant (P<0.001) (Table3). The mean age of depressed burn victims (26.68±5.70 years) was younger than depressed control group (30.56±10.41 years). This difference was statistically significant (P<0.05). BDI mean among depressed group showed significant statistical difference between burn victims (22.80±7.98) compared to (19.82±3.86) of control group. Gender had no significant statistical association with burn among depressed patients. Males are higher BDI scores 22.23±6.77 in burn victims compared to males in control group 19.83 ± 3.53 (P<0.05). Level of education among depressed group had significant statistical association with burn, most burn victims were primary school graduates 54 (54.0%), and most of control group were among secondary 12 (30.8%). (Table4). Depressed females burn victims had higher BDI scores 24.13±10.28. Depressed females control group 19.80±4.47, depressed males burn victims 22.23±6.77. There was no significant statistical difference (Table5). Depressed military formed 52 (52.0%) from total 100 depressed burn victims, and 13 (35.1%) militaries in control group, there were 30 (30.0%) housewives depressed burn victims. there was no burned employed who had depression compared to 12 (32.4%) depressed employed in control group, while free lancers showed close numbers 18 (18.0%) versus 10 (27.0%), so there were significant statistical association between occupation to these sharp differences. (Table 6). There were no significant statistical differences mean BDI scores between military 22.54±6.55, free lacers 21.33±7.45, and housewives 24.13±10.29, classification of severity into mild, moderate, and severe showed no statistically significant association with occupation (Table 5). There were 36 (36.0%) single depressed burn victims, 62
(62.0%) married, and 2(2.0%) divorced, and this had no significant statistical association with depression (P>0.05). There were significant statistical association between marital state and severity of depression (P< 0.05). (Table7). Depression did not show any significant statistical association with cause of burn. Severity of depression had no significant statistical association with cause of burn. There was no statistically significant association between depression and type of burn. There was significant statistical association between type of burn and severity of depression (P<0.05). Facial involvement of burn had revealed statistically significant association with depression, upper limb involvement showed significant statistical association with depression. Severity of depression had no association with any area involved. Degree of burn had no significant statistical association with depression and severity of depression. There was statistically significant difference in mean surface area involved, which indicated that larger surface areas are associated with depression. There was no statistically significant difference between surface area and categorical classification of severity of depression (Table 8)

| Table 1: demographic data of burn victims and control group |
|-------------------------------------------------------------|
| **Age (mean ± SD)**                                        |
| Burn victims | 27.48 ± 7.44 | Control group | 30.42 ± 10.85 |
| **Gender**                                    | Burn victims | Control group |
| Male | 88 (73.3%) | 70 (58.3%) |
| Female | 32 (26.7%) | 50 (41.7%) |
| **Marital status**                            | Burn victims | Control group |
| Single | 42 (35.0%) | 38 (31.6%) |
| Married | 76 (63.3%) | 77 (64.1%) |
| Divorced | 2 (1.7%) | 5 (4.1%) |
| **Level of Education**                        | Burn victims | Control group |
| Illiterate | 6 (5.0%) | 0 (0.0%) |
| Primary | 65 (54.16%) | 16 (13.0%) |
| Intermediate | 42 (35.0%) | 24 (20.0%) |
| Secondary | 3 (2.5%) | 28 (23.3%) |
| Higher | 4 (3.3%) | 52 (43.3%) |
| **Occupation**                                   | Burn victims | Control group |
| Military | 68 (56.7%) | 53 (44.2%) |
| Employed | 2 (1.7%) | 37 (30.8%) |
| Housewife | 32 (26.7%) | 6 (5.0%) |
| Free lancer | 18 (15.0%) | 22 (18.3%) |
| Student | 0 (0%) | 2 (1.7%) |
Table 2: distribution of burn victims according to burn characteristics

| Surface Area Of Burn | (mean ± SD) | 24.32 ± 13.19 |
|----------------------|-------------|---------------|
| < 30 %               | 86 (71.7%)  |
| ≥ 30 % up to 60%    | 34 (28.3%)  |

| Cause of Burn        | accidental at home or work | 52 (43.3%) |
|----------------------|----------------------------|------------|
| Combat related       | 68 (56.7%)                 |

| Type of burn          | Thermal                     | 108 (90.0%) |
|-----------------------|-----------------------------|-------------|
| Chemical              | 6 (5.0%)                    |
| Electrical            | 6 (5.0%)                    |

| Areas involved        | Face and neck               | 60 (50.0%) |
|-----------------------|----------------------------|------------|
| Trunk                 | 40 (33.3%)                 |
| Upper limbs           | 92 (76.7%)                 |
| Lower limbs           | 62 (51.7%)                 |
| Genitalia             | 12 (10.0%)                 |
| Back                  | 18 (15.0%)                 |
| Multiple areas involved | 100 (83.3%)            |

| Degree of burn        | Second                     | 58 (48.3%) |
|-----------------------|----------------------------|------------|
| Third                 | 28 (23.4%)                 |
| Second and third      | 34 (28.3%)                 |

Table 3: correlation of burn victims and control group with depression and severity of depression

|                      | Burn victims | Control group | P value |
|----------------------|--------------|---------------|---------|
| Depression           |              |               |         |
| Yes                  | 100 (83.3%)  | 39 (32.5%)    | 0.000   |
| No                   | 20 (16.7%)   | 81 (67.5%)    |         |

| Severity of depression |              |               |         |
|------------------------|--------------|---------------|---------|
| Mild                   | 36 (59.0%)   | 25 (41.0%)    | 0.006   |
| Moderate               | 44 (78.6%)   | 12 (21.4%)    |         |
| severe                 | 20 (90.9%)   | 2 (9.1%)      |         |
Table 4: comparison and correlation of burn victims and control group variables

| Variable          | Depression | P-value* |
|-------------------|------------|----------|
|                   | Burn victims | Control group |   |
| Age ± SD          | 26.68 ± 5.70 | 30.56 ± 10.41 | 0.032 |
| BDI score ± SD    | 22.80 ± 7.98 | 19.82 ± 3.86 | 0.004 |
| Gender Male       | 70 (70.0%) | 24 (61.5%) | 0.338 |
| Gender Female     | 30 (30.0%) | 15 (38.5%) |   |
| Education Illiterate | 6 (6.0%) | 2 (5.1%) | 0.000 |
| Education Primary | 54 (54.0%) | 8 (20.5%) |   |
| Education Intermediate | 36 (36.0%) | 9 (23.1%) |   |
| Education Secondary | 2 (2.0%) | 12 (30.8%) |   |
| Education Higher  | 2 (2.0%) | 8 (20.5%) |   |

Table 5: correlation of mean BDI scores with sociodemographic and burn variables of depressed burn victims

| Variable          | Mean BDI±SD | P value |
|-------------------|-------------|---------|
| Gender Males ± SD | 22.23 ± 6.77 | 0.030 |
| Gender Females ± SD | 24.13 ± 10.28 | 0.056 |
| Education Illiterate | 27.67 ± 8.824 |   |
| Education Primary | 23.81 ± 7.884 | 0.090 |
| Education Intermediate | 20.83 ± 7.470 |   |
| Education Secondary | 23.00 ± 15.556 |   |
| Education Higher | 16.00 ± 0.00 |   |
| Occupation Military | 22.54 ± 6.55 | 0.563 |
| Occupation Free lancer | 21.33 ± 7.5 |   |
| Occupation Housewife | 24.13 ± 10.29 |   |
| Marital status Single | 20.94 ± 8.609 | 0.019 |
| Marital status Married | 23.77 ± 7.586 |   |
| Marital status Divorced | 26.00 ± 0.00 |   |
| Cause of burn Accidental | 20.71±10.17 | 0.429 |
| Cause of burn Combat related | 18.35 ±9.55 |   |
| Type of burn Thermal | 22.48±7.94 | 0.026 |
| Type of burn Chemical | 30.33±3.38 |   |
| Type of burn Electrical | 20.00±8.53 |   |
| Degree of burn Second | 21.88±6.57 | 0.165 |
| Degree of burn Third | 22.23±8.64 |   |
| Degree of burn Second and third | 24.67±9.14 |   |
Table 6: correlation of sociodemographic variables with severity of depression of burn victims

| Gender | Severity of depression | P value |
|--------|------------------------|---------|
|        | mild                  | Moderate | Severe   |
| Male   | 24 (66.7%)            | 34 (77.3%)    | 12 (60.0%)    | 0.324 |
| Female | 12 (33.3%)            | 10 (22.7%)    | 8 (40.0%)      |
| Education |        |                       |             |
| Illiterate | 0 (0.0%)            | 4 (9.1%)      | 2 (10.5%)      | 0.090 |
| Primary | 15 (41.7%)            | 28 (63.5%)    | 11 (55.0%)     |
| Intermediate | 18 (50.0%)      | 12 (27.3%)    | 6 (30.0%)      |
| Secondary | 1 (2.8%)             | 0 (0.0%)      | 1 (5.0%)       |
| Higher | 2 (5.6%)              | 0 (0.0%)      | 0 (0.0%)       |
| Occupation |        |                       |             |
| Military | 18 (50.0%)            | 24 (54.5%)    | 10 (50.0%)     | 0.563 |
| Free lancer | 6 (16.7%)            | 10 (22.7%)    | 2 (10.0%)      |
| Housewife | 12 (33.3%)           | 10 (22.7%)    | 8 (40.0%)      |
| Marital status |        |                       |             |
| Single | 20 (55.6%)            | 12 (27.3%)    | 4 (20.0%)      | 0.019 |
| Married | 62 (62.0%)            | 14 (70.0%)    | 0 (0.0%)       |
| Divorced | 0 (0.0%)            | 2 (4.5%)      | 0 (0.0%)       |

Table 7: Correlation of depression with sociodemographic variables of burn victims

| Depression | P-value* |
|------------|----------|
|            | Yes (%)  | No (%)  |
| Single     | 36 (36.0%) | 6 (30.0%) | 0.019 |
| Married    | 62 (62.0%) | 14 (70.0%) |
| Divorced   | 2 (2.0%)  | 0 (0.0%)  |
| Military   | 52 (52.0%) | 16 (80.0%)b | 0.021 |
| Total civilian: | 48 (48.0%) | 4 (20.0%) |
| a. Employed | 0 (0.0%)  | 2 (10.0%)b |
| b. Free lancer | 18 (18.0%) | 0 (0.0%)b |
| c. Housewife | 30 (30.0%) | 2 (10.0%) |
| Total      | 100 (100.0%) | 20 (100.0%) |

* Chi-square
Table 8: Correlation of burn characteristics with depression and severity of depression

|                   | Depressed | Severity of depression | P value |
|-------------------|-----------|------------------------|---------|
|                   | Yes (%)   | No (%)                 | mild    | moderate | severe   |         |
| Cause of burn     |           |                        |         |          |          |         |
| Accidental        | 48 (48.0%)| 4 (20.0%)              | 18 (50.0%) | 20 (45.5%) | 10 (50.0%) | 0.429   |
| Combat related    | 52 (52.0%)| 16 (80.0%)             | 18 (50.0%) | 24 (54.5%) | 10 (50.0%) |         |
| Type of burn      |           |                        |         |          |          |         |
| Thermal           | 88 (88.0%)| 20 (40.0%)             | 34 (94.4%) | 38 (86.4%) | 16 (80.0%) | 0.026   |
| Chemical          | 6 (6.0%)  | 0 (0.0%)               | 0 (0.0%)   | 2 (4.5%)  | 4 (20.0%)  |         |
| Electrical        | 6 (6.0%)  | 0 (0.0%)               | 2 (5.6%)   | 4 (9.1%)  | 0 (0.0%)  |         |
| Degree            |           |                        |         |          |          |         |
| Second            | 44(44.0%) | 14 (48.3%)             | 18 (50.0%) | 20 (45.5%) | 6 (30.0%)  | 0.165   |
| Third             | 26(26.0%) | 2 (10.0%)              | 12 (33.3%) | 8 (18.2%)  | 6 (30.0%)  |         |
| Second and third  | 30(30.0%) | 4 (20.0%)              | 6 (16.7%)  | 16 (36.4%) | 8 (40.0%)  |         |
| Surface Area      |           |                        |         |          |          |         |
| < 30 %            | 68 (68.0%)| 18 (90.0%)             | 26 (72.2%) | 28 (63.6%) | 14 (70.0%) | 0.699   |
| ≥ 30 %            | 32 (32.0%)| 2 (10.0%)              | 10 (27.8%) | 16 (36.4%) | 6 (30.0%)  |         |
| Face              |           |                        |         |          |          |         |
| Yes               | 18 (50.0%)| 26 (59.1%)             | 13 (65.0%) |         |         | 0.517   |
| No                | 18 (50.0%)| 18 (40.9%)             | 7 (35.0%)  |         |         |         |
| Trunk             |           |                        |         |          |          |         |
| Yes               | 10 (27.8%)| 14 (31.8%)             | 10 (50.0%) |         |         | 0.224   |
| No                | 26 (72.2%)| 30 (68.2%)             | 10 (50.0%) |         |         |         |
| Upper limb        |           |                        |         |          |          |         |
| Yes               | 32 (88.9%)| 36 (81.8%)             | 16 (80.0%) |         |         | 0.596   |
| No                | 4 (11.1%) | 8 (18.2%)              | 4 (20.0%)  |         |         |         |
| Lower limb        |           |                        |         |          |          |         |
| Yes               | 16 (44.4%)| 26 (59.1%)             | 8 (40.0%)  |         |         | 0.259   |
| No                | 20 (55.6%)| 18 (40.9%)             | 12 (60.0%) |         |         |         |
| Genitalia         |           |                        |         |          |          |         |
| Yes               | 2 (5.6%)  | 4 (9.1%)               | 4 (20.0%)  |         |         | 0.217   |
| No                | 34 (94.4%)| 40 (90.0%)             | 16 (80.0%) |         |         |         |
| Back              |           |                        |         |          |          |         |
| Yes               | 6 (16.7%) | 4 (9.1%)               | 2 (10.0%)  |         |         | 0.557   |
| No                | 30 (83.3%)| 40 (90.0%)             | 18 (90.0%) |         |         |         |
| Multiple          |           |                        |         |          |          |         |
| Yes               | 32 (88.9%)| 36 (81.8%)             | 18 (90.0%) |         |         | 0.561   |
| No                | 4 (11.1%) | 8 (18.2%)              | 2 (10.0%)  |         |         |         |
| Total             | 100 (100.0%)| 20 (100.0%)           | 36 (100.0%)| 44 (100.0%)| 20 (100.0%)|         |

Discussion:

The prevalence of depression in burn patients was 83.3% compared to 32.5% of the comparison group which is statistically significant. This high number is explained as burn injury is a devastating; most terrible and sudden trauma that seriously endangers life and causes the most severe form of pain and suffering, the fear of medical complications that could threaten their life and the fear of disability and
disfigurement, the worries regarding social and financial situation and whether they could or not return to their previous life. Military inpatients suffered very severe type of burn injury and many difficult situations during the war as they were fighting for months and combat related burns is significantly different from civilian accidental injuries as they are more extensive and complicated. Majority of depressed patients were of moderate severity 44 out of 100 depressed patients (44%), mild depression was (36%), severe depression (20%). This study is comparable to other studies in Iraq and around the world. A study done at the burn unit of Dewaniya Teaching Hospital, Dewaniya governorate, Iraq, by Hussein E (2014)\textsuperscript{16} found rate of depression to be 40% and majority of depressed patients were of moderate severity (60%). Arfaie A et.al.\textsuperscript{17} study evaluated survivors of burn injury and depression symptoms were observed in 58% of patients mostly females and majority of depressive symptoms were moderate type. A research conducted in Tehran by Ahrari F\textsuperscript{8} using beck depression inventory II found depression in 61% of burn patients of whom 24% had severe type depression. A study by Alvi T et.al\textsuperscript{18} and Pavoni v et al\textsuperscript{19} found depressive symptoms in 36-58% of cases within the first month of burn. Yabanoglu et.al.\textsuperscript{20} a documentary study on medical files of burn injury patients found depression in 15.5% of them, 76% had mild depression. Mario et al.\textsuperscript{21} depression was 10-17% the difference could be due to different statistical population and different evaluation instruments. Current study mean age is 27±7 years, comparison group it is 30±10 years. In study by Arif M\textsuperscript{22} in India mean age was 31 years which matched with another study at Tegerina et. al\textsuperscript{23} where mean age was 31 years. In Hussein E study\textsuperscript{16} they were 45% burn victims rating from 15-24 years. Prevalence of depression to age slightly varied but it is statistically not significant. Male were 88 out of 120 burn patients (73.3%) and 32 (26.7%) females. This is due to the specific time of the study in the same time of military operations to liberate Mousil. Prevalence of depression was 70% in males and 30% in females (due to small female number in the study group, nearly all female in the study sample had depression 30 out of 32). In Hussein E study\textsuperscript{16} had 60 females and 40 males and prevalence of depression was 62% in females and 37%in males. In the study of Arif M\textsuperscript{22}, female preponderance over males was recorded which very well correlates with an Indian study, Lal P et.al\textsuperscript{24} where 65.7% females and 34.3% males. Most of the patients in this study were married 63% and marital status has significant association with severity of depression most had moderate depression while single represent 35% of the study sample and most suffered mild type of depression. This is consistent with Alvi T\textsuperscript{18} study. Level of education among depressed group had significant statistical association with burn, most burn victims were primary school graduates 54 (54.0%), and most of comparison group were among secondary 12 (30.8%) and higher educational level 8 (20.5%). But there was neither statistically significant association with severity nor statistically significant differences in mean BDI scores. In Hussein E\textsuperscript{16} study majority were of high education 50%. In Ptacek J T et al study\textsuperscript{25} there was no significant association between educational status and depression. Depressed military showed 52% of total depressed burn victims due to high number of military in the study sample and difficulties they encountered in battle field and impact of burn, most of them with moderate severity. Housewife 30% of total depressed burn patients as females constituted small number in the study sample 30 out of 32 females were depressed which is 93% of mild, moderate and severe depression. Severity of depression had no statistical significance association between depression and occupation. In Hussein E\textsuperscript{16} study 50% were unemployeed with no statistical difference. In Alvi T\textsuperscript{18} unemployment leads to higher depression scores due to financial burden. In Clarke MA\textsuperscript{26} study; no association found.

Most of the depressed burn patients had combat related burn 52% being military, mostly of moderate severity of depression. 48% of depressed patients suffered accidental burn of mild and moderate severity. Cause and severity of burn had no statistical association with depression. In Hussein E
study most common cause was accidental. Most common type of burn in this study was thermal burn in 88% of depressed burn patients compatible with Hussein E study as 77.5% of depressed cases were thermal burn. In Alvi T study thermal was 78.95% in depressed cases. Significant association between severity and type of burn, thermal burn patients had mostly moderate depression, while patients with chemical burn had more severe depression with higher BDI scores all were military during battle due to severe level of pain and long hospital stay along with the impact of possible medical complications. Most depressed patients had multiple area involved 86% and fascial involvement occurred in 57% of depressed patients due to fear of disfigurement. This is close to Alvi T study that multiple sites developed depression in 67%, in Hussein E study level of depression is 70%, this is compatible with other studies as fascial burn is a major risk factor for depression. Clarke, Madianos MG et. al. all confirmed increased possibility of depression. In this study 44% of depressed burn patients had second degree burn, 26% third degree, and 30% second and third degree with no statistical association with severity as second degree has mostly moderate depression and third had mild depression. In Arfie A study 23% of depressed patients suffered second degree burn & 71% suffered third degree with no difference regarding severity of depression in mild, moderate, severe level. Most depressed burn injury patients had larger surface area involved more than non-depressed patients and this is consistent with Hussein E study. Along with previous studies, Thomas BD, Haines JM et.al. 10 the higher the severity of burn, the higher the prevalence of depression. In Arfie A study such that 26.3% of patients with less than 30% TBBSA suffer from depressive symptoms whereas depressive symptoms are seen in 73.2% of patients with more than 30% TBBSA. Since burn results in physical and emotional problems, feeling of disfigurement, stigmatization and increases interpersonal negative attitudes, it may increase depressive symptoms.

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