DEPRESSION IN ADULTS POST BURN INJURY: A DESCRIPTIVE STUDY CONDUCTED IN THE BURN CENTRE OF A TERTIARY CARE HOSPITAL IN KARACHI

DÉPRESSION DE L'ADULTE APRÈS BRÛLURE: ÉTUDE DESCRIPTIVE DANS UN CTB DE KARACHI

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SUMMARY. Burns are a major cause of psychological disability in this modern era. Psychological aspects of burn have been studied throughout the world with vast differences in results. Depression is one of the psychological illnesses that affect the individual post burn injury. Our objective was to determine frequency of depression in burn patients, burn-related factors that may contribute to the development of depression and to assess demographic distribution. Ninety-four patients from the Burns Centre, Dow University of Health Sciences & Dr. Ruth KM Pfau Civil Hospital in Karachi were selected according to specific criteria. Duration of study was from September 2017 to February 2018, with 1-40% of burns patients included through non-probability purposive sampling. Data were collected through a questionnaire consisting of consent form, demographic details and burn details. Beck Depression Inventory II was used as a scoring instrument for depression. Standard statistical measures were calculated using SPSS version 22. Out of 94 patients, 58 were male (61.7%) and 36 (38.3%) female. The most common type of burn was thermal, seen in 58 (61.7%) patients. Thirty (31.9%) patients had depression: 15 (16%) had a mild form, eight (8.5%) a moderate form and seven (7.4%) had severe symptoms of depression. Depression in 32% of cases indicates the need for diagnosis in burn-injured patients. Therefore psychiatric rehabilitation is necessary for all cases of burn in order to manage depressive symptoms, whether these symptoms are mild or severe.

Keywords: depression, burns, Beck Depression Inventory

RÉSUMÉ. À notre époque, les brûlures sont une cause majeure de troubles psychologiques, parmi lesquelles les dépressions. Ils ont été étudiés partout dans le monde, avec des résultats très variables. Cette étude avait pour but la fréquence et la distribution démographique de la dépression chez les brûlés et de mettre en évidence les facteurs contribuant à son développement. Quatre-vingt dix-neuf patients hospitalisés dans le CTB de l'hôpital civil de Karachi entre septembre 2017 et février 2018 ont été sélectionnés par échantillonnage non probabiliste. Nous avons utilisé un questionnaire comprenant un consentement ainsi que des précisions démographiques et brûlologiques. La dépression a été évaluée selon le Beck Depression Inventory II. Les statistiques ont été calculées avec SSPS 22. Sur 94 patients, 58 (61.7%) étaient des hommes, 36 (38.3%) des femmes. La brûlure était thermique chez 58 (61.7%) patients. Trente (31,9%) patients étaient dépressifs dont 15 (16% des brûlés) avec une forme légère, 8 (8,5%) avec une forme modérée et 7 (7,4%) avec une forme sévère. Cette fréquence nécessite sa recherche chez les brûlés donc un suivi psychiatrique de tous ces patients.

Mots-clés : dépression, brûlés, Beck Depression Inventory
Introduction

Burns, one of the greatest traumatic events a person can experience, affects the individual both physically and psychologically throughout their lifetime.\textsuperscript{1,2,3} Epidemiologically, burn is one of the top 30 causes of premature yearly loss and years lived with disability.\textsuperscript{1,2} Moreover, 90\% of these burn-related events occur in developing or low-middle income countries, with South-East Asia alone accounting for over half of these injuries.\textsuperscript{1} Fortunately, there has been a wide and visible decrease in burn-related mortality due to advancements in emergency treatment, but unfortunately there has been a simultaneous increase in the number of burn victims living with disability and scars. The higher survival rate has meant an increase in psychological impairment and adjustment disorder in burn victims.\textsuperscript{2}

Psychological outcomes of burn victims have been studied in many countries. Results differ,\textsuperscript{3,4,5,6} but of the three major psychological disturbances investigated (i.e. depression, anxiety and post-traumatic stress disorder), depression is consistently at the top.\textsuperscript{6} In India also, studies on outcomes have produced vastly different results\textsuperscript{7}, as shown in the discussion section.

In Pakistan, one such study carried out at Wah Medical College showed that 58\% of the patients suffered depression.\textsuperscript{1} In Karachi, a referral centre for burn cases from all over Pakistan having one of the largest public sector burn units in the country, no such study is known to have assessed depression. For this reason, we conducted a study aimed at determining the frequency of depression amongst burn victims, and demographic factors that may contribute to the development of depression, in order to draw a relationship between burns-related factors and depression.

Materials and methods

This was a descriptive, questionnaire-based study. The study population comprised of patients with 1-40\% burns admitted to the Burns Centre, Dow University of Health Sciences & Dr. Ruth KM Pfau Civil Hospital in Karachi, part of a public sector tertiary healthcare facility with all the necessary equipment and staff for the management of burns. Patients aged between 18-60 years who presented within 2 weeks post burn injury, with no previous psychiatric illness and who were willing to give their written and informed consent, were included in the study. All those patients who were not willing to participate, had a record of past or present psychiatric illness or were admitted to the Intensive Care Unit, intubated or severely ill were excluded. Our sample size was 94. The hypothesized frequency in population (p) taken was 58\% with a margin of error of 10\%. The study period ran from September 2017 to February 2018. Our study tool comprised of a questionnaire with two sections. The first section included a consent form and regarded demographic information and burn-related information. Demographic data included age, gender and marital status. Burn-related data included type of burn, affected area of burn and percentage of total body surface area (TBSA) affected. The standard Lund and Browder chart was used to determine percentage of affected total body surface area. The second section included the Beck Depression Inventory II that was used to assess the level of depression in the participants. This is a 21-item instrument, scored on a scale of 0 to 3 in a list of four statements arranged in increasing order of severity. The Beck Depression Inventory II has a cut-off score of 14, the range 14-19 considered mild depression, 20-28 moderate depression and 29-63 severe depression.\textsuperscript{8}

The data collection technique comprised of interviewing the patients to collect information regarding history and administering data collecting scales. Data collection began after explaining the whole procedure and purpose of the study to those that fulfilled the specified selection criteria and had given informed, written consent. Patients and their attendants were counselled about their history and demographic and burn details, which were verified from medical case notes. Statistical analysis was carried out using SPSS version 21. Simple descriptive analysis was used to calculate frequencies, percentages and means of demographic details, burn-related factors and presence and severity of depression. All the data entered into SPSS 21 or shown in this report were treated as anonymous and all personal information remained confidential.
Results

Using the selection criteria, 94 patients were included in this study: 54 patients (57.4%) were aged 18-30 years, 25 (26.6%) 31-40 years, 10 (10.6%) 41-50 years and five (5.3%) 50-60 years. Fifty-eight (61.7%) were male and 36 (38.3%) were female. Fifty-four (57.4%) of the patients were married and the remaining 40 (42.6%) unmarried (Table I).

The most frequent type of burn was thermal, seen in 58 (61.7%) patients, while 20 (21.3%) and 16 (17%) had electrical and chemical burns, respectively. Burns involving multiple regions of the body accounted for the highest number of patients, namely 33 (35.1%), followed by injury to the upper limbs in 24 (25.5%), lower limbs in 19 (20.2%), head and neck in 10 (10.6%) and trunk in eight (8.5%). As regards percentage of total body surface area involved, 71 (75.5%) patients were within the 1-20% range while the remaining 23 (24.5%) were in the 21-40% range (Table II).

Table I - Frequency of depression with demographic variables

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>Depression</th>
<th>No depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age: 18-30 years (n=54)</td>
<td>14 (25.9%)</td>
<td>40 (74%)</td>
</tr>
<tr>
<td>31-40 years (n=25)</td>
<td>11 (44%)</td>
<td>14 (56%)</td>
</tr>
<tr>
<td>41-50 years (n=10)</td>
<td>3 (30%)</td>
<td>7 (70%)</td>
</tr>
<tr>
<td>51-60 years (n=5)</td>
<td>2 (40%)</td>
<td>3 (60%)</td>
</tr>
<tr>
<td>Gender: Male (n=58)</td>
<td>20 (4.8%)</td>
<td>38 (65.5%)</td>
</tr>
<tr>
<td>Female (n=36)</td>
<td>10 (7.7%)</td>
<td>26 (72.2%)</td>
</tr>
<tr>
<td>Marital status: Married (n=54)</td>
<td>18 (33.3%)</td>
<td>36 (66.7%)</td>
</tr>
<tr>
<td>Unmarried (n=40)</td>
<td>12 (30%)</td>
<td>28 (70%)</td>
</tr>
</tbody>
</table>

Discussion

In our study there was a high prevalence of burns in male patients, which is in accordance with many other investigations carried out in other parts of the world, as well as in Pakistan. However it contradicts two studies that took place in India and which showed a higher prevalence (almost the reverse) in females, of 65.7% and 68% in respective studies. The most frequently encountered age range of the burn patients in our study was 18-30 years, which also coincides with the study of Wah from Pakistan. Our results showed that marital status played no significant role in developing depression, which is also in accordance with Wah.

Out of 94 burns patients, 30 (31.9%) had depression, 15 (16%) in a mild form, eight (8.5%) in a moderate form and seven (7.4%) had severe symptoms of depression. In other studies, the prevalence of depressive symptoms in burn survivors is 23% to 26% for mild to moderate forms and 4% to 10% for severe depression. In the same Indian study mentioned above, 44% of cases were reported as mild-moderate and 14% cases as severe depression.

The majority of the patients in our study had a burn area percentage of 1-20%, which is nearly the same as in the investigations of Loncar. Thermal burns were the most common type of burn injury (61.7%), as reported in other studies. Moreover, our study showed that depression was more prevalent among males, while other studies have shown females to have higher depressive scores. On the other hand, Loncar showed no such results. Our results also showed that multiple burn injuries predispose to depressive symptoms, but they also suggest that patients with head, neck and face burns have an almost 50% chance of developing depressive symptoms. This result is a reflection of studies that suggest that people with head, neck and face burns causing disfigurement are more likely to develop a psychiatric disorder in later life. Van Loey’s study showed that facial burns in females are a major predisposing factor for the development of depression. Regarding percentage of area burned, 20 out of 71 patients (28%) in the 1-20% range had depression while 10 out of 23 (43% of patients) with 21-40% burns showed depression. This demonstrates...
that burn surface area is related to depression, as seen in other studies with similar results.  

**Limitations**

This study had a moderate sample size that was selected through a non-probable, purposive sampling technique. It is devoid of follow up of patients, which might have helped us in further investigations into depression among patients.

**Recommendations**

This study should be extended over a large sample size, along with follow up of patients for 6-12 months, as has been done in other countries. The presence of depression among a significant number of cases shows a need for psychological screening and diagnosis. Burn centres must devise and implement a multidisciplinary approach for the treatment of burn cases, with follow up services including psychological counselling and rehabilitation. This may also contribute towards the prediction of post burn adjustment disorder. Moreover, this study highlights the importance of the simultaneous management of depression in burn patients.

**Conclusion**

Depression is common in burns patients. This issue needs attention and proper diagnosis, from the time of admission of the patient until discharge and rehabilitation. Patients should be assessed for depression in every burns management setup so that patients on the verge of developing depression can be assessed and treated in a way that will help them to adjust in society after burn injury.

**BIBLIOGRAPHY**


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