Original Article

Evaluation of Psychiatric Disorders among Admitted Burn Patients in Burn Unit of Dhaka Medical College and Hospital, Dhaka

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Abstract

Burn causes both the physical and psychological trauma of the victims. Most of the cases, physical trauma of burn are highlighted and managed but psychological impacts of burn are ignored. The psychological aspects of burn injury have been researched in different parts of world producing different outcomes. A very few number of study regarding psychological aspect of burn has been conducted in our country till now. To assess the psychiatric morbidity among the burn patients admitted in burn unit of Dhaka Medical College Hospital. This was a descriptive and analytical study. The study was conducted in the Burn and Plastic Surgery Unit of Dhaka Medical College Hospital, Dhaka, Bangladesh and the duration of the study was 6 (six) months (July 2010 - December 2010). Burned patients fulfilling the inclusion criteria. 124 patients were selected on non-probability purposive sampling techniques who were GHQ (General Health Questionnaire) positive. Then a semi-structured questionnaire containing socio-demographic characteristics and SCID-I (Structured Clinical Interview for DSM-IV Axis-I disorder) was used. Finally DSM-IV-TR criteria were used among burn patients clinically. Different types of psychiatric morbidity in post burn patients and different burn related factors affecting psychiatric outcomes were assessed. The psychiatric morbidity among the burn patients was 47.6%. Regarding patterns of psychiatric morbidities, the highest number of patients were anxiety disorder (54%) followed by depressive disorder 36%, acute stress disorder (ASD) 3%, post traumatic stress disorder (PTSD) 5% and 2% psychotic disorder. The burned patients of low socioeconomic condition, less education, unmarried, suicidal attempted and larger total body surface area (TBSA) were found their multiple sites of burn injuries (like head, neck and face) developed psychiatric disorders. This study highlights the importance of the simultaneous evaluation and management of psychiatric disorders in burn injured patients. Management of phychiatric and phychological problems of burned patients would bring better outcome.

Keywords: *Burn Patients, Anxiety disorders NOS, ASD, PTSD, DSM-IV, SCID-I*

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INTRODUCTION

A burn is a kind of damage to skin, or different tissues, caused by heat, cold, electricity, chemical, friction or radiation. Most burns are because of warmth from hot fluids, solids, or fire. While rates are comparative for guys and females the basic causes frequently contrast.The biopsychological effect on individual hospitalized for serious burn wounds starts right now of damage and stretches out all through the individual's life.[1,2] Overall death rate of burn patients was 2.2 for each 100,000 populations for each year. The rate was higher among females. The vast majority of the passing were unintentional in nature, just 5% of passing were from self-caused consume. The rate was higher among the rustic populace contrasted with the urban populace. Internationally, burn positioned among the 15 driving reasons for death and weight of ailment among youngsters in 2002. Burn wounds are the main source of tyke damage and second commonest reason for perpetual inability from damage in youngsters in Bangladesh. Every day around 474 kids encounter critical burn. In Burn and Plastic Surgery Unit of Dhaka Medical College Hospital among 1,533 conceded burn patients 183 were died and among 24,213 consume patients 480 patients died on in 2004 and 2009 respectively.

Figure 1: Burn patients[3]

The regular reasons for burn in Bangladesh are fire consume (75%), electric burn(20%), and corrosive burn(5%). The greater part of consumes in youngsters are singes caused by mishaps with pots, container, hot beverages and bathwater. Among immature patients, the consumes are generally caused by youthful guys, trying different things with matches and combustible fluids.[4,5] Most electrical wounds happen in adults. Psychological recovery of consume tolerant is viewed as a persistent procedure separated into three phases revival or basic stage, intense stage and long haul recovery organize. The mental needs of burn patients vary at each stage.The burn tolerant is subjected to the worry of vulnerability amid his initial administration which usually influences his physical and mental recuperation. Not with standing, the levels of popularity of restoration, patients must manage social stressors, including family strains, come back to work, sexual brokenness, change in self-perception, and interruption in day by day life. The subjective and passionate status of the patient and of the patient's relatives assumes a vital part in the achievement or disappointment of burn treatment at each phase of recuperation. Social help is an essential cradle against the improvement of mental trouble. From this study, got a noteworthy learning from seniors and junior associates about burn patients management and watched physical and in addition mental administration could empower burn patients to return in their typical life.

General Objective:

- To evaluate the extent ofpsychiatric morbidity among the burn patients taking care of burn unit of Dhaka Medical College Hospital**.**

Specific Objective:

- To decide the pattern of psychiatric disorders among consumes patients taking care of Burn unit of Dhaka Medical College and Hospital.
- To evaluate socio-statistic attributes of burn victim developing psychiatric disorders.
- To discover the connection between the burns affected area and grievousness and the psychiatric disorder.

Study type:

- This study was a descriptive and analytical study.

Study place and period:

- Duration of the study was six months. (July 2010-December 2010) which was conducted the Burn & Plastic surgery unit of Dhaka Medical College & Hospital, Dhaka, Bangladesh.

Sample size & Sampling technique:

The following standard formula is mostly used in determining sample size:

$n = z^2pq/d^2$Here, n = sample size

z =1.96 at 5% level of significance or at 95% confidence level, Z=1.96

p = prevalence, q = 1-p

d = acceptable error (usually set at 5%) = 0.05

As actual prevalence of burned patients in Bangladesh is not known, so here

p = 50% = 0.5 & q = (1- 0.5).

So the sample size is,

n = (1.96)2 x (0.5) x (1-0.5) / (0.05)2

= 384

As the study was carried out in a very short period of six months, a large population like 384 was be difficult to collect and it was a prospective, cross-sectional study. So 124 burn patients admitted in the Burn & Plastic surgery unit of Dhaka Medical College & Hospital was taken. Samples were selected on non-probability purposive type sampling techniques.

Inclusion Criteria:

- Burn patients who give informed consent and willing to comply the study procedure.

- Burn patients of 16 years to 65 years were included into the study.
- Burn patient who has no past-history of psychiatric illness and has no past-history of serious organic illness.

Exclusion Criteria:

- Burn patients who cannot communicate verbally due to impaired consciousness.
- Burn patients who is in ventilator and ICU.

MATERIALS AND METHODS

One hundred twenty-four admitted burn patients in the Burn Unit of Dhaka Medical College Hospital who fulfilling the inclusion criteria and GHQ-28 positive were enrolled in the study. At first, informed consent was taken from the burn patient assuring confidentiality and freedom of choice of participation. Then patient was interviewed using the semi-structured questionnaire containing socio-demographic variables and GHQ-28. After that all burn patients with GHQ-28 positive were assessed by SCID-I and DSM-IV-TR criteria. During the study the general health Questionnaire (GHQ28) of David Goldberg is performed first to know about any medical complaints and to assess health in general, over the past few weeks. This is to assess about present and recent complaints. (ANNEX-III) .A semi-structured questionnaire including socio-demographic characteristics, history of psychiatric & co-morbid medical illness, family history of psychiatric illness, Pre-morbid psychological functioning & burn related history would be used. (ANNEX-IV).The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) is a semi-structured interview for making the major DSM-IV Axis I diagnoses. The Clinician Version (SCID-CV) is a streamlined version of the SCID-I-RV (Research Version for Axis I Disorders).

Statistical analysis

In this study statistical analysis of the result would be obtain by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-13) (SPSS Ins, Chicago H, USA).The results would be presented in tables, figures diagrams. Statistical tests for significance of difference would be done using t-test, chi-square test, 'p' value<o.o5 will be considered as significant.

RESULTS

In Table I shows that distribution of psychiatric disorders among burn patients (n=124) where total numbers of burn patients were 124. Out of 124 burn patients, 59 (47.6%) patients developed psychiatric disorders and 65 (52.4%) patients didn't develop psychiatric disorder. There was no statistical significant different to developed psychiatric disorder in burn patients. The following table is given below:

Table -I: Distribution of psychiatric disorders among burn patients (n=124)

Age (in year)	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
16-25	30 (56.3)	36 (54.5)	
26-35	18 (45.5)	14 (43.8)	
36-45	7 (43.8)	9 (56.3)	
46-55	3 (38.48)	5 (62.5)	
55-65	1 (50.0)	1 (51.02)	
Total	59 (47.6)	65 (52.4)	
Mean ± SD	27.80 ± 9.70	28.08 ± 11.17	0.882

In figure 2 shows that Pattern of psychiatric disorders among burn patients where anxiety & depressive disorders were highest among all (54%) and 36% respectively. The following figure is given below:

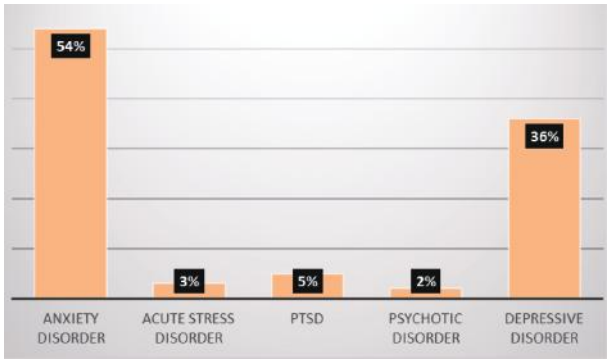

Fig.-2

In table II shows that age distribution of the burn patients (n=124) where shows among 124 burn patients with variable age with a mean 27.80 (SD±9.70) years and 28.08 (SD±11.17) years with and without psychiatric disorder respectively. Maximum 56.3% burn patients within 16-25 years. The following table is given below:

Table II: Age distribution of the burn patients (n=124)

Psychiatric Disorder	Frequency	Percent	p value*
Present	59	47.6	0.285
Absent	65	52.4	
Total	124	100.0	

In figure 3 shows that Sex distribution of the burn patientsout of 59 burn patients with psychiatric disorder, 38 male and 21 were female patients & among 65 burn patients without psychiatric disorder, 46 male and 19 were female patients. The following figure is given below:

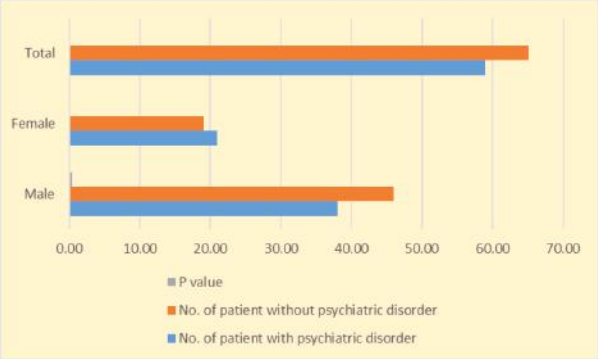

Figure 3: Sex distribution of the burn patients

In table III shows that, Area of residence of the burn patients (n=124) where burn patients with psychiatric disorder came mostly from rural areas, which were 52.5% and also they came from Urban and Sub-slum/slum areas which were 45.1% and 38.86% respectively. Patients residing in rural area suffer more psychiatric disorder than urban or sub-urban area but which was not significant. The following table is given below:

Table III: Area of residence of the burn patients (n=124)

Residence	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
Rural	31 (52.5)	28 (47.5)	.473
Urban	23 (45.1)	28 (54.9)	
Sub urban	5 (38.86)	9 (61.14)	
Total	59 (47.6)	65 (52.4)	

In figure 4 shows that,Religion of the burn patients (n=124) where most of the burn patients were Muslim in both with and without developing psychiatric disorder, which was 49 (47.1%) and 55 (52.9%) respectively. Muslim burn patients were more than Hindu and Christian patients in this study. The following table is given below:

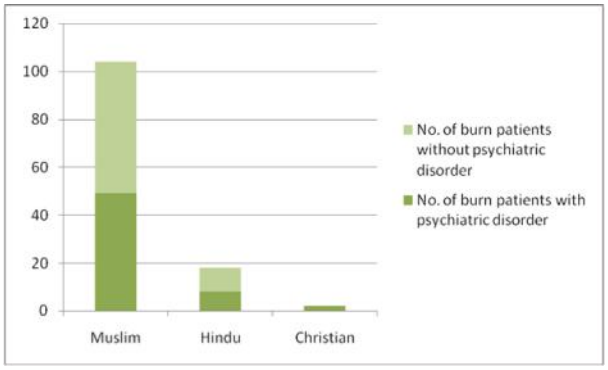

Figure IV: Religion of the burn patients (n=124)

In table 4 shows that, Marital status of the burn patients (n=124) where burned patients were mostly unmarried/ single which was 62. Unmarried (51.6%) and divorced (50.0%) burn patients developed more psychiatric disorder than married (43.3%) burn patients but statistically not significant. The following table is given below:

Table IV: Marital status of the burn patients (n=124)

Marital Status	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
Married	26 (43.3)	34 (56.7)	
Unmarried	32 (51.6)	30 (48.4)	0.656
Divorced	1 (50.7)	1 (49.3)	
Total	59 (47.6)	65 (52.4)	

In Table V shows that Economic status of the burn patients (n=124) where Burn patients with psychiatric disorder were mostly monthly income up to 5,000Tk (53.8%) and 5,000-10,000 Tk (49.2%). Monthly income 10000-20000 Tk (65.2%) &>20000 Tk. (61.875%) burn patients developed less psychiatric disorder. Lower economic level of income is associated with more psychiatric disorder than higher income but statistically not significant. The following table is given below:

Table V: Economic status of the burn patients (n=124)

Economic Status	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
Up to 5000 Tk.	21 (53.8)	18 (46.2)	
5000-10000 Tk.	29 (49.2)	30 (50.8)	
10000-20000 Tk.	8 (34.8)	15 (65.2)	0.489
>20000 Tk.	1 (38.125)	2 (61.875)	
Total	59 (47.6)	65 (52.4)	

In figure V shows that Causes of burn (n=124) where flame injuries were found to be most common agent of burn injuries affecting 34 & 37 with and without psychiatric disorder burn patients respectively. Electric burn was also common, affecting 20 burn patients with psychiatric disorder and 23 without psychiatric disorder. Acid burn injuries were 5 and 5 burn patients with and without psychiatric disorder respectively. Causes of burn in both with and without psychiatric disorder were statistically not significant. The following figure is given below:

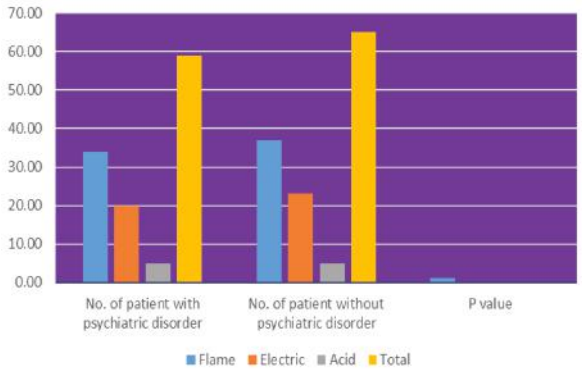

Figure 5: Causes of burn (n=124)

In table VI shows that ,Total body surface area (TBSA) involvement of the burn patients (n=124) where , burn patients suffered >40% TBSA burn (75.0%) developed psychiatric disorder more than 1%-10% TBSA burn (33.3%). Similarly, 1%-10% TBSA involved burn patients developed less (66.7%) psychiatric disorder than >40% TBSA involvement (25.0%). So, burn patients who involved more TBSA were developed more psychiatric disorder than less involved TBSA and it was statistically significant.

Table VI: Total body surface area (TBSA) involvement of the burn patients (n=124)

Total body surface area	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
1%-10%	12 (41.63)	24 (66.7)	
11%-20%	18 (40.0)	27 (60.0)	
21%-30%	12 (52.2)	11 (47.8)	
31%-40%	14 (87.5)	2 (22.5)	
>40%	3 (75.0)	1 (25.0)	
Total	59 (47.6)	65 (52.4)	
Mean ± SD	21.79 ± 12.29	14.76 ± 9.04	0.001

In figure 6 shows that, Distribution of locations of burn (n=124) where Those have multiple site (≥ 3 Location) burn injuries also suffering from more psychiatric disorder than other site (≤ 2 Location) which was highly statistically significant. The following figure is given below:

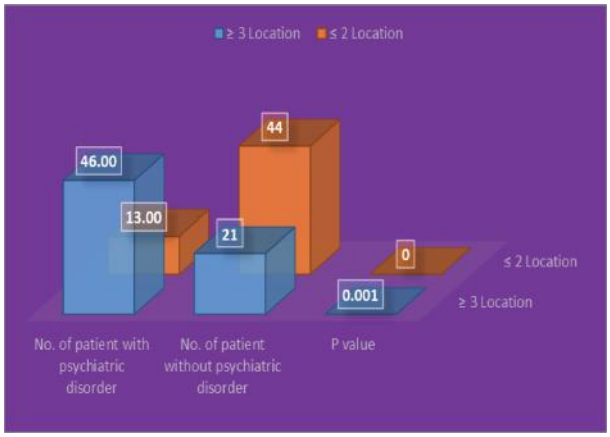

Figure 6: Distribution of locations of burn (n=124)

In Figure 7 shows that ,Locations of burn (n=124) where Burn injury on multiple sites was observed; even single patient had multiple sites of injuries also. Patients suffering from burn injuries in face (76.9%), head (65.4%) & neck (63.6%) developed more psychiatric disorders and statistically significant. Patients suffering from burn injuries in upper limb (58.6%) developed more psychiatric disorder than lower limb (38.2%). The following table is given below:

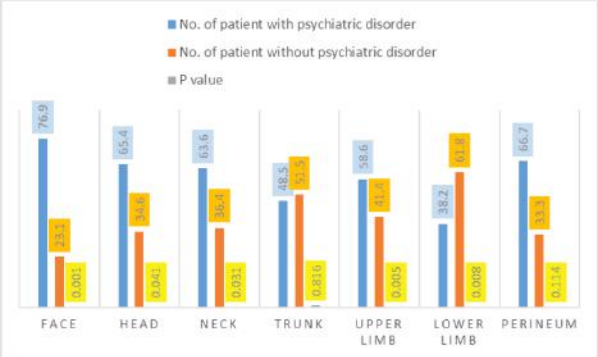

Figure 7: Locations of burn (n=124)

In figure 8 shows that Types of burn (n=124) where 51 & 56 patients affected with deep burn with and without psychiatric disorder respectively while only 8 & 9 patients were suffering from superficial burn (shows in Table XI) and statistically not significant. The following figure is given below:

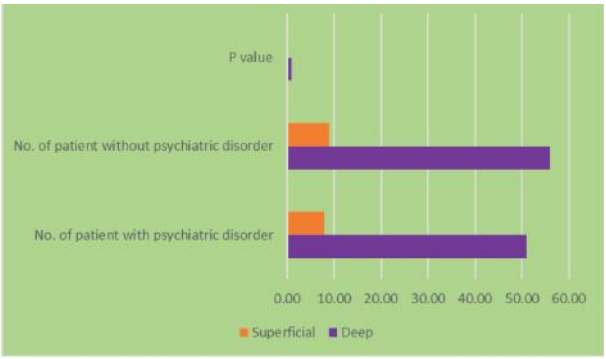

Figure 8: Types of burn (n=124)

In table VII shows that ,methods of burn. Suicidal burn affecting 12&5 patients with and without psychiatric disorder respectively and was statistically significant. Accidental injuries were the prominent group affecting 45 & 58 burn patients with and without psychiatric disorder respectively. The following table is given below:

Table VII : Methods of burn (n=124)

Method of burn	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
Accidental	45	58	0.055
Suicidal	12	5	0.041
Homicidal	2	2	0.920

DISCUSSION

Burn injury is the critical and lethal developing reason for human suffering in home and abroad now a days. Burn wounds are annihilating, sudden and flighty types of injury which influence the casualty both physically and mentally. Regarding treatment plan of burn victim patients, it is proved that they are needed multidisciplinary approach like counseling, management of psychological aspect, and some psychotropic medications, physical treatment as well as physiotherapy and finally rehabilitation.

There are very few number of study regarding psychological aspect of burn has been conducted in our country yet now. In some studies outside the country also showed that increasing number of psychiatric disorders among burned patients. The psychiatric disorders, socio-demographic characteristics and the effects of burn factors are the objectives of this study.

In our study performed in Burn Unit of Dhaka Medical College Hospital, 124 patients were selected in the study fulfilling the inclusion criteria. The burned patients admitted in the Burn & Plastic surgery unit of Dhaka Medical College & Hospital, Dhaka were developed psychiatric disorders among 47.6% (59 out of 124) of patients. This finding was almost closer to study of Pliskin et al. (2009) which ranging from 57% to 87.5% respectively.

In this study a significant number of patients showed Depressive disorder 36% and Anxiety disorder 54% . This Depressive disorder was almost consistent with 48% depression in Pliskin et al.[6] (1999) and 13 to 23% Depression in Van Loey et al.[16] (2003) study but smaller than Alvi et al. [8] which is 58%. On the other hands, the Anxiety finding was nearer to 49% in Pliskin et al. [6] (1999) study but smaller than Alvi et al.[8] which were 82%.

Among the burn patients in this study 3.4% (2) acute stress disorder (ASD) and 5.1% (3) post traumatic disorder (PTSD). This finding was almost consistent with the Tedstone et al.[7] finding of 2.2% ASD at two weeks and 8.9% at three months post burn. In a study of Fauerbach et al.[15] PTSD was found 8.4% at discharge, 28% at 4 months follow-up and decreased to 20.4% at one year post discharge which nearer to our study finding of PTSD in admitted patients. Only 1.7% (1) patients were developed psychotic disorder in our study.

In this study there was higher proportion of male (38) as compared to female (21) which is in accordance with of

many other studies. [8] Muslim burn patients were more than Hindu and Christian patients in this study. In both with and without psychiatric disorder burn patients, Muslim burn patients were 49 (47.1%) and 55 (52.9%) respectively. Bangladesh is a land of Muslim predominant country and so most of the study populations encountered were Muslim. Burn patients were mostly unmarried/single which was 62 where it was not statistically significant. Unmarried and divorced persons suffer more psychological distress and depression than married person.

Burn patients suffered >40% Total body surface area (TBSA) burn (75.0%) developed psychiatric disorder more than 1%-10% TBSA burn (33.3%). So, burn patients who involved more TBSA were developed more psychiatric disorder than less involved TBSA and it was statistically significant. Most of the patients (81) were affected 1% - 20% TBSA burn injuries. These findings are consistent with Loncar Z et al. [9] but in Alvi et al.[8] maximum number of patients had 20-25% of TBSA. But, patients even with small burn injuries of 1% and less can experience clinically significant levels of psychological difficulties after burn found in study of Tedstone JE et al.[7]

Flame injuries were found to be most common agent of burn injuries affecting 71 patients where as electric burn was also common affecting 43 patients and acid burn injuries patients were 10. In Bangladesh, the most of the people use kerosene and wooden fuel in the rural areas and gas cylinder in urban areas were most commonly causing flame injuries.

On study reported that the location of the burn played a role in psychological adjustment. According to other study location of burn on head, neck, and face causing disfigurement has found to increase the possibilities of developing a psychiatric disorder. In our study, patients suffering from burn injuries in face (76.9%), head (63.4%) & neck (63.6%) developed more psychiatric disorder and were statistically significant.

Burn injury on multiple sites was observed; even single patient had multiple sites of injuries also. Upper limbs, lower limbs, face and trunk were major sites involved in this study. Those have multiple site (≥ 3 Location) burn injuries also suffering from more psychiatric disorder than other site (≤ 2 Location) which was highly statistically significant.

In addition to traumatic nature of burn accident the pain during management may also induce psychopathological responses. Extent of burn injury, female gender in combination with facial disfigurement, traumatic nature of burn injury, anxiety related to pain and family and social support are the important risk factors for development of Depression and Anxiety disorder in post burn patient. Subjective factors such as patient's perceptions and coping style were predictive: perceived lack of social support, high emotional distress, and maladaptive coping strategies contributed to the risk of development of PTSD. It was also conducted from this study that low socioeconomic condition, less educated and unmarried burned patients who had multiple sites of burn injuries especially head, neck and face developed psychiatric disorders.

CONCLUSIONS

More than half of the burned patients suffer from anxiety disorder and more than one third of them go to depressive disorder. Treatment of psychiatric and psychological problems in burn populations would bring better outcome.

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