

A Cross-Sectional Study of Quality of life, Psychiatric Illness, Perceived Social Support, Suicidal Risk and Self-esteem among patients with burns

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ABSTRACT

Introduction: Burns is one of the foremost causes of worldwide morbidity. Changes in appearance and functional impairment causes stigmatisation, impacting socio-occupational engagement and causing discomfort. **Aims and Objectives:** The study examined prevalence of psychiatric morbidity in post-burn patients, their perceived social support and self-esteem. It further assessed quality of life amongst post-burn patients. **Materials and Methods:** A cross-sectional study was performed in a tertiary care centre where 100 patients were interviewed using purposive sampling technique over six months. Patients were administered a semi-structured questionnaire along with Mini International Neuropsychiatric Interview (MINI), Rosenberg's Self-Esteem Scale (RSES), Multidimensional Scale of Perceived Social Support (MSPSS) and WHO Quality Of Life - BREF (WHOQOL- BREF) scales. Contingency tables and Spearman's correlation helped to examine associations and correlations. Fischer's exact test, Mann Whitney test and ANOVA test were also used for statistical analysis. **Results and Discussion:** There is high prevalence of psychiatric morbidity among patients with burns. The most common disorder was major depressive episode. Low self-esteem was found in one-third of patients with burns. Patients having low self-esteem had eleven times higher prevalence of suicidality. Patients with burns had high perceived social support. Quality of life in patients with burns depends on self-esteem, perceived social support and presence of psychiatric illnesses. **Conclusion:** This study illustrates the need for thorough evaluation and screening in patients with burns for psychopathology and self-esteem issues by primary physicians. Behaviour therapy, supportive psychotherapy, counselling and adequate socio-occupational rehabilitation of the patient should be done. Spreading awareness and organising support groups for patients with burns at the primary health centre level can be effective.

Keywords: Burns, perceived social support major depressive disorder, quality of life, self-esteem

Introduction

Across the globe, burns pose a public health challenge with approximately 180,000 deaths annually. Burns also figure among the foremost causes of disability-adjusted life-years (DALYS)

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lost.^[1] Majority of these cases occur in low or middle-income countries and almost two-third occur in the World Health Organisation (WHO) African and South-East Asia Region. In India, annually, over 1,000,000 people are moderately or severely burnt.^[1] With an immensely high disease load and majority of the Indian population residing in villages, burns are among the commonest conditions which a primary care physician encounters.^[2]

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A major burn leads to loss of skin integrity, sensation and hypertrophic scarring. Deeper burns lead to damage or loss of important body parts.^[3] Disfigurement contributes to enhanced self-consciousness, shyness and social anxiety.^[4] Altered appearance and stigmatization also greatly threaten a patient's social life. Considering the impact of the burn accident, the long painful road to recovery and reintegration into society, burns can be considered as a continuous traumatic stress disorder.^[5]

Many psychiatric disorders are seen in burn survivors including anxiety, psychosis and social phobia. Depression as well as Post-traumatic stress disorder (PTSD) are commonly found among patients with burns.^[6]

Quality of life is composed of many facets including disease symptoms, functional capacity, impact on role performance, perceived well-being and satisfaction.^[7] The long road to recovery for these patients involves dealing with pity, stares, unsolicited questions about appearance, name-calling, strained relationships, sexual dysfunction and returning to work.^[8,9]

Social reactions can be marked with the anticipation of rejection and considered stigmatising causing further discomfort. The consequences of a major burn injury are exacerbated by lack of social support.^[10] Adjustment difficulties lasting for more than a period of one year after the patient has been discharged have been found to encompass the awareness of a poor quality of life and decreased self-esteem.^[11-13]

The study assumes greater relevance due to the profound effect of burn injuries on different aspects of life and the lack of adequate scientific literature. The psychological aspects of burns plays an important role in compliance with long-term treatment and recovery process.^[14] The study assessed prevalence of psychiatric morbidity in post-burn patients, their self-esteem and perceived social support. The study further examined the quality of life in post-burn patients.

Methodology

Ethical clearance was sought from the Institutional Ethics Committee before beginning the study. Approval for the study (EC/130/2013) was obtained from the Institutional Ethics Committee-II of Seth G. S. Medical College. Taking into consideration previous study^[15] which had shown prevalence of 46% and Cochran's formula ($n = Z^2PQ/e^2$) [where n = sample size, P = prevalence of the disease, $Q = 1-P$, $Z = Z$ value at confidence levels and e = margin of error], sample size was calculated to 10% margin of error and 95% confidence levels. Hence, the sample size was taken as 100. The cross-sectional study was conducted over six months by Department of Psychiatry in the burns outpatient department (OPD) run by Department of Plastic Surgery of a tertiary care hospital.

Patients with burns of more than one month duration were recruited into the study. Patients with history of psychiatric

diagnosis prior to their burns were excluded to minimise the confounding factor. Those less than 18 years of age and refusing to give consent were also excluded from the study. Written informed consent was obtained from all participants for consent to participate in the study and for publication of results obtained after completion of the study in the language of their choice (Marathi, Hindi or English).

By using purposive sampling technique, 100 eligible patients with burns were recruited into the study. A semi-structured questionnaire was used to document socio-demographic data of the participants and details of burn (calculated using standard 'Rule of 9' formula), present status of their treatment including physical disability and any reconstructive surgery were also noted. They were subsequently administered:

Mini International Neuropsychiatric Interview (MINI)

The M.I.N.I. was a brief structured interview which was created for diagnosing the major Axis I psychiatric disorders. Studies indicate the M.I.N.I. to have high reliability and validity properties. It can also be administered in a shorter duration. Patients were screened for psychiatric symptoms by MINI.^[16]

Rosenberg's Self-Esteem Scale (RSES)

One of the most popular self-report method which is used for assessing global self-esteem is the RSES. Cronbach's alpha value for the RSES was 0.91.^[17] Scores below 50% suggest low self-esteem while scores above that were indicative of high self-esteem.^[18]

Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support was developed as a uni-dimensional tool that measures individual perception of one's social support system. A 7-point Likert-scale is used to rate the 12-items. The scale has 3 groups based upon the source of support i.e., friends, family and significant others. Scores below 50% indicate low perceived support.^[19] The Cronbach's alpha of MSPSS has been found to be 0.92.^[20]

WHO Quality Of Life – BREF (WHOQOL-BREF)

The development of the WHOQOL-BREF field trial version provided a short quality of life assessment. The items are rated by making use of a 5-point Likert-scale. It contains 26 questions dealing with 4 domains of physical health, psychological as well as social relationships and also, environment in addition to overall quality of life and general health. Cronbach's alpha values for the domains were 0.80 for environmental domain, 0.69 for social domain, 0.77 for psychological domain and 0.84 for physical domain, demonstrating good internal consistency.^[21]

Statistical analysis

SPSS 20 software (IBM, Armonk, New York, USA) was utilised for carrying out the statistical analysis. Fischer's Exact

test helped to identify statistically significant associations. Statistically significant differences were analysed using Mann Whitney U test. Correlation was calculated by using Spearman's coefficient of correlation. ANOVA was used to find whether the difference between means of multiple groups is significant or not. Prevalence risk ratio was calculated to find how self-esteem affected the risk of having psychiatric comorbidity.

Results

During the period of the study, 100 patients meeting our inclusion criteria were examined in the burns OPD. They were enrolled into the study after taking their written informed consent. The response rate was 100%.

The sample was made up of 47% males and 53% females. The average age of males and females enrolled in the study was 29.53 years and 30.14 years, respectively. It was noted that 62% of the patients had flame burns, 34% had scald burns while 4% had chemical burns. These burns were attributed to bursting of stove or accidentally getting burned while doing household work. Among the 100 patients were 7% illiterates, 8% who had studied upto primary, 70% till secondary, 10% upto higher secondary (12th std.) and 5% graduates. Among the patients, 75% were married, 22% were unmarried while the remaining 3% were divorced. While 24% patients were employed, 4% were studying and 72% were currently unemployed.

It was found that 42% patients had upto 20% burns, a further 43% had between 20 and 30% burns while the rest 15% had more than 30% burns. Among patients, 61% burns had a duration of less than a year, 15% burns were between 12 and 24 months old and 16% were 2-5 years old. 2% patients had suffered burns in past 5-10 years while 6% burns were more than a decade old.

Among patients, 33% cases had a low score (<15) on RSES and 82% cases had high perceived social support while only 18% had low perceived social support. It was observed that 86% patients had high perceived social support from family, 57% from friends and 76% from other significant close relationships. [Table 1] The correlation between self-esteem and percentage of burns (p value = 0.65) as well as between perceived social support and percentage of burns (p value = 0.69) was not statistically significant.

It was found that 54% cases had a psychiatric diagnosis as per MINI which included 45% patients having major depressive disorder, 33% having social anxiety disorder, 26% experiencing suicidality and 16% afflicted with post-traumatic stress disorder. Regarding other psychiatric morbidities, 5% experienced panic disorder, 2% experienced generalised anxiety disorder while 6% admitted to non-alcohol substance dependence. There was no psychiatric morbidity in 46% patients.

The association between self-esteem and psychiatric morbidity (p value < 0.00001) was statistically significant. Statistically

significant associations were also obtained between self-esteem and major depressive disorder (p value < 0.00001) and between self-esteem and suicidality (p value < 0.00001). The prevalence risk ratio of patients having low self-esteem suffering from psychiatric morbidity was 2.36, major depressive disorder was 3.04 and suicidality was 11.17. [Tables 2-4]

The mean score on QOL scale was 92.34. There was a statistically significant correlation [Figure 1] between perceived social support and quality of life. (p value < 0.0001, r value = 0.56) There was a significant difference obtained between self-esteem and quality of life on the Mann Whitney test. (p value < 0.0001) The ANOVA test revealed that there was no statistically significant difference between level of education, burn percentage and duration of burns with quality of life. [Table 5] There was a statistically significant difference between psychiatric morbidity on MINI and quality of life (p value = 0.037).

Discussion

The study sample included an almost equal proportion of females and males, with almost equal mean age between them. Almost three quarters of the patients with burns were unemployed. The high unemployment rate is in accordance with findings from studies which highlight that returning to pre-injury life routine is difficult for survivors, especially for those who develop symptoms of depression^[22] or post-traumatic stress disorders^[23] following burn injuries.

Low self-esteem was observed in one-third cases. They reported an inability to do things as well as other people. The prevalence was higher in comparison to findings reported in a study conducted by Boeden *et al.* where 15% patients had low self-esteem.^[23] Decreased self-esteem is common in patients who were unemployed and thus, the higher prevalence of low self-esteem in the current study is explained due to 72% patients being unemployed.^[24] The correlation of percentage of burns with self-esteem was not statistically significant. This was echoed in the result of a previous

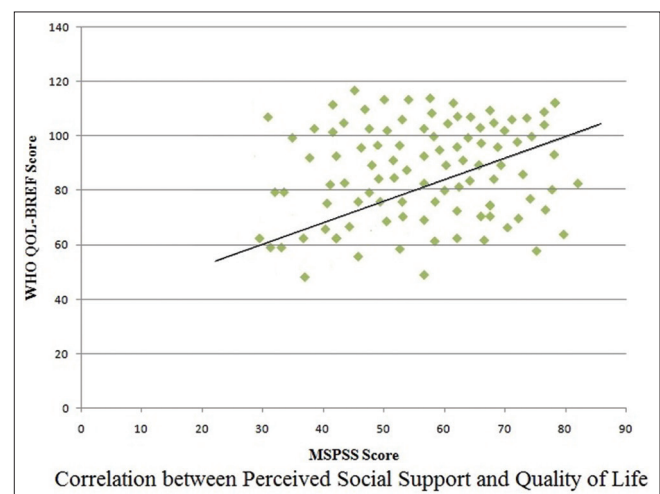


Figure 1: Graph showing Spearman's correlation between perceived social support and quality of life

Table 1: Sociodemographic and Clinical Data of Sample

Variable	Distribution	Mean	Standard Deviation
Age of Patient(in years)	<30 (n=64) >30 (n=36)	29.56	8.64
Duration of burns (in months)	<1 year (n=61) >1 year (n=39)	26.68	42.63
Percentage of Burns	<20 (n=42) >20 (n=58)	22.97	8.71
Rosenberg Self-Esteem Score (Range 0-30)	Below 15:Low (n=33) Above 15:High (n=67)	18.70	5.08
Perceived Support from Family (Range 1-7)	Below 50%: Low (n=14) >50%: High (n=86)	5.68	0.58
Perceived Support from Friends (Range 1-7)	Below 50%: Low (n=43) >50%: High (n=57)	4.53	0.90
Perceived Support from Significant Others (Range 1-7)	Below 50%: Low (n=24) >50%: High (n=76)	5.15	0.59
Total Perceived Support (Range 1-7)	Below 50%: Low (n=18) >50%: High (n=82)	5.12	1.39
Quality Of Life: Physical domain (Out of 20)	Mean score in males (n=47):14.33 Mean score in females (n=53):12.87	13.55	3.88
Quality Of Life: Psychological domain (Out of 20)	Mean score in males (n=47):12.23 Mean score in females (n=53):11.32	11.68	4.42
Quality Of Life: Social domain (Out of 20)	Mean score in males (n=47):14.97 Mean score in females (n=53):14.50	14.73	4.82
Quality Of Life: Environmental domain (Out of 20)	Mean score in males (n=47):16.27 Mean score in females (n=53):16.96	16.64	2.15
WHO Quality Of Life-BREF Raw Score (Range 26-130)	Mean score in males (n=47):90.63 Mean score in females (n=53):93.84	92.34	19.20

Table 2: Prevalence risk ratio of psychiatric morbidity with self-esteem

Self-esteem	Psychiatric morbidity present	Psychiatric morbidity absent	Prevalence risk ratio
Low Self esteem	29	4	2.36*
High Self esteem	25	42	

*P<0.00001: P<0.05 is indicative of statistical significance of result

Table 3: Prevalence risk ratio of major depressive disorder with self-esteem

Self-esteem	Major depressive disorder present	Major depressive disorder absent	Prevalence risk ratio
Low Self esteem	27	6	3.04*
High Self esteem	18	49	

*P<0.00001: P<0.05 is indicative of statistical significance of result

Table 4: Prevalence risk ratio of suicidality with self-esteem

Self-esteem	Suicidality present	Suicidality absent	Prevalence risk ratio
Low Self esteem	22	11	11.17*
High Self esteem	4	63	

*P<0.00001: P<0.05 is indicative of statistical significance of result

study.^[23] Patients successfully surviving high percentage of burns have considerable emotional fortitude and thus, their self-esteem was on par with those having much lesser burns.

The mean score on perceived support scale was 5.1 which indicated high perceived support. This is in contrast to findings from an Australian study which stated that patients with burns lacked support.^[9] A high perceived social support is seen in Indian context as a large number of Indian families are functionally joint with a separate residence.^[25] In Indian society, interdependence and cooperation are promoted. Thus, members are capable of greater therapeutic participation, reflecting in higher perceived support by the patients.^[26] Literature states that perceived social support plays a significant role in dealing with stress and post burn adjustment. Stress reduces levels of interleukin-1 alpha besides also lowering interleukin-8 levels.^[27-29] This delays wound healing in burns and thus, psychoeducation of the family members to improve social support would aid in quicker recovery of the patients.

More than half the cases had a psychiatric diagnosis as per MINI. The most prevalent disorders were major depressive disorder (45%) and social anxiety disorder (33%) followed by post-traumatic stress disorder (16%). Studies conducted by Patterson *et al.*^[30] and Malt^[31] noted anxiety and depression as the commonest disorders in patients with burns. A study by Baur *et al.* had concluded higher prevalence of PTSD in adult population comprising of post burn patients.^[32] A lower prevalence of PTSD in the current context can be attributed to the fact that higher prevalence of PTSD is more commonly seen in calamities with widespread destruction and loss of life.^[33-35]

Table 5: Comparison of WHO Quality of Life-BREF scores with variables of Patients with burns by One-Way ANOVA test

Parameter	Categories	Total Raw QOL Score		P from ANOVA test
		MEAN	SD	
Education	Illiterate (n=7)	86.14	23.63	0.20
	Primary (n=8)	102.62	17.50	
	Secondary (n=70)	93.56	18.12	
	Higher Secondary (n=10)	74.00	17.26	
	Graduate (n=5)	100.20	18.06	
Burn %Age	Upto 20 (n=42)	96.33	20.65	0.21
	20-30 (n=43)	90.87	17.11	
	More than 30 (n=15)	86.23	20.42	
Duration in months	1-12 (n=61)	90.98	19.84	0.46
	12-24 (n=15)	92.60	23.64	
	24-60 (n=16)	100.12	12.70	
	60-120 (n=2)	81.50	17.67	
	More than 120 (n=6)	88.33	15.00	
Psychopathology on Mini International Neuropsychiatric Interview	Major Depressive Disorder (n=45)	77.20	14.25	0.037*
	Social Anxiety Disorder (n=33)	80.93	18.63	
	Suicidality (n=26)	70.96	12.19	
	PTSD (n=16)	71.06	10.55	

*P<0.05 is indicative of statistical significance of result. SD=Standard Deviation PTSD=Post-traumatic stress disorder. ANOVA=Analysis of Variance

In the current study, 26% patients experienced suicidality and 9% had suicidal ideations. This is lower in comparison to a western study where 33% patients had suicidal ideations.^[36] These suicidal ideations could be a manifestation of the underlying depressive anxiety states.^[37] The prevalence obtained stresses that importance must be given to eliciting history of suicidal ideations in post-burn patients. Immediate referrals are necessary if patients demonstrate any symptoms of psychiatric disorders to ensure a favourable prognosis.

Patients having low self-esteem had a two times higher prevalence of psychiatric morbidity, three times higher prevalence of depressive disorder and eleven times higher prevalence of experiencing suicidality. Prevalence assessment has not been done in previous studies as was brought to light in this study.

The mean overall score on quality of life was 92.34. The result was comparable to a study conducted in Seattle which stated that patients with burns had an overall good quality of life.^[30] However, on comparing different domains, the psychological domain was most affected. This highlights the necessity for counselling to improve the lives of patients with burns.

The quality of life was independent of the level of education. The difference between non-modifiable factors like burn percentage and duration of burns with the quality of life was statistically insignificant. There was a statistically significant difference between psychiatric morbidity on MINI and quality of life. Patients developing any psychological morbidity experience significantly poorer life quality. This reiterated the discovery of Schneider *et al.*^[38] who unearthed that quality of life is not affected greatly by the extent of physical injury but more by emotional factors. Patients having higher self-esteem and perceived social support reported a higher quality of life. This was in keeping with findings from previous studies which reported these subsets

of patients to have greater life satisfaction.^[23,39,40] This highlights that though patients with burns may have a long road to complete recovery, high social support makes the patients feel accepted and safe. They have a satisfied outlook towards all facets of their experiences, overcoming many negative emotions.

Thus, the quality of lives which patients with burns lead is determined by modifiable factors of perceived social support and self-esteem. Thus, self-esteem, perceived social support and psychological morbidity also need to be assessed in developing interventions geared towards improving lives of patients with burns. Effective psychiatric counselling and therapy of the burns patient along with his caregivers can thus ensure a better quality of life independent of the extent of burns.

The strengths of our study included the quantification of prevalence risks of various psychiatric illnesses among patients of burns with low self-esteem and the novel insight into modifiable and non-modifiable risk factors that affect the quality of life of these patients. Our study had some limitations. This study was done in a solitary tertiary care centre of a metropolitan city using purposive sampling. Studies including more aspects of burns like functional impairment, impact on range of motion and muscle force, quality of sleep to name a few along with behavior assessment and prognosis assessed through multiple follow-ups are future recommendations.

Primary care physicians, especially in rural areas, being the first source of medical assistance for the patient, must also give due importance to the psychological and emotional well-being of patients with burns. Consultant liaison with psychiatrists will be of paramount importance in improving the patients' quality of life in these cases. An important component of tertiary prevention is health education, which should serve as the bedrock of primary healthcare delivery in chronic diseases requiring

prolonged regular follow-ups like burns. Screening services for psychological morbidities in this vulnerable population need to be carried out by community healthcare and Anganwadi workers. Improving awareness among the primary care physicians as well as the patients and their caregivers regarding this ignored aspect of burns care will help in ushering in a paradigm shift in the quality of life of these patients by allowing for the rapid, early institution of an appropriate counselling and psychoeducation regime, at the stage when it can prove to be most beneficial.

Summary and Implications

Conclusions

In summary, burns is among the commonest causes of non-fatal morbidity. Low self-esteem was observed in one-third of patients with burns. The self-esteem of patients was independent of their percentage of burns suffered. Patients with burn wounds had high perceived social support irrespective of percentage of body area involved. Patients with burns have a high prevalence of psychiatric morbidity with the most common disorder being major depressive episode. Patients with burns having low self-esteem had a two times higher prevalence of psychiatric morbidity, three times higher prevalence of major depressive episode and eleven times higher prevalence of suicidality. On comparing different domains of quality of life the psychological domain was most affected followed by physical domain. Quality of life of patients with burns does not vary with percentage of burn and duration after burn. Patients with burns having low self-esteem experience a poorer quality of life. Patients developing any psychiatric morbidity experience a significantly poorer quality of life. It was found that higher the perceived social support in patients with burns, higher was their quality of life.

Clinical implications

This study was one of its kind as it clearly demonstrated that the quality of life of patients with burns depends on modifiable factors like self-esteem, perceived social support and psychological morbidity. Thus, the study highlights the importance of thorough evaluation of patients with burns for early identification and treatment of any psychopathology. Behaviour therapy, supportive psychotherapy and counselling can also help patients to deal with issues related to self-esteem, disability and psychological problems. Family members and the primary support group should be psycho-educated about the psychophysical consequences of burns and the need for better compliance. Immediate and adequate socio-occupational rehabilitation of the patient should be done. Support groups and camps for patients with burns must be organised. These caregiver and patient support groups need to be formed at the primary health centre level to improve healthcare delivery and tertiary prevention of psychological morbidities associated with burns which significantly impact the life of the patient post the incident. Spreading awareness about burns among general population will reduce the stigma associated with burns.

Key Messages

There is prevalence of psychiatric morbidities like major depressive disorder in patients with burns. Their quality of life depends on self-esteem, perceived social support and presence of psychiatric illnesses warranting thorough evaluation and screening for the same. Behaviour therapy, supportive psychotherapy, counselling and organising support groups can be effective.

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Conflicts of interest

There are no conflicts of interest.

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