



Research Article

COMORBID PSYCHIATRIC DISORDERS IN BURN PATIENTS – A TERTIARY CARE HOSPITAL BASED STUDY

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ABSTRACT

Background: Burn injury is often a devastating event and hence a major cause of psychological distress. This poses a great challenge in rehabilitation and psychosocial adjustment of burn patients. The main objective of this research is to understand better the frequency of psychiatric comorbidity in burn victims and also assess the socio-demographic distribution of such cases.

Aim and Objectives: To study the co-morbid psychological disorders in patients suffering from burn injuries.

Methods: Two hundred patients with moderate to severe burns admitted in a leading tertiary care hospital in the state, during the one year period from July 2013 to July 2014, were screened for psychological disorders using 30-item General Health Questionnaire (GHQ). Patients who screened positive for presence of co-morbid psychological disorders were further interviewed using Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-1) to find out the type of psychological disorder. Descriptive statistics like mean, percentage and standard deviation (SD) were used. Chi-square test was used for categorical data.

Results: The prevalence of psychological co-morbidity in patients with burns in our sample was found to be 45%. Generalised anxiety disorder was the most common psychological disorder found comorbid in these patients. Generalised anxiety disorder and Major depressive disorder was significantly seen more in patients with flame burns. Males showed a significantly higher proportion of Major depressive disorder; while anxiety disorders were commonly seen in females.

Conclusions: This study highlights the importance of the simultaneous evaluation and management of patients with burn injuries which will eventually help in speeding up their recovery and proper post burn rehabilitation.

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INTRODUCTION

Burn injuries are devastating, sudden and unpredictable forms of trauma which affect the victims both physically and psychologically. Advances in medical management have dramatically decreased mortality rates from burn injuries. With the successful battle against infections and the improvement of medical techniques, it has become possible to save the life of extensively burned persons. The growing number of individuals surviving such devastating injuries has prompted an increased focus on problems of rehabilitation, independence and psychosocial adjustment (Wisely and Tarrier, 2001). The psychological consequences of sustaining burn injuries from minor to severe are well documented (Blakeney and Meyer, 1996; Shakespeare, 1998; Tedstone and Tarrier, 1997).

It is also recognised that psychological difficulties, such as symptoms of post-traumatic stress disorder (PTSD), anxiety and depression can persist for some time after the injury and may develop into chronic problems (Tedstone and Tarrier, 1997; Ehde et al., 1999; Bryant et al., 1998; Perry et al., 1992). Recent studies suggest that the psychological needs of burn patients in general are not being met (Tedstone and Tarrier, 1997). Burns may be considered as a »continuous traumatic stress disorder (Gilboa et al., 1994). Anxiety is an affective response commonly reported by persons after the emotional and physical trauma of burn injury. Anxiety may be related to a burn injury in different ways such as basic threat to narcissistic integrity, fear of strangers, fear of separation, fear of loss of love and approval, fear of loss of body parts or of injury to them, fear of loss of developmentally achieved function or fear of retaliation (Blumenfield et al., 1992). Depression and anxiety related to pain are often reported (Choiniere, 2001). During the acute phase of burn treatment, anxiety commonly occurs in the presence of other components of distress, including pain, itch,

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and mood disturbances such as depression or grief. One component of distress will often enhance another area of distress. Foreexample, some evidence exists to support a bidirectional relationship between pain and anxiety. Poorly managed pain can increase anxiety and *vice versa*. Depression in burn injured patients may be evoked by several causes. Depressed moods are expected responses to any loss or threatened loss. All of the fears that bring anxiety can also bring about depressed feelings. Grief and mourning, pain and social isolation during hospitalization may also have a relationship with post burn depression (Choiniere *et al.*, 1994). While the relationship between burn injury and psychological disorders has been recognized in the literature, presently there are very few studies that attempt to define the relationship between the two. The authors of this study are frequently called for the assessment and management of psychological distress among burn patients admitted in a leading tertiary care hospital of the state. Hence, while assessing such patients, the idea of conducting a study to find the psychiatric comorbidity in burn patients was conceived.

MATERIALS AND METHODS

Materials

General Health Questionnaire (GHQ)

The General Health Questionnaire (GHQ) of Goldberg (1972) is the most popular instrument for screening psychiatric disorders in patients and community samples. There are four versions of the GHQ in general use. We have used the 30 item version of the GHQ (GHQ-30).

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID I)

The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) is a diagnostic examination used to determine DSM-IV Axis I disorders (major mental disorders). There are at least 700 published studies in which the SCID was the diagnostic instrument used.

American Burn Association grading system for burn severity and disposition

Methods

This was a hospital based cross-sectional study which included patients with moderate to severe burns admitted in a tertiary care teaching hospital in Kashmir. 200 consecutive patients with moderate to severe burns, who were hospitalized during July 2013 to July 2014 at the Hospital, were taken as the sample for this study. From the patients included in the study, 120 (60%) were females and 80 (40%) were males. Age of the patients were between 18 and 60, the hospital stay ranged from 2 weeks to 6 months. All burns were accidental. The most frequent cause of the burns was thermal injuries (e.g., flames), and other causes included electrical and chemical burns. Patients with major burn injuries and minor burn injuries didn't participate in the study, because those with major burn injuries couldn't fill the questionnaires at that time and those with mild injuries were not admitted in the ward. During the first few days after stabilization of vital functions, patients were

informed about the study and gave their consent to participate. They were interviewed after two weeks of their burn trauma. The patients were screened with the 30-item General Health Questionnaire (GHQ-30) for determining psychiatric comorbidity. Patients with GHQ score greater than 5 (suggestive of some underlying psychiatric morbidity as per Likert's scoring system) were then interviewed with the SCID-I for diagnosis of psychiatric disorders.

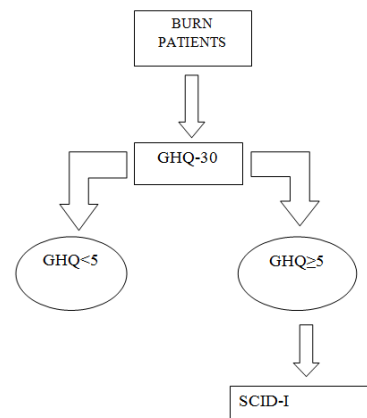
Study site: Burn ward of a tertiary care teaching hospital in Kashmir

Study design: Cross-sectional observational type of study

Study duration: July 2013 to Jul 2014

Sample size: 200 patients admitted in burn ward

Biostatistical analysis: Descriptive statistics like mean, percentage and standard deviation (SD) were used. Chi-square test was used for categorical data with 'p' value less than 0.05 considered significant



Inclusion Criteria

- Age above 18 years and less than 60 years.
- Patients who are willing to give informed consent.
- Patients with accidental burns.
- Patients with moderate burn injuries.

Exclusion Criteria

- Patients with hypertension, diabetes, ischemic heart disease and other co-morbid medical illnesses.
- Patients having any previous history of psychiatric disorders.
- Patients with mild burn injuries.
- Patients with major burn injuries.

RESULTS

Out of 200 patients in the present study, 60% were females and 40% were males. The mean age of patients was 38.41 years. The majority (61%) were in the age group of 20 to 40 years, 39% fell in the age group of 41 to 60 years. Statistics about socio-demographic data revealed that 54% of patients belonged to rural areas and 46% fell under urban category. Flame burn was the commonest cause of burn in the study (70%) followed by electrocution (29%). Least common was chemical burn (1%).

Association between psychological co-morbidity in patients with Burns

Table 1. Psychological morbidity in patients with Burns

GHQ score	No. of Burn cases (%)
≥ 5*	90 (45)
< 5	110 (55)
Total	200 (100)

*suggestive of psychological morbidity

The prevalence of psychological morbidity in this study population was 45% (90 out of 200) (Table 1).

Table 2. Age wise psychological co-morbidity in patients with Burns

Age (Yrs)	GHQ Score		Total (%)
	≥5 (%)	<5 (%)	
20-40	47 (23.5)*	75 (37.5)	122 (61)
41-60	43 (21.5)	35 (17.5)	78 (39)
Total	90	110	200

Chi-square = 5.2997

*P=0.0213

52.2% (47 out of 90) of those who were psychologically morbid belonged to the age group of 20-40 years (P=0.0213) (Table 2)

Table 3. Association between sex and psychological co-morbidity in patients with Burns

Co-morbidity	Sex		Total
	Male N (%)	Female N (%)	
Present	30(15)	60(30)	90(45)
Absent	50(25)	60(30)	110(55)
Total	80(40)	120(60)	200(100)

Chi-square=3.0303

P value=0.081

Psychological co-morbidity was seen more in females than males (Table 3) and rural population (58.9%) (53 out of 90) more than urban population 41.1% (37 out of 90).

Cause of burn and psychological co-morbidity

Psychiatric comorbidity was seen significantly more in patients with flame burns 69 out of 90 (76.7%) (P = 0.015). In patients with electrocution 21 out of 90 had psychiatric comorbidity (23.3%).

Distribution of cases in patients with burns according to type of psychological co-morbidity

Generalised Anxiety Disorder was found to be the most common psychological morbidity (32.2%). This was followed by Major Depressive Disorder (22.2%), Acute Stress Disorder (16.67%), Posttraumatic Stress Disorder (14.44%), Panic disorder without Agoraphobia (8.89%) and Panic disorder with agoraphobia (5.56%).(Table 4) GAD and MDD were significantly found to be associated with patients with flame burns (Table 5).

Age group and type of co-morbidity in patients with burns

Majority of patients with GAD (16 out of 90) were in the age group of 20- 40yrs, MDD was observed most in the age group

of 41-60 years, ASD was present mostly in the age group of 20-40 years. PTSD was found most within the age group 41-60 years and panic disorder with and without agoraphobia in age group 20-40 years (Table 6).

Table 4. Distribution of cases in patients with burns according to type of psychological co-morbidity

Comorbidity	No. of Cases (%) N=90
MDD	22.22%
GAD	32.22%
PTSD	14.44%
AG-PHOB / WO-PANIC	8.89%
AG-PHOB / W-PANIC	5.56%
ASD	16.67%

Generalized anxiety disorder, acute stress disorder, post traumatic stress disorder and panic disorder with and without agoraphobia were seen more in females while males showed a significantly higher proportion of major depressive disorder. (P=7E-06). (Table 7)

DISCUSSION

In this study an attempt was made to study the psychological co-morbidity of patients with burns at a tertiary care teaching hospital in Kashmir. We have used the GHQ-30 and SCID-I scales, which are validated scales and used in various studies across the globe for psychological assessments. In our study, the prevalence of psychological co-morbidity was 45% which was similar to that documented in other studies (Browne *et al.*, 1985; Madianos *et al.*, 2001; Fauerbach *et al.*, 2005; Fauerbach *et al.*, 2007). Thus highlighting the fact that psychological co-morbidity is quite prevalent in burn patients and hence a crucial area of concern. 45% of burn patients positive for psychological morbidity belonged to the age group of 20-40 years with their mean age being 38.41years (S.D.± 9.43).

The different patterns of psychological morbidity in our study demonstrated that 32.22% had generalized anxiety disorder, 22.22% had major depressive disorder, 16.67% acute stress disorder, 14.44% post traumatic stress disorder, 8.89% panic disorder without agoraphobia 5.56% panic disorder with agoraphobia. This was similar to many other studies demonstrating significantly higher anxiety and depression scores as compared with normal subjects (Madianos *et al.*, 2001; Difede *et al.*, 2002; Van Loey *et al.*, 2003; Fukunishi, 1999; Parslow *et al.*, 2006; Wiechman *et al.*, 2001; Wisely and Tarrier, 2001; Fauerbach *et al.*, 2007; Patterson, 1993; Malt, 1980). In our study, we found a significant association of psychological disorders with age group of 20-40 yrs (P=0.0213). Thus in our study psychological morbidity was more prevalent in lower middle age group. We also documented psychological co-morbidity to be significantly associated with females than males (P=0.026) and rural population more than urban population 41.1% (P = 0.052). Anxiety disorders were also seen more in females. This is in corroboration with a study done by Maes M *et al.*, which showed younger age and female gender to be risk factors for anxiety disorders (Maes, 2000). However other authors have reported no impact of these factors (Williams and Griffiths, 1991; Tedstone and Tarrier, 1997). Males had major depressive disorder significantly more often than females which is in contradiction with few studies showing

Table 5. Association between cause of burn and type of psychological co-morbidity

Psychological Comorbidity N=90		Flame	Electrocution	Total	Chi square	P Value
GAD	Present	18	11	29	5.0968	0.0239 (P<0.05)
	Absent	51	10	61		
MDD	Present	19	1	20	4.8314	0.0279 (P<0.05)
	Absent	50	20	70		
ASD	Present	10	5	15	1.0062	0.315
	Absent	59	16	75		
PTSD	Present	12	1	13	2.078	0.1494
	Absent	57	20	77		
Panic disorder without Agoraphobia	Present	7	1	8	0.576	0.4478
	Absent	62	20	82		
Panic disorder with Agoraphobia	Present	3	2	5	0.8221	0.3645
	Absent	66	19	85		

Table 6. Age group and type of co-morbidity in patients with burns

Psychological Comorbidity		Total	Age in Years (N=90)		Chi square	P Value
			20-40	41-60		
GAD	Present	29	16	13	0.1493	0.69
	Absent	61	31	30		
MDD	Present	20	7	13	3.0568	0.08
	Absent	70	40	30		
ASD	Present	15	9	6	0.4364	0.5
	Absent	75	38	37		
PTSD	Present	13	6	7	0.2243	0.63
	Absent	77	41	36		
Panic disorder without Agoraphobia	Present	8	5	3	0.3717	0.54
	Absent	82	42	40		
Panic disorder with Agoraphobia	Present	5	4	1	1.6372	0.20
	Absent	85	43	42		

Table 7. Association between sex and type of psychological co-morbidity

Psychological Comorbidity N=90		Sex			Chi square	P value
		Male	Female	Total		
GAD	Present	12	17	29	1.2465	0.26
	Absent	18	43	61		
MDD	Present	15	5	20	20.0893	7E-06 (P<0.05)
	Absent	15	55	70		
ASD	Present	6	9	15	0.36	0.54
	Absent	24	51	75		
PTSD	Present	3	10	13	0.7193	0.39
	Absent	27	50	77		
Pa WO Ag	Present	2	6	8	0.2744	0.60
	Absent	28	54	82		
Pa W Ag	Present	2	3	5	0.1059	0.74
	Absent	28	57	85		

prevalence of depression more often in females than males (Wiechman, 2001; Fukunishi, 1999; Bijl *et al.*, 1997). In attempting to explain the relationship between psychological factors and cause of burn injuries, psychiatric comorbidity was seen significantly more in patients with flame burns ($P = 0.015$). GAD and MDD were significantly associated with flame burns ($P=0.0239$ and $P=0.0279$ respectively) corresponding to a study done by Alvi T *et al.* (2009).

Conclusion

With the increased survival of patients with large burns comes a new focus on the psychological challenges and recovery that such patients must face. A burn injury and its subsequent treatment are among the most painful experiences a person can encounter. The emotional problems experienced by people suffering burn injuries, have been largely ignored. The emotional needs of patients with burns have long been

overshadowed by the emphasis on survival. Patients undergo various stages of adjustment and face emotional challenges that parallel the stage of physical recovery. Understanding the huge amount of psychiatric comorbidity in patients with burn injuries will help the clinicians in rapid identification of the problem. This in turn will help in providing appropriate services to such patients and will help in speeding up their recovery. Proper rehabilitation into social, occupational and family situation will thus be more easily achievable and emotional needs of burn patients can be handled more effectively.

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