

## Psychiatric Morbidity in Patients with Lower Limb Long Bone Fracture

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### Abstract:

**Objective:** The aim of this study was to evaluate the psychiatric morbidity amongst patients with lower limb long bone fracture.

**Method:** The present study was approved by the Institutional Ethics Committee of the medical college. The study was carried out amongst 38 randomly selected patients in the age group of 18- 65 yrs who had sustained lower limb long bone fracture. Patients were evaluated 4-6 weeks after the trauma over a period of 4 months after their written informed consent. All findings were reported on semi-structured Proforma and cases were screened using MINI version 6.0 (Mini International Neuropsychiatric Interview).

**Results:** 34.21% patients of lower limb long bone fracture had psychiatric morbidity study. The most common diagnosis was Major depressive disorder alone or with other co morbidities, found in 31.5% cases. Anxiety disorders were the second most common diagnosis. Psychiatric morbidity found more in road traffic accident cases. Females (50%) were more affected as compared to males. The study also shows that psychopathology appears to be more common in compound fracture (55.4%).

**Conclusion:** Psychopathology was found more in Road traffic accidents as compared to falls .Psychopathology was found more in females as compared to males. Psychopathology was found more in compound fracture as compared to closed fracture.

**Keywords:** Limb fractures, Road traffic accidents, Major depressive disorder

### I. Introduction:

The term 'trauma' stems from the Greek word meaning 'a piercing of the skin or a wound'. Limb fractures due to traumatic injury cause pain, prolonged discomfort, loss of function and immobility and are expected to produce adverse psychological effects, but have not been systematically studied.

Behavioural disturbances and psychiatric disorders are reported to be three to five times more frequent among people with injuries severe enough to require a stay in hospital.<sup>1</sup>

Undetected psychiatric morbidity in medical and surgical wards have been estimated to vary from 20% to 80%, but only a small fraction of these are correctly identified and treated.<sup>2,3,4</sup>

Undiagnosed psychological morbidity leads to suffering in the patient which could have been avoidable. In addition, maladaptive behaviour due to anxiety, depression, acute and chronic brain syndromes, psychosis and substance abuse may modify the clinical presentation and complicate the management of the underlying medical or surgical condition.<sup>3-5</sup>

Long limb bone trauma leading to loss of a limb for whatever reason is a major event with profound implications for psychological health of an individual involved.<sup>6,7</sup>

The identification and treatment of psychological disorders in these patients may not only ease treatment but also speed up and complete the patient's recovery process.

This study endeavours to explore any psychiatric morbidity in patients of traumatic lower limb long bone fracture.

### II. Material and methods:

The present study was approved by the Ethics Committee of Dr Vasantrya Pawar Medical College, Nashik- Maharashtra.

Present study was carried out amongst 38 randomly selected patients from the Department of Orthopaedics of a tertiary health care centre in the age group of 18- 65 yrs who had sustained lower limb long bone fracture. Unconscious patients, patients with traumatic brain injury, mental retardation, pre existing mental or psychological illness excluded by history are not included in the study. Patients were evaluated 4-6 weeks after the trauma over a period of 4 months from AUG 2012 – NOV 2012 after their written informed consent. . All privacy and confidentiality safeguard were observed.

All findings were reported on semi-structured Performa and cases were screened using MINI version 6.0 (Mini International Neuropsychiatric Interview).<sup>8</sup> Statistical analysis was done by using SPSS (version) 16.

III. Result:

TABLE 1: Socio-demographic Profile of the study population

Characteristics	Categories	Frequency	Percentage (%)
Gender	Male	26	68.42
	Female	12	31.57
Age (years)	Up to 20 yrs	2	5.2
	21 - 30 yrs	11	28.9
	31 - 40 yrs	09	23.6
	41- 50 yrs	4	10.5
	Above 50 yrs	12	31.5
Education	Illiterate	10	26.3
	Up to class 5	2	5.2
	Class 6 to 10	18	47.3
	Above class 10	4	10.5
	Graduate	4	10.5
Family income (Rs per month)	Up to Rs 2000/-	6	15.7
	Rs 2001 to 4000/-	14	36.8
	Rs 4001 to 6000/-	7	18.4
	Above Rs 6000/-	11	28.9
Marital status	Un married	7	18.42
	Married	27	71.05
	Widowed	2	5.2
	Separated	1	2.6
	Divorced	1	2.6
Religion	Hindu	36	94.7
	Muslim	2	5.2
Place of Residence	Urban	36	94.7
	Rural	2	5.2

This table shows Demographic profile of lower limb long bone fracture patients in which majority of the cases were males 26 (68.42%), fall in age group of 21-40 yrs constitute (52.5%), majority of cases studied upto 10 th std (47.3%), 36.8% had family income of Rs 2000- 4000, 71.05 %cases were married, 94.7 % belongs to hindu religion & are from rural areas.

TABLE 2: Distribution of Cause of fracture and Gender

CAUSE OF FRACTURE	GENDER		Total
	MALES	FEMALES	
ROAD TRAFFIC ACCIDENTS	20	6	26
FALL	4	8	12
Total	24	14	38

TABLE 3: Gender wise distribution of Psychiatric morbidity and Cause of fracture

CAUSE OF FRACTURE	PSYCHIATRIC MORBIDITY		Total
	MALES	FEMALES	
ROAD TRAFFIC ACCIDENTS	06	03	09
FALL	01	03	04
Total	07	06	13

Analysis of Psychiatric morbidity reveals it was found more in Road traffic accidents (n=09) 6 males, 3 females as compared to cases of fall.

TABLE 4: Psychopathology found in study group males and females

PSYCHIATRIC MORBIDITY	MALE PATIENTS n (%)	FEMALE PATIENTS n (%)	TOTAL
MDD	4 (15.38)	2 (16.66)	6
PTSD	1 (3.84)	0	1
MDD + PTSD	1 (3.84)	0	1
MDD + PD current	0	2 (16.66)	2
MDD + GAD	1 (3.84)	0	1
MDD + PD with AG + GAD current	0	2 (16.66)	2
Total	7 (26.92)	6 (50)	13 (34.21)
No Psychiatric Morbidity	19 (73.07)	6 (50)	25 (65.78)
GRAND TOTAL	26	12	38

X<sup>2</sup> ( with Yates Correction) = 1.306, Fisher's exact test p = 0.226, Not significant

**MDD:** Major depressive disorder, **PTSD:** Post traumatic stress disorder, **PD:** Panic disorder, **GAD-** Generalized anxiety disorder, **AG:** Agoraphobia

In our study of 26 males and 12 females, 13 (34.21%) patients were diagnosed with psychiatric morbidity and it was found more in females (50%) as compared to males (26.92 %).

**TABLE 5: Distribution of Psychiatric Morbidity and Type of fracture**

PSYCHIATRIC MORBIDITY	CLOSED FRACTURE n (%)	COMPOUND FRACTURE n (%)	TOTAL
<b>MDD</b>	<b>2</b>	<b>4</b>	<b>6</b>
<b>PTSD</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>MDD + PTSD</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>MDD + PD current</b>	<b>2</b>	<b>0</b>	<b>2</b>
<b>MDD + GAD</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>MDD + PD with AG + GAD current</b>	<b>2</b>	<b>0</b>	<b>2</b>
<b>Total</b>	<b>8 (27.58)</b>	<b>5 (55.5)</b>	<b>13 (34.21)</b>
<b>No Psychiatric Morbidity</b>	<b>21 (72.41)</b>	<b>4 (44.5)</b>	<b>25 (65.78)</b>
<b>Grand Total</b>	<b>29</b>	<b>9</b>	<b>38</b>
<b>X<sup>2</sup> ( with Yates Correction) = 1.306, Fisher's exact test p = 0.226, Not significant</b>			

**MDD:** Major depressive disorder, **PTSD:** Post traumatic stress disorder, **PD:** Panic disorder, **GAD-** Generalized anxiety disorder, **AG:** Agoraphobia

Psychiatric morbidity is equally distributed among patients with closed fracture but Major depressive disorder appears to be more predominant in patient with compound fracture. It was also observed that Psychiatric morbidity was found more in compound fracture 5 out of 9 which is (55%) as compared to closed fracture, 8 out of 29 which is ( 27.58%).

#### IV. Discussion

There were no statistically significant differences in demographic profile of patients with and without psychiatric morbidity. Majority of patients were males as they are more frequently exposed to combat, accidents, and physical attacks and have a higher prevalence of exposure in general.<sup>9</sup> Majority of them belong to Hindu community because of preponderance of Hindus in the population. Most of the patients come from rural area as the medical college is located in rural area. In most of our study cases fractures had occurred due to road traffic accidents and psychiatric morbidity found more in road traffic accident cases, this is in agreement with earlier studies.<sup>2,3</sup>

In the present study 34.21% patients of lower limb long bone fracture had psychiatric morbidity comparable to other study<sup>10</sup> which has psychiatric morbidity in 35% of leg fracture patients. Incidentally this study<sup>10</sup> was conducted on security force personnel in counter insurgency area and those personnel had additional stress of working in counter insurgency area.

In the present study the most common diagnosis was Major depressive disorder alone or with other co morbidities, found in 31.5% cases which is in agreement with previous western studies.<sup>11</sup> Anxiety disorders were the second most common diagnosis found. In the present study prevalence of Post traumatic stress disorder (PTSD) was 5.2% where as in other studies, the prevalence of PTSD between 1 and 6 months after trauma has been variously quoted as 29.9%<sup>12</sup>, 23.1%<sup>13</sup> & 42 %<sup>14</sup>.

In the present study prevalence of other anxiety disorder include Generalized anxiety disorder (7.9%), Panic disorder ( 10.5%) where as in other studies , the reported prevalence of other anxiety disorders includes rates for travel anxiety (28%)<sup>15</sup>, panic disorder (6%), generalized anxiety disorder (4%), and simple phobia (4%)<sup>16</sup>.

In our study, females (50%) were more affected as compared to males this could be because depression and anxiety are more common in females<sup>17</sup>. The study also shows that psychopathology appears to be more common in compound fracture (55.4%). Our search for references did not yield any useful information comparing the psychopathology found in compound and closed fracture. However, it is speculated that compound fractures with more severe degree of injury, pain, swelling and requiring more time for healing may lead to increased incidence of psychopathology.

There could be bidirectional relationship between long bone trauma and psychopathology which needs to be carefully evaluated<sup>18, 19</sup>.

#### V. Limitation:

The most important limitation of our study was Small Sample size. The trends needs to be further carefully evaluated in patients with larger sample size. Causality of associations cannot be confirmed because

relationship between psychiatric morbidity and traumatic lower limb long bone fracture against other socio-demographic factors were not evaluated

## **VI. Conclusion:**

Our study revealed the following trends:

Psychopathology was found more in Road traffic accidents as compared to falls .Psychopathology was found more in females as compared to males. Psychopathology was found more in compound fracture as compared to closed fracture.

## **VII. Recommendation**

Psychopathology was found more in Road traffic accidents as compared to falls. Preventive measures aimed at improving mechanical transport discipline could bring down psychiatric morbidity associated with Road traffic accidents.

In view of the possibility of increased psychiatric morbidity among patients with lower limb long bone trauma, psychiatric assessment and management will enhance the patient care.

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