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STUDY OF POSTOPERATIVE PSYCHIATRIC DISORDERS IN PATIENTS OF AMPUTATION

[1]Dr. Anupam Kakade,*[2]Dr. Mangesh Padamwar, [3]Dr. Chandrashekhar Mahakalkar,[4]Dr. Ajonish Kamble,[5]Dr. Amit Nagdive.

ABSTRACT--*Amputation is emerging as a significant health strain on the health system, as well as on the families and community. Loss of limbs causes inability to sustain self and family which in many patients leads to different psychiatric disorders. The present research is therefore expected to investigate psychological comorbidity in amputated patients. Amputation of organ affects almost every aspect of a person's life. Psychological elements are important coping factors for the impairment.The study was collaborated with Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi (Meghe), Wardha, with Datta Meghe Medical College and Shalinitai Meghe Hospital and Research Centre, Hingna, Nagpur Maharashtra, in the Department of General Surgery in conjunction with Department Of Psychiatry. Over a period of 1 year 68 cases of amputation were studied whose surgery was done 6 months back. All participants were interviewed on a semi-structured proforma of sociodemographic and amputation-related parameters and assessed on psychiatric comorbidity using Mini-International Neuropsychiatric Interview scale.All the patients were male and belonged to younger age group of 16–30 years 46 patients (67.64 %). Approximately, 66 patients had single-limb amputation (97.05 %), predominantly right limb in 39 patients (57.35%). Road traffic accidents plays a major role in etiology of amputation followed by diabetic foot, peripheral vascular disease and electric burn injury. The most common psychiatric comorbidities in our sample were major depressive disorder in 48 patients (70.58%), suicidality in 08 patients (11.76%), and posttraumatic stress disorder (PTSD) in 12 patients (17.64%). PTSD was positively correlated with phantom sensation and phantom pain.A small number of amputees showed an troubling symptom of depression, suicidal thoughts and PTSD. Therefore, in order to control psychological comorbidity in amputees, liaison between surgical care providers and psychiatrists and psychologists must be established. We conclude that psychiatrist and psychologist play an important role in managing the cases of amputation in postoperative period along with surgeons.*

KEYWORDS-- *Psychiatric co morbidity, amputation, posttraumatic stress disorder, depression.*

[1] Assistant Professor Dept. Of General Surgery Datta Meghe Medical College, Shalinitai Meghe Hospital and Research Centre (Datta Meghe Institute of Medical Sciences), Higana, Nagpur-441110.
[2] Assistant Professor Dept. Of General Surgery Datta Meghe Medical College, Shalinitai Meghe Hospital and Research Centre (Datta Meghe Institute of Medical Sciences), Hingana, Nagpur-441110, Ambad.sawan@gmail.com Mob No. 07507748914*
[3] Professor Dept. Of General Surgery Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi Meghe Wardha-442001.
[4] Senior Resident Dept. Of General Surgery Datta Meghe Medical College, Shalinitai Meghe Hospital and Research Centre (Datta Meghe Institute of Medical Sciences), Hingana, Nagpur-441110.
[5] Associate Professor Dept. of Psychiatry Jawaharlal Nehru Medical College, AVBRH (Datta Meghe Institute of Medical Sciences) Sawangi, Wardha-442001

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I. INTRODUCTION

Individual psychological status is equally critical in recognizing the patients' overall well-being. Effective detection and diagnosis of psychological morbidity in an amputee seems important in the prevention of long-term impairments. Among researchers, perception of their bodies by amputees and the relationship between this perception and their psychological well-being has evoked intense interest. Kolb (1) concluded that an alteration in an individual's body image causes a sequence of physiological, perceptual and psychological reactions. Studies have recorded prevalence of depression following amputation. (2,3). A detailed evaluation of mental and emotional amputation sequelae helps to improve clinical care following amputation. Rehabilitation studies carried out to rule out the prevalence of psychiatric disorders followed by surgical amputation showed multiple traumas leads to psychiatric disorders as compared to single traumatic episode. (4)

Many personality criteria have been analyzed and authors have found individuals that are invested narcissistically in their physical appearance, and power appears to respond negatively to the limb loss. They see it as a major assault upon their dignity and self-worth. Conversely, dependent individuals may cherish the sick role and find in it welcome relief from pressure and responsibility. (5) Timid and self-conscious people are more likely to suffer from limb loss psychologically than are self-assured people who are overly worried with their social status. (6, 7). Rigid personality type may predispose to a greater occurrence of postoperative problems, like phantom pain, and those with a negative or paranoid outlook are likely to have their worst aspirations confounded and their recovery may be tainted by a great deal of bitterness and resentment. (8, 9). Role of family therapy provides proper balance between the legitimate support and independence the amputee need for recovery. Such psychological issues should be dealt with thoracically on their own merit, without the need to assess the degree to which they are linked to amputation.

Limb amputation is a devastating condition and an act which is permanent. Limb failure due to traumatic injury is abrupt and debilitating in emotional terms. The loss of the limb can cause depression in amputees not only because of the loss of a part of the body but also because of the lack of position and the need to adapt to the changed lifestyle choices. (10) Many researchers highlighted that loss of a limb is typically equated with loss of spouse (11) , loss of one’s perception of wholeness (12) , symbolic castration, and even death. (13, 14) . This can result in emotionally severely impaired patient and lead to poor quality of life. (15) (16). Individuals that are amputated could be at risk of developing psychological disorders because of various factors such as feelings of deprivation, self-stigma and trouble dealing with the disability. (17-20).

Previous studies have found specific psychiatric morbidity after amputation, for example, major depressive disorder (MDD), posttraumatic stress disorder (PTSD), impulse control disorder, generalized anxiety disorder, and panic disorder . (21-24) . However, most of the researches have largely focused to assess depressive symptoms in amputees that were found to be in the range of 7.4%–28%. (25, 26). A study assessed the long-term effects of psychiatric problems that emerged after 6 months to 2 years following amputation which had found depressive disorder not otherwise specified (20.6%) and MDD (10.3%) as the most common diagnoses. (27). Another study has also found MDD (63%) and anxiety disorders (40%) in amputees. (24) . A review from India about the psychological effects of amputation also concluded that a substantial proportion of individuals who undergo

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amputation do suffer from psychological distress and psychiatric disorders (32%–84%) that is generally high as compared to population-based psychiatric prevalence studies conducted in India. (10)

However, the existing studies have some methodological issues, for example, small sample size, heterogeneity in the assessment of psychological morbidity, study place, or sample characteristics, and the results cannot be generalized to all parts of India. Therefore, this study is formulated to bridge the gap in the existing research on psychiatric comorbidity among patients with amputation. Understanding the experiences of amputees in terms of psychiatric comorbidity is of utmost importance in the present scenario for clinicians to know the problem and to improve service delivery for these patients.

II. MATERIALS AND METHODS

In partnership with Jawaharlal Nehru Medical College AVBR Hospital (Datta Meghe Institute of Medical Sciences) Sawangi (Meghe), Wardha, Maharashtra, this work was performed in the Department of General Surgery in conjunction with Department Of Psychiatry at Datta Meghe Medical College and Shalinitai Meghe Hospital and Research Centre, Hingna , Nagpur. Over a period of 1 year 68 cases of amputation were studied whose surgery was done 6 months back. All participants were interviewed on a semi-structured proforma of sociodemographic and amputation-related parameters and assessed on psychiatric comorbidity using Mini-International Neuropsychiatric Interview scale. Mini-International Neuropsychiatric Interview (MINI-7.0.0) (28). Clinical history is taken as orientation from SNAPPS technique which provides explicit steps to the students and the responsibility of expressing their clinical reasoning experiencing uncertainties and probing the preceptor, which leads to identification of issue for self-study which makes the data reliable. (29)

This version includes DSM-5 disorders. It is designed as a brief structured interview for the major Axis I psychiatric disorders. It takes 15 min. Individuals with amputation fulfilling the selection criteria were approached. After the informed consent, basic demographic information and amputation-related details were obtained. Thereafter, MINI scale was administered to assess psychiatric illness. Interviews were conducted by trained psychologists. Each interview session took approximately 30 min to complete. Data were analyzed using the Statistical Package for the Social Sciences, version 20.0 (SPSS, Chicago, IL, USA). Frequencies were estimated for all the categorical data.

III. OBSERVATIONS AND RESULTS

Table 1: Shows demographic profile of the study population.

Sr No	Demographic Parameter	No Of Patients	Percentage
1	Age		
	(a)16 to 30 years	46	67.64%
	(b)31 to 60 years	22	32.35%
2	Education		
	(a)Illiterate	10	14.70%
	(b)School going	33	48.52%

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	(c)College going	25	36.76%
3	Marital Status		
	(a)Single	30	44.11%
	(b)Married	32	47.05%
	(c)Divorcee	06	08.82%
4	Current Occupation		
	(a)Employed	10	14.70%
	(b)Unemployed	40	58.82%
	(c)Student	18	26.47%
5	Religion		
	(a)Hindu	52	76.47%
	(b)Muslim	08	11.76%
	(c)Christian	08	11.76%
6	Family Type		
	(a)Nuclear	12	17.64%
	(b)Joint	56	82.35%
7	Socioeconomic Status		
	(a)Low	08	11.76%
	(b)Middle	48	70.58%
	(c)Upper	12	17.64%
8	Locality		
	(a)Urban	40	58.82%
	(b)Rural	28	41.17%

The Demographic profile of study population is depicted in **Table 1**, which shows all 68 patients were male and majority (46 patients – 67.64%) from younger age group i.e, 16 to 30 years. Majority of the participants were educated upto school or college level. Most of the patients 32 (47.05%) were married, 40 were unemployed (58.82%), 52 patients (76.47%) belongs to Hindu religion and 82.35% lives in joint family with 70.58% in middle socio economic strata and 58.82% resides in urban area.

Table 2: Shows the clinical features of patients of Amputation**.**

Sr No	**Clinical Features**	**No of patients**	**Percentage**
1	No Of Limbs Amputed		
	(a)One	66	97.05%
	(b)Two	02	02.94%
2	Right/Left Limb		
	(a)Right	39	57.35%
	(b)Left	27	39.70%
	(c) Both	02	02.94%
3	Phantom Sensation		

	(a)Present	42	61.76%
	(b) Absent	26	38.23%
4	Phantom Pain		
	(a) Present	32	47.05%
	(b) Absent	36	52.94%
5	Upper Limb Amputation	22	32.35%
6	Lower Limb Amputation	46	67.64%

Clinical features are described in **Table 2** which shows, 97.05% patients underwent single limb amputation with right limb predominance (57.35%). Lower limb amputation was common (67.64%) in the study. Phantom sensation was observed in 42 patients (61.76%) and phantom pain was encountered in (47.05%) cases.

Table 3: Shows Level of Amputation**.**

Sr No	**Level**	**Subtype**	**No of Patients**	**Percentage**
1	Upper Limb Amputation (Total 22 patients)	(1)Digit Disarticulation	03	13.63%
		(2)Wrist Disarticulation	02	09.09%
		(3) Transradial / Below elbow	04	18.18%
		(4)Elbow Disarticulation	03	13.63%
		(5) Transhumeral / Above elbow	10	45.45%
2	Lower Limb Amputation (Total 46 patients)	(1) Transtibial / Below knee	09	19.56%
		(2) Knee Disarticulation	01	02.17%
		(3) Transfemoral / Above knee	24	52.17%
		(4) Foot Amputation	10	21.73%
		(5) Hip Disarticulation	02	04.34%

Table 3 depicts Level of amputation and type of surgery performed which showed lower limb amputation as a major procedure 46 patients (67.64%).

Table 4: Shows Etiologal Factors for Amputation**.**

Sr No	**Etiological Factors**	**No Of Patients**	**Percentage**
1	Road Traffic Accidents	35	51.47%
2	Diabetic Foot	20	29.41%
3	Peripheral Vascular Disease	12	17.64%
4	Electric Burns	01	01.47%
	Total	68	

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Table 4 shows etiological factors associated with amputation surgery, where Road Traffic Accidents remains the most common factor 35 patients (51.47%) followed by diabetic foot 20 patients (29.41%) and peripheral vascular disease 12 patients (17.64%). Study conducted by K. Gupta et. al. showed 6% of incidence. (30)

Table 5: Shows Postoperative Psychiatric Disorders in Patients of Amputation.

Sr No	Psychiatric Disorder	No Of Patients	Percentage
1	Major Depressive Episode	48	70.58%
2	Suicidality (08 pts- 11.76%)		50%
	(a) Low	04	25%
	(b) Moderate	02	25%
	(c) Severe	02	
3	PTSD	12	17.64%

Table 5 describes the distribution of postoperative psychiatric disorder where Major Depressive Disorder was seen as most common associated psychiatric disorder accounting for 70.58%. 08 patients accounting 11.76% shared their experiences regarding suicidal tendencies with low , moderate and severe grades. Post-Traumatic Stress Disorder was seen in 12 patients (17.64%).

There was no correlation between socio-demographic profile and clinical features of amputees. Positive correlation was noticed only between phantom sensation and phantom pain , phantom sensation and PTSD , phantom pain and PTSD .

IV. DISCUSSION

The research in the field of amputee psychological aspects has primarily discussed the basic issues of post amputation adjustment. Attempts to analyze the personality characteristics of amputees have also been made in the present research. Understanding the psychiatric comorbidity in amputees might be helpful to know the extent of the problem and the direction of further research or service delivery upgradation. Decreased self-esteem, skewed body image and increased dependency are only a few of the many reasons why psychological maladaptation develops. Findings by Parkes (11), also found that in first year 25% amputees suffer from depression, feeling of insecurity, self-consciousness and restlessness. Hence increasing self-sufficiency by psychological intervention helps in ameliorating the distress . (31)

Amputation is both a lifesaving procedure and a life changing event which limits an individual's physical activity, social participation, confidence, psychosocial factors, and employment opportunities. Amputation means a loss and psychological reaction to loss is so much so that it is compared with the grief experienced by an individual when he loses his near and dear ones. Immediate reactions to limb loss vary and are complex. Some individuals experience functional, social, and psychological dysfunction after amputation whereas others adjust and function well after a period of amputation. (25)

The main finding of the current study revealed that a substantial proportion of individuals who undergo amputation suffered from psychiatric disorders. These psychiatric patients urgently need early identification and

sufficient support to avoid more suicides.(32, 33) In other words, the rates of MDD (70.58%), MDD with suicidality (11.76 %), and PTSD (17.64%) have been in alarming condition to call for adept management of the psychological distress among the amputees. psychological distress can be prevented and treated. (34) This finding has been in agreement with the previous studies where researchers reported depression as a highly prevalent psychiatric comorbid condition in amputees, ranging between 13% and 32%. Individuals with amputations might experience significant depressive symptoms at any one time. (19, 35, 36).

The presence of depressive symptomatology could have an association with a wide variety of negative outcomes, for example, increased pain intensity, activity restriction, public self-consciousness, body image anxiety, and reduced quality of life. (37, 38).

An Indian study used DSM-IV-based version of the MINI questionnaire to analyze the frequency of psychiatric comorbidities in amputees. The authors observed that 63% of cases suffered from depressive disorder. (39) This population sometimes expressed worthlessness and helplessness due to restriction in activity and changed role responsibilities. They might have moderate to severe frequency and intensity of suicidal ideation and intention to commit suicide. (40)

In addition, almost 17.64% of the patients (12 patients) in our study demonstrated symptoms of PTSD. Available estimates of previous studies also suggest that between 15% and 26% of individuals with limb loss might experience PTSD. (25, 36, 41, 42).

Muzaffar and Srinagar (39) and Margoob *et al* (21) have examined the psychiatric comorbidity in patients with traumatic amputation from Kashmir valley. In their studies, the frequency of PTSD was noticed to be 20% and 80%, respectively. The justification of the higher prevalence of PTSD in their sample could be due to a higher baseline rate of PTSD in Kashmir valley.

In another study, authors have found PTSD in two of the three persons with traumatic amputations in their sample and the third patient demonstrated elevated scores on clinician-administered PTSD scale. (19). Recently, a review has been done by Sahu *et al* (10) to provide comprehensive information regarding the psychological distress among amputees in Indian setting. They have found that a substantial proportion of those individuals who undergo amputation have developed psychological distress and psychiatric disorders. The prevalence of psychiatric disorders among amputees has been found to be in the range of 32%–84%. The rates of depression and PTSD have been in an alarming condition.

Furthermore, no correlation was observed between the demographic parameters such as age and marital status with major depression in our study. We emphasized on the above two variables based on the premise that younger participants might have greater risk of developing depression owing to the greater number of life years ahead of them and also because of the greater perceived loss of social standing. (43-44).

Marital status, known as social support, was considered since it was hypothesized that partner support might be protective against major depression. (45). In addition, statistically significant correlation was not found between the site of amputation and psychiatric comorbidity. This lack of association could be due to small sample size and short duration of amputation, which might have precluded the development of psychiatric disorders in some of the cases. Moreover, phantom sensation positively correlated with phantom pain and PTSD, while phantom pain had a positive correlation with PTSD. In short, when PTSD symptoms become severe, patients may experience phantom sensation and pain. (46)

V. CONCLUSION

To summaries, depression, suicidal ideation, and PTSD are the most common psychological reactions in individuals with amputation. More knowledge of what depression is, and how it can be treated, can help reduce the social and psychological stigma associated with the disorder and help lower the disease-related morbidity and mortality. (34)

We expected that some of the sociodemographic factors and some amputation related characteristics would have had a relation with psychiatric comorbidity, but the findings of this study did not show any such relationship except relation between PTSD and phantom pain and sensation. Primary care doctors were able to accurately classify 45 percent of depression cases with 0.342 and 0.281 respectable Kappa. (47) From this study we conclude that there should be a communicating link between surgical treatment provider, psychiatrist and psychologist which leads to evaluation and treatment of upcoming psychiatric disorders. Hence, the study opens a new path to continue the steps necessary to identify and manage psychiatric illness in amputees.

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