# "A study of Sociodemographic profile and Psychopathology in patients who underwent Amputation"

\*Manoj Kumar.P<sup>1</sup>, Krishna Sahithi.J<sup>2</sup>

<sup>1</sup>Senior resident, Department of Psychiatry, GMC, Nizamabad, <sup>2</sup>Assistant Professor, of Psychiatry, Kamineni Academy of Health Sciences and Research Centre, Hyderabad.) \*Corresponding Author:Manoj Kumar.P

**ABSTRACT:** Limb loss is one of the most physically and psychologically devastating events that can happen to a person. Attempts to identify specific factors that may account for the diversity of responses to amputation have stimulated investigation of many medical/amputation-related factors, demographic variables and individual psychological variables using semistructured intake proforma and GHQ. The paper reports on the sociodemographic data, aetiology and levels of amputation. Most of the amputees are younger males. The most common cause of amputation was trauma (77.5%), the second being peripheral vascular disease. Lower limb amputation (91.5%), more common than amputation at the upper limb. The amputees have given high scores on all components of GHQ. Many people are suffering from treatable psychiatric problem and they are not being addressed. This study is aimed to get an insight into this issue.

#### Key words: Amputation, GHQ

## I. INTRODUCTION

Amputation is defined as —the surgical or spontaneous partial or complete removal of a limb or projecting body part covered by skin<sup>(1)</sup>. Limb loss is one of the most physically and psychologically devastating events that can happen to a person. There are many potential causes of amputation; the 4 primary etiological factors are vascular disease and infection, trauma, tumours, and congenital abnormalities <sup>(2)</sup>. The psychological consequences of amputation can be just as traumatic as the physical loss itself <sup>(3)</sup>Indeed several authors have suggested that losing a limb evokes many of the same emotions that accompany bereavement<sup>(4, 5)</sup>.

In a developing country like India because of stigma and less interest to the psychiatric problems, so many people are suffering from treatable psychiatric problem and they are not being addressed. This study is aimed to get an insight into this issue.

<u>AIM</u>: To study sociodemographic profile and psychopathology in patients who underwent amputation at the time of discharge from the hospital.

## **OBJECTIVES:**

To study the psychopathology in amputated patients.

To study the effect of socio-demographic factors of the patients with amputation and effect of amputation related factors on psychopathology.

## METHODOLOGY:

• Cross-sectional study done to study sociodemographic profile, and psychopathology in post amputated patients at Osmania general hospital, Osmania medical college, Hyderabad. First 80 patients who underwent amputation at OGH from the starting of study were considered.

## TOOLS:

- 1. A semi-structured proforma
- 2. INFORMED CONSENT

**General health questionnaire 28:** (developed by Goldberg 1978)<sup>(6)</sup> A screening tool .It is a 28-item measure, has four subscales - somatic symptoms (items 1–7); anxiety/insomnia (items 8–14); social dysfunction (items 15–21), and severe depression (items 22–28).Scored from 0 - 3 for each response with a total possible score on the ranging from 0 – 84. Using this method, a total score of 23/24 is the threshold for the presence of distress.

#### **Inclusion criteria**

Case of major limb amputation Aged 18 years -60 years

#### **Exclusion criteria**

Not able to give consent Patients with age >60, <18 yrs. Patients with mental illness

## PROCEDURE:

Patients who underwent amputation in Osmania general hospital and have given consent were considered. After taking informed consent, details of intake proforma, GHQ-28was administered at the time of discharge from the hospital. The findings were tabulated and analysed using Microsoft excel and SPSS.

## STATISTICAL ANALYSIS:

- Descriptive statistics depicting numbers, averages mean median and dispersion standard deviation, standard error, quartiles.
- Tests of comparison for continuous variables independent student's t test and ANOVA
- Tests of association include Pearson's product moment correlation test and Spearman's rank correlation test.

## II. RESULTS

A total sample of 80 amputated patients was taken for this study. Out of which, 68 were males (85%),12 were females (15%). Maximum of them belonged to 26-35yr (30%) followed by 18-25yrs(22.5%). There was equal distribution of Upper Lower socio economic class and lower middle class group amounting to 40%. Married(67.5%) people were more than unmarried(26.3%). Based on the Occupational status of people, Unskilled group(28.7%) were more effected after semiskilled group (33.8%). The Urban group were 76.3% and Rural group 23.8% of total. (Table—1).

People with Left sided limb amputated were 42.5%, Right limb amputation were 46.3% and bilateral limb amputation consisted of 11.3%. Based on level of amputation most people have undergone below knee amputation (57.5%) followed by above knee amputation (27.5%). Most amputations were done after trauma, males outnumbering females. (TABLE -2)

## GHQ 28:

ANOVA to study the GHQ28 total variation between and within the groups gave statistically significant results (p<0.05) withsex, Occupation, level of amputation. (TABLE – 3)

## Correlation

Spearman's correlation test is performed for gender and Level of amputation with GHQ28 total showed significant positive correlation. Spearman's correlation test is performed for Occupation with GHQ28 total showed significant negative correlation.

Pearson correlation test is performed for age, showed nonsignificant negative correlation with GHQ 28 total (p=0.106) (TABLE-4).

## III. DISCUSSION

## Gender:

In this present study sample amputations are more common in males (85%) than females. Amputations are more prevalent in males 65%.<sup>(7)</sup> In study done in Mumbai males were76.6% and the mean age of the sample was 46 years.<sup>(8)</sup> Most of the patients seen were males (79%).<sup>(9)</sup> Shukla et al (1982) reported a male to female ratio of 17:1.<sup>(10)</sup> Similar findings have also been reported by Cavanaugh et al (2006) where they reported 75% of patients were male<sup>(11)</sup>.

Females showed high scores on GHQ28 total compared to males. In terms of psychological well-being following amputation, most studies have found no difference in psychosocial outcome between men and women <sup>(12, 13, 14)</sup>. Females suffered from more reactive depression and anxiety symptoms than males.<sup>(15, 16)</sup>Washington found that women exhibit higher rates of depression<sup>(17)</sup> (9.5%) compared to males (5.8%). Hawamdeh et al.'s study also revealed that females suffered from more reactive depression and anxiety symptoms than males.<sup>(16)</sup> Gender is a significant predictor of psychological QoL and social adjustment, with women having significantly poorer outcomes on this variable. This is consistent with the literature on psychosocial adjustment to amputation, where any gender differences observed have tended to favour males<sup>(18, 19, 20,)</sup> With regard to social

adjustment, this variable taps into aspects of body image and public self-consciousness, which appear to be of greater significance to females<sup>(21, 22, 23)</sup></sup>.

## Age:

The mean age of the sample is 37.48. Amputations were more common in younger age group approximately 52% of the sample are below the age of 35 yrs. According to Ziegler-Graham et.al in, contrary to the present study amputations are more common in older age group with more than 45 years age group. Mean age 54.36 years.<sup>(7)</sup>Younger age group (18-25) scored higher values on screening scale GHQ 28 (67.33) compared to older people.

Anxiety symptoms and depressive symptoms are more common in the younger age group which is consistent with study done by Singh et al <sup>(24, 25)</sup>

In study done by Laura Coffey Younger age was significantly associated with the experience of greater negative affect and depressive symptoms where age effects have been observed in the literature on psychosocial adjustment to amputation, they tend to favour older individuals, with younger persons experiencing greater difficulty in coming to terms with the loss of a limb <sup>(18, 19, 26)</sup>. Dunn (1996) found that people who had positive meaning in their amputation reported lower levels of depression. Those who were younger when their amputation occurred reported higher levels of depression. Dunn found that younger amputees were significantly more at risk of developing depression than older amputees on account of activity restriction <sup>(26)</sup>. In his review of anxiety in older adults, Lindesay (1995) concluded that the prevalence of anxiety decreased in elderly (age 65+) groups.

## Socioeconomic group:

The entiresample belongs to lower and middle socioeconomic group. Majority (64%) of our cases belong to lower class followed by 36% from middle class with no patient from upper class. <sup>(9)</sup>Lower socio economic group showed lower scores of GHQ28total (64.17). Upper Middle Socioeconomic class showed higher values of GHQ28 (67.10). More anxiety and depression along with more social dysfunction was found in the Upper middle class group in comparison to the other socio economic classes.

## Domicile:

In our sample 76% belong to urban background whereas study in Jammu Kashmir majority (81%) of cases were from rural areas  $^{(9)}$ 

## Limb:

Lower limb amputations are more common than upper limb amputation in both males and females. Below knee amputations are more common 57.5%, followed by above knee amputation and below elbow amputations. Lower limb amputations are common 65.5% than upper limb amputation (34.5%) by Ziegler-Graham et.al <sup>(7)</sup> Lower limb amputations were much more common than upper limb amputations, the former accounting for 94.8% of all amputations, and the latter for only 5.2%.<sup>(27)</sup>

## Level of amputation:

Transtibial (below knee) amputations were more common than any other level (56.1%) for lower limb amputation, followed by trans femoral amputations (30.1%). Trans humeral amputations were more common than any other level (38.3%), followed by trans radial amputations (30.8%).<sup>(28)</sup>

Among those lower limbs amputations, the most frequent site of amputation was transibila. In amputation cases due to malignancy, however, Transfemoral amputation was most common<sup>(27)</sup>

## Aetiology:

Traumatic amputations are most common accounting to 77.5% of all cases.Dysvascular disease being most common 53.4%. Followed by Trauma 45% and cancer 0.01%.Ziegler-Graham et.al <sup>(7)</sup> Injury was the most common reason for amputation (53.5%), followed by infection (23.4%), vascular disease (22.3%), andgangrene (20.9%). Even for upper limb amputation Injury was the most commonlyendorsed reason for amputation (83.2%), followed by "Other" (15.9%), infection (8.4%),gangrene (7.5%), and vascular disease (3.7%) <sup>(28)</sup>In 2013 Jammu, India trauma was the most common cause of lower limb amputation <sup>(29)</sup>motor vehicle accident account for majority (53%) of amputations <sup>(9)</sup>Sansam et al reported in 2009 that trauma accounted for the majority of amputations in India, and dysvascularitywas the predominant cause in most developed countries <sup>(30)</sup>. Sujatha also stated in her study at the Government Institute of Rehabilitation Medicine, K.K. Nagar in Chennai, that the majority of patients lose their limbs due to road accidents. Amputation due to complications resulting from diabetes was ranked second. She also compared her study to work from Punjab and Andhra Pradesh and found that the results were consistent. <sup>(31)</sup>

People whose amputation followed by trauma showed higher scores on GHQ.Anxiety and depression were found slightly higher among this group though not significant statistically. In many studies traumatic amputees had higher levels of depression and anxiety compared with those who had their amputation because of disease. Young adults with traumatic amputation may be at higher risk of major depression compared with individuals with disease-related amputations<sup>(32, 33)</sup>. Other studies examining the relationship between cause of amputation and psychosocial outcome have found no effect of amputation on psychiatric symptoms<sup>(10)</sup>, anxiety<sup>(34)</sup> and depressive symptoms<sup>(13)</sup>

In a study, however, having acute amputation aetiology independently predicted lower QoL in the psychological and environment domains, and poorer adjustment to limitations. The average intensity of amputation-related pain experienced has been related to poorer psychosocial outcomes in previous research on individuals with amputations<sup>(35,36)</sup> and although higher average pain intensity was associated with greater negative affect as well as poorer social adjustment.<sup>(37)</sup>There was no significant impact of cause of amputation on levels of distress or psychosocial adjustment<sup>(38)</sup>

## Time since amputation:

Several studies have reported no relationship between time since amputation and depressive symptoms<sup>(18)</sup> In their review of psychological adjustments to amputation <sup>(18)</sup> concluded that although depression and anxiety appear to be relatively high up to 2 years post amputation, they decline thereafter to levels comparable to those in the general population. A recent study showed rapid resolution of depressive and anxiety symptoms in individuals with lower limb amputation after a period of inpatient rehabilitation (average period 54.3 days)<sup>(39)</sup>Hadwamdeh's et al. 2008 study showed that the longer the time since the initial amputation, the less likely participants were to report depression or anxiety<sup>(16)</sup>According to a comprehensive review of the literature on psychosocial adjustment to limb loss, symptoms of anxiety and depression are quite common among persons with amputations in the first two years following this procedure, but appear to decline thereafter to levels comparable with those of the general population<sup>(18)</sup>

## Social support:

Single patients and patients with no social support had experienced more depression and anxiety<sup>(40)</sup> found that increased social isolation and lower levels of perceived social support are associated with higher levels of depressive symptomatology. Unmarried people have shown higher scores of GHQ28 total -with somatic symptoms (15.33) Anxiety symptoms (16.81) Social Dysfunction (17.90) Severe depression (17.23) In GHQ28, anxiety (F = 3.429; P = 0.037) and severe depression(F = 3.520; P = 0.034) showed significant variation.

## Level of amputation

Above elbow amputated group showed higher scores on GHQ.Within the various levels of amputation, significant variation was found GHQ (F=3.236, P=0.017).

According to Weinstein, despite the fact that above knee (AK) amputations are associated with poorer rehabilitation outcomes and higher levels of activity restriction, AK amputations have not been found to be associated with increased levels of anxiety, social discomfort, general psychiatric symptoms <sup>(10, 34)</sup> depression<sup>(41)</sup> or adjustment to amputation

Most notably, O'Toole et al found that the relationship between amputation level and psychological outcome showed that individuals with below knee (BK) amputation were more likely to be depressed than those with AK amputations.<sup>(42)</sup> In Atherten et.al study level of amputation did not have a significant impact on Anxiety, Depression or Psychosocial Adjustment.<sup>(38)</sup> This was expected as there is a large body of literature which indicates that there is no significant relationship between level of amputation and psychosocial distress.<sup>(43)</sup> Time since amputation was not associated with distress or psychosocial adjustment to amputation.<sup>(38)</sup>

## **Occupation:**

Unemployed people showed higher scores of GHQ than all other groups of occupation. Within the groups of occupation, significant variation was found in all components of GHQ F=5.76, P=0.000. In terms of the vocational factor, current amputees of this study reacted with more depression and anxiety symptoms if they were unemployed or had a low income.

## Limitations of this study

- Study done at the time of discharge from the hospital. This is very early to study psychopathology.
- Cross sectional study.
- Subjective observation.

## IV. CONCLUSIONS AND SUMMARY:

- Most of the amputees were younger males.
- Most common cause of amputation was trauma followed by vascular disease.
- Lower limb amputation, more common than amputation at the upper limb.
- The amputees have given high scores on all components of GHQ.
- GHQ28 total variation between and within the groups gave statistically significant results (p<0.05) with sex, Occupation, level of amputation.
- Gender and Level of amputation showed significant positive correlation with GHQ28 total.
- Occupation showed significant negative correlation with GHQ28 total.
- Age showed nonsignificant negative correlation with GHQ 28 total.

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	IADLES			
TABLE—1				
Sociodemographic PROFILE		PERCENTAGE		
Gender	Male	85%		
	Female	15%		
Age	18-25yrs	22.50%		
(Mean-37.48±13.328)	26-35yrs	30%		
	36-45yrs	18.80%		
	46-55yrs	17.50%		
	56-65yrs	11.30%		
Socioeconomic status				
	Lower	7.50%		
	Upper Lower	40%		
	Lower Middle	40%		
	Upper Middle	12.50%		
MARITAL STATUS				
	Unmarried	26.30%		
	Married	67.50%		
	Divorced/widowed	6.20%		
Occupation				
	Unemployed	20%		
	Unskilled	28.70%		
	Semiskilled	33.80%		
	Skilled	11.30%		
	clerk/ owner	6.30%		
Domicile				
	Urban	76.30%		
	Rural	23.80%		

TABLES

Table –2 Amputation related factors			
Level of amputation			
BELOW ELBOW	5.0		
ABOVE ELBOW	3.8		
BELOW KNEE	57.5		
ABOVE KNEE	27.5		
вотн	6.3		
Side of limb			
BILATERAL	11.3		
LEFT	42.5		
RIGHT	46.3		

Aetiology	
INFECTED	3.8
TRAUMATIC	77.5
VASCULAR	18.8

Table –3 The variation of GHQ total between and within the groups						
		Sum of Squares	df	Mean Square	F	Sig.
AGE	Between Groups	66.678	21	3.175	1.361	.177
	Within Groups	135.272	58	2.332		
	Total	201.950	79			
SOCIOECONOMICSTATUS	Between Groups	10.544	21	.502	.710	.805
	Within Groups	41.006	58	.707		
	Total	51.550	79			
MARITALSTATUS	Between Groups	4.761	21	.227	.729	.786
	Within Groups	18.039	58	.311		
	Total	22.800	79			
OCUPATION	Between Groups	30.703	21	1.462	1.227	.264
	Within Groups	69.097	58	1.191		
	Total	99.800	79			
DOMICILE	Between Groups	2.079	21	.099	.463	.973
	Within Groups	12.408	58	.214		
	Total	14.487	79			
DIAGNOSIS	Between Groups	22.231	2	11.115	.365	.696
	Within Groups	2346.519	77	30.474		
	Total	2368.750	79			
LEVEL OF AMPUTATION	Between Groups	348.612	4	87.153	3.236	.017
	Within Groups	2020.138	75	26.935		
	Total	2368.750	79			
SIDE OF LIMB	Between Groups	161.339	2	80.669	2.814	.066
	Within Groups	2207.411	77	28.668		
	Total	2368.750	79			

Table –4 Correlation of Sociodemographi	c variables and amputation factors with GHQ
total scores	
	Correlation coefficient
Age (pearson correlation)	182
Gender spearman's rho	.462
Socioeconomicstatus spearman's rho	.177
Maritalstatus spearman's rho	168
Occupation spearman's rho	256
Domicile spearman's rho	081
Diagnosis spearman's rho	055
Limb spearman's rho	.159
Side of limb spearman's rho	.163
Level of amputation spearman's rho	.455