

Frequency and socio-demographic predictors of clinical depression in combat amputees at a military rehabilitation setup

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Objective: To assess the frequency and socio-demographic predictors of clinical depression among combat amputees of Pakistan Armed Forces presenting at a military rehabilitation setup.

Methodology: Through convenience sampling, 63 male lower limb amputees were recruited from clinics of Armed Forces Institute of Rehabilitation Medicine Rawalpindi, Pakistan from April 2011 to May 2012. A questionnaire was used for information about socio-demographic variables and characteristics of amputation. A single item stem measured social support and depression magnitude was assessed by the Beck Depression Inventory- Urdu version.

Results: Mean age was 29 ± 7 years. Majority 42 (66.7%) were in age group <30 years. Most of the patients were married 61.9% ($n=39$) and did not have any child 61.9% ($n=39$). Majority 57 (90.5%) had a below knee amputation due to traumatic etiology and reported within three months post-amputation (76.2%). Mean depression score was

18 ± 10 . Twelve (19%) patients had no depression, 33 (52.4%) had mild, 6 (9.5%) had moderate and 12 (19%) had severe depression. A negative correlation was found between the depression scores and social support score ($r = -0.71$). The depression scores were significantly higher in amputees who were in age group <30 years, unmarried or had no children, in amputees with below-knee amputation due to traumatic etiology who reported within three months of amputation.

Conclusion: There is a high incidence of depression in combat amputees of Pakistan Armed Forces. The depression scores are negatively correlated to the social support available and age and are higher in patients who are young, unmarried or had no children, who have a traumatic etiology of their amputation and a below- knee amputation. The scores are also high in first three months post amputation. (Rawal Med J 2014;39: 167-170).

Key words: Amputees, depression, Beck Depression Inventory-Urdu version.

INTRODUCTION

Major limb amputation influences multiple aspects of an individual's life: his body image, mobility, self-care activities, psychosocial health, vocational and avocational opportunities. The emotional impact of amputation is always devastating and is frequently underestimated. The multidimensional aspects of psychological problems may manifest as heightened anxiety, post-traumatic stress disorder, depressive reactions, unhappiness, body image irritations and persistent pain.¹ The adaptation mechanism is highly influenced by quality of treatment, coping tactics, societal support, attitudinal variables along with litigation reasons.

The incidence of clinical depression in amputees is estimated to be 21% to 35%,^{2,3} increasing with time.⁴ Risk factors include low income, comorbid

conditions and presence of phantom limb pain and back pain.² To expedite smooth development of adjustment and outcome, the rehabilitation programs must be able to efficiently address psychological concerns by giving encouragement about prognosis, providing educational materials and incorporating the patient's specific goals into the rehabilitation plan. The number of amputees has massively increased in Pakistan over years due to blasts and bullet injuries as a result of war against terrorism. The aim of this study was to estimate the occurrence of degree of depression among combat amputees of Pakistan Armed Forces and correlate it with different socio-demographic factors.

METHODOLOGY

The study included 63 amputees of male gender

presenting at the Armed Forces Institute of Rehabilitation Medicine (AFIRM) Rawalpindi from April 2011 to May 2012. They were selected through convenience sampling. We included lower limb amputees and excluded those taking drugs that might cause anxiety or depression and those had past or family history of a psychiatric disorder. An Informed consent was taken from all participants.

A questionnaire that comprised of a set of questions asking concise information regarding socio-demographic variables i.e. age, marital status and number of children along with clinical data (cause of amputation, level of amputation i.e. above or below knee and time in months since amputation) was used. To measure social support, they were asked "how many people near you can be readily counted on for help in times of difficulty?" Response choices were "0-10" in a 10-Point scale. Replies of 0 or 1 signified negative social support and 2 or more pointed towards positive social support.⁵

Patients were administered Beck Depression Inventory-Urdu version (BDI-U); a modified version of BDI.⁶ The answers were rated on a four-point (0-3) scale. The credible score-range for BDIU was 0 to 63. A score of 0-9 on complete test was considered normal without depression, a score of 10-19: Mild depression, a count of 20-29: Moderate depression and a tally of 30-63: Severe depression.

Data were analyzed using SPSS version 17. Independent sample *t*-test was used to compare depression scores among patients with contrasting categorical factors. Pearson's correlation analysis with two-tailed significance was computed to correlate BDI-U score with social support scores. A $p < 0.05$ was considered significant.

RESULTS

Mean age of participants was 29 ± 7 years. Forty-two (66.7%) subjects were in first group (age <30 years) and 21 (33.3%) were in second group (age ≥ 30 years). 39 (61.9%) were married and had no children. Among those who had children, the average number was 3 ± 2 . Fifty-seven (90.5%) persons had amputation following a trauma while six (9.5%) had suffered from a non-traumatic illness. The average time of interview since

amputation was 8 ± 5 months. Forty-eight (76.2%) patients reported within three months and fifteen (23.8%) at or after three months of amputation.

Table 1. Comparison of mean Beck Depression Inventory (BDI-U) scores among different categorical variables.

Variables	Groups	Mean BDI-U Score	p-value (2 tailed)
Age Group	Age < 30 years	22.7%	0.001
	Age ≥ 30 years	16%	
Marital Status	Married	12.6%	0.048
	Unmarried	24.6%	
Status of Children	No Child	14.6%	0.001
	Had Children	17.3%	
Cause of Amputation	Trauma	24.6%	0.001
	Disease	17.3%	
Level of lower limb amputation	Above knee amputation	18.2%	0.001
	Below Knee amputation	20.4%	
Time since amputation	< 3 months	22.9%	0.005
	≥ 3 months	16.2%	

The mean BDI-U score was 18 ± 10 . Twelve (19%) patients had no depression, 33 (52.4%) had mild depression, 6 (9.5%) had moderate depression and 12 (19%) had severe depression. A negative correlation was found between the BDI-U scores and the social support score with a correlation coefficient ($r = -0.71$).

The depression scores were significantly higher in age group <30 years (22.7%) versus age group ≥ 30 years (16%), unmarried (24.6%) versus married (12.6%) and in amputees who did not have children (17.3%) versus those who had (14.6%) with *p*-values 0.001, 0.001 and 0.001, respectively (Table 1). Amputees who had a traumatic amputation and reported within three months of injury had mean BDI-U scores significantly greater than those who had amputation due to non-traumatic causes and reported after three months of injury (24.6% versus 17.3% and 22.6% versus 16.2%, respectively) with *p*-values 0.001 and 0.005, respectively (Table 1). Amputees having below knee amputations had scores (20.4%) significantly higher than those

having above knee amputations (18.2%) with p -value 0.005 (Table 1).

DISCUSSION

A series of complex psychological responses usually come up as the result of amputation. Thorough evaluation of psychiatric and emotional sequelae of amputation helps in improving psychological intervention after amputation.^{7,8} The results of our study emphasized the 89% prevalence of psychiatric disability and depression in amputees at time of presentation for prosthetic rehabilitation, nevertheless, majority (52.4%) had mild depression. Nunes et al reported that 64.3% patients had mental disorders when evaluated through the Self Reporting Questionnaire (SRQ-20).⁹ Platisa et al found that 55% of lower limb amputees presented with maladaptive responses to their disability, including adjustment disorder and dysthymia.⁸

A study from India, reported that 63% of the amputee were suffering from major depressive disorder.¹⁰ Shukla et al observed the prevalence to be 70.2%.⁷ In a recent report concluded that 67% of all amputees did not cope with their amputation and became depressive while 15% developed symptoms of anxiety.¹¹ A Nigerian study concluded that anxiety and depressive symptoms were high among amputees (64.3% and 59.5%, respectively).¹² On the contrary, a study among Jordanian lower limb amputees found a prevalence of 20%.¹³

Our study also showed the importance of socio-demographic factors in psychological adjustment to amputation. Firstly, a high prevalence of depression was observed with withdrawn social support. Unmarried patients and those married with no kids were more prone to develop depressive tendencies. It has been reported that single patients and patients with no social support had more depression and anxiety.¹³ Similarly, increased social isolation and lower levels of perceived social support were associated with higher levels of depressive symptoms.¹³⁻¹⁴ Amputees who were married had a lower rate of mental health problems.^{9,12}

We found that young combat soldiers with amputation were significantly more inclined to develop psychotic illness compared to older people.

This could be because the younger patients have more ambitions to be fulfilled in life. A negative relationship of age with development of depression and anxiety symptoms has been reported.¹⁵ Nunes et al, however, noted a positive relationship between advanced age and psychological disorders.⁹ Another study found no significant difference in major depressive disorder post-amputation with respect to age.¹⁶

We noted that traumatic amputees had higher levels of depression in contrast with those who had their amputation because of disease. Similar findings have been reported by others.^{13,17} Kohl added that the individuals affected by the traumatic loss of a limb had a need to confront a redefined body and self as well as a fresh reality.¹⁸ Other studies have found no effect of amputation on depressive symptoms.²⁹⁻²⁰

Some studies have accounted no association between time since amputation and depressive symptoms¹⁹ or psychiatric symptoms.¹⁴ However, our findings suggested that soldiers who recently had faced tragic episode of amputation were more likely to have depression. Longer the time period since amputation, the lesser is the occurrence of psychological deviations.¹³

We found that below knee (BK) amputees had higher potential of depression as compared to above knee (AK) amputees. Similar findings have reported by other investigators.^{14,21} It has been postulated that since BK amputees were less severely immobilized than those with AK amputations, they might be in an improved position to weigh their functional abilities.²²

Our study has certain limitations. First, it had a small sample based on amputees belonging to Armed Forces of Pakistan only. Secondly, it was descriptive; consequently the subjects were not followed longitudinally. Thirdly, we did not include co-morbidities into consideration as many subjects could have associated illnesses which might have contributed to their symptoms.

CONCLUSION

There was a high incidence of depression in combat amputees of Pakistan Armed Forces. The depression scores were negatively correlated to the social

support and age and were higher in patients who were young, unmarried or had no kids, who had a traumatic etiology of their amputation and a BK level of lower limb amputation. The scores were also high in first three months post amputation.

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REFERENCES

- Wald J, Alvaro R. Psychological factors in work-related amputation: considerations for rehabilitation counselors. *J Rehabil* 2004;70:6-15.
- Darnall BD, Ephraim P, Wegener ST, Dillingham T, Pezzin L, Rossbach P, et al. Depressive symptoms and mental health service utilization among persons with limb loss: results of a national survey. *Arch Phys Med Rehabil* 2005;86:650-8.
- Rybarczyk B, Nicholas J, Nyenhuis D. Coping with a leg amputation: Integrating research and clinical practice. *Rehabil Psychol* 1997;42:241.
- Frank RG, Kashani JH, Kashani SR, Wonderlich SA, Umlauf RL, Ashkanazi GS. Psychological response to amputation as a function of age and time since amputation. *Br J Psychiatry* 1984;144:493-7.
- Blake RL, Jr., McKay DA. A single-item measure of social supports as a predictor of morbidity. *J Fam Pract* 1986;22:82-4.
- Siddiqui S, Shah SAA. Siddiqui-Shah Depression Scale (SSDS): Development and Validation. *Psychol Develop Soc* 1997;9:245-62.
- Shukla GD, Sahu SC, Tripathi RP, Gupta DK. Phantom limb: a phenomenological study. *Br J Psychiatry* 1982;141:54-8.
- Platasa N, Devecerski G. Types of psychological reactions in patients with lower-extremity amputations. *Med Pregl* 2006;59:149-54.
- Nunes MA, de Barros N, Jr., Miranda F, Jr., Baptista-Silva JC. Common mental disorders in patients undergoing lower limb amputation: a population-based sample. *World J Surg* 2012; 36:1011-5.
- Mansoor I, Margoob MA, Masoodi N, Mushtaq H, Younis T, Hussain A, et al. Prevalence of psychiatric co morbidities in traumatic amputees-a cross sectional study from Kashmir (Indian Part). *Br J Med Practitioners* 2010;3:a347.
- Schulz M. Coping psychologically with amputation. *Vasa* 2009;38 Suppl 74:72-4.
- Mosaku KS, Akinyoola AL, Fatoye FO, Adegbehingbe OO. Psychological reactions to amputation in a sample of Nigerian amputees. *Gen Hosp Psychiatry* 2009;31:20-4.
- Hawamdeh ZM, Othman YS, Ibrahim AI. Assessment of anxiety and depression after lower limb amputation in Jordanian patients. *Neuropsychiatr Dis Treat* 2008;4:627-33.
- Horgan O, MacLachlan M. Psychosocial adjustment to lower-limb amputation: a review. *Disabil Rehabil* 2004;26:837-50.
- Rybarczyk B, Nyenhuis DL, Nicholas JJ, Cash SM, Kaiser J. Body image, perceived social stigma, and the prediction of psychosocial adjustment to leg amputation. *Rehabil Psychol* 1995;40:95.
- Karira A, Shah N, Joshi D, Goregaonkar A. Psychiatric disorders in traumatic amputation. *Private Psychiatry* 2011;24:48.
- Livneh H, Antonak RF, Gerhardt J. Psychosocial adaptation to amputation: the role of sociodemographic variables, disability-related factors and coping strategies. *Int J Rehabil Res* 1999;22:21-31.
- Kohl SJ. In: Emotional Coping with Amputation in Rehabilitation Psychology: A Comprehensive Textbook. Krueger DW, editor. Rockville, MD: Aspen; 1984. p. 27382.
- Rybarczyk BD, Nyenhuis DL, Nicholas JJ, Schulz R, Alioto RJ, Blair C. Social discomfort and depression in a sample of adults with leg amputations. *Arch Phys Med Rehabil* 1992;73:1169-73.
- Williamson GM, Walters AS. Perceived impact of limb amputation on sexual activity: A study of adult amputees. *J Sex Res* 1996;33:221-30.
- Weinstein CL. Assertiveness, anxiety, and interpersonal discomfort among amputees: implications for assertiveness training. *Arch Phys Med Rehabil* 1985;66:687-9.
- O'Toole DM, Goldberg RT, Ryan B. Functional changes in vascular amputee patients: evaluation by Barthel Index, PULSES profile and ESCROW scale. *Arch Phys Med Rehabil* 1985;66:508-11.